

UNIVERSIDAD COMPLUTENSE DE MADRID
INSTITUTO UNIVERSITARIO DE INVESTIGACIONES FEMINISTAS
FACULTAD DE CIENCIAS POLÍTICAS Y SOCIOLOGÍA



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UNIVERSIDAD COMPLUTENSE DE MADRID

Instituto de
Investigaciones Feministas



DIGITAL PATRIARCHY: FEMALE TALENT RETENTION IN THE ICT SECTOR

Patriarcado digital:
Retención del talento
femenino en el sector TIC

Doctoral student:
Laura Martínez Álvaro

Thesis director:
Dr. Cecilia Castaño Collado

Madrid 2019

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TESIS DOCTORAL

Digital patriarchy: female talent retention in the ICT sector

Patriarcado digital: retención del talento femenino en el sector TIC

MEMORIA PARA OPTAR AL GRADO DE DOCTOR

PRESENTADA POR

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MADRID

**DECLARACIÓN DE AUTORÍA Y ORIGINALIDAD DE LA TESIS
PRESENTADA PARA OBTENER EL TÍTULO DE DOCTOR**

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DIGITAL PATRIARCHY: FEMALE TALENT RETENTION IN THE ICT SECTOR

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In December 2017, I gave a conference on 'The IT Gender Gap' based on my research theoretical framework in the Computer Science Faculty of Universidad Complutense of Madrid. A couple of days later, I received Luisa's email:

Good afternoon Laura,

My teacher has given me your email so I can talk with you about the conference.

Actually, I thought it was great. I'm working in a tech consultancy and that's why I had to leave before the conference ended, although I think I would not have had time to ask you everything I wanted. Actually, I think I would need one or two coffees.

What I liked most was the fact that I can finally name many situations in which I have been involved at some time or that I have heard from other women. In addition, I could see and verify that it is not due to a head full of feathers or the last new fashion, they are VERY real.

I always ask my mother about situations in which she has been involved and about how she learned from them so that I do not make the same mistakes. At the end of the day, there is still a big gap, not only in salary, but in day to day practices; like when you feel that you are interrupting an important conversation of your teammates (where incidentally (?) none is a woman). Personally, I aspire to reach very high in my professional career. However, in the short time I have been working, I have already felt uncomfortable for being a woman.

Has it ever happened to you that you are in a meeting and you feel that they don't listen to you, just interrupt you, or feel that you are being continually judged by every word you say? While your partner can act silly, and everyone laughs, and if you act the same way you're already labelled as "dumb" or similar... Have you ever heard comments about the new intern? That she is very cute, that before there were no girls like that (GIRLS!). When, of course, there is no comments about the male interns. And my favourite, which I experience quite often, and I find it very funny: When they do not know how to deal with women. They just do not know how to talk to them, because they are not their 'Sunday football team mates' (to say the least) and neither their superiors. When it seems like we are in a bubble. When they do not know how to greet us or whether they should invite you for a beer later.

There are many similar situations in which me, or my mother, or someone we know, has been involved and we end up taking them with humour. However, I wonder how can I advance in my career and not worry about getting pregnant by 35...

Little by little I will continue to fight to make people see that we have interesting and important things to say in this sector; that we are more than a pretty face, that we are the same as them at work and that we can also like football and beer and go shopping and watch "Sex and the city".

You have inspired me to continue fighting for gender equality in the workplace and for myself and my professional career. I hope I have not stolen too much time and thank you for coming to our university to show us the reality.

Best regards,

Luisa Q.

I would like to dedicate my thesis to Luisa and every woman that has experienced exclusionary practices in tech companies, whether they left or remained.

But, as it turns out, women have not merely had a minor part to play in the emergence of the digital machines. When computers were vast systems of transistors and valves which needed to be coaxed into action, it was women who turned them on. They have not made some trifling contribution to an otherwise man-made tale: when computers became the miniaturized circuits of silicon chips, it was women who assembled them. Theirs is not a subsidiary role which needs to be rescued for posterity, a small supplement whose inclusion would set the existing records straight: when computers were virtually real machines, women wrote the software on which they ran. And when computer was a term applied to flesh and blood workers, the bodies which composed them were female. Hardware, software, wetware... before their beginnings and beyond their ends, women have been simulators, assemblers, and programmers of the digital machines.

Zeros and Ones: Digital Women and the New Techno-culture

Sadie Plant, 1997.

There were a couple of things that led to 'Men and Women of the Corporation'. First of all, almost as soon as I began working in a faculty position in the late 1960s, I wanted to learn about consulting, and to find out how things worked inside companies. I wanted to learn how to have an impact and shape decisions. I had an opportunity to start doing some projects in a large corporation that became the one I wrote about for the book. Simultaneously, the question of women in the workplace was rising at that time in academia and society. I was uncomfortable with many of the assumptions being made, because they had a blame-the-victim quality that I didn't like and I didn't identify with. I was trying to speak out about that, and as a sociologist I saw lots of structural issues that weren't being acknowledged.

Rosabeth M. Kanter, 2017.

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To the talented women that accepted to participate in the research interviews and dedicated their time and energy to share with me their career perceptions, experiences and expectations as ICT women workers.

To Paola, I think one word is enough to express my gratitude to her: *guanxi*.

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ABSTRACT

In an increasingly technological society, women remain underrepresented in the ICT sector and, especially, in decision-making positions. The technological gender gap has important social consequences from the point of view of future employment and the design of an androcentric society without a gender perspective. The research focuses on identifying the underlying barriers to female presence in technological corporations through the analysis of the existing theoretical framework and, especially, from the point of view of Rosabeth M. Kanter, from the theory of organizational behaviour perspective, and Judy Wajcman, from the feminist theory perspective. The thesis is complemented by a field work, where results are contextualized to the Spanish ICT sector through a qualitative analysis based on interviews with a sample of ICT women workers. The study holds a feminist methodology research perspective, that partially differs from traditional research, acknowledging unique contributions to knowledge production of women experiences, power relations in research, own interest and experiences on the topic and joint elaboration of new narratives and relationships. As conclusion, we observe a patriarchal gendered digital workplace where gender regimes, gender binary, masculine hegemony and gendered cultural roles persist and are reinforced through intangible and tangible traits. These traits, in the form of exclusionary practices, have a cumulative effect on women workers that will result in the individual management of 'fight, freeze or flight' situations impacting female retention and career advancement. A positive transformation of the workplace will require a feminist leadership in order to make visible and prioritize gender inequities and dismantle patriarchy.

RESUMEN

En una sociedad cada vez más tecnológica, las mujeres continúan infrarrepresentadas en el sector TIC y, muy especialmente, en los puestos de toma de decisión. La brecha de género tecnológico tiene importantes consecuencias sociales desde el punto de vista del empleo futuro y del diseño de una sociedad androcéntrica sin perspectiva de género. La investigación se centra en identificar las barreras de carácter más sutil a la presencia femenina en los entornos tecnológicos corporativos a través del análisis del marco teórico existente y, especialmente, desde el punto de vista de las autoras Rosabeth M. Kanter, desde la teoría de comportamiento organizacional, y Judy Wajcman, desde la teoría feminista. El estudio se complementa con un análisis cualitativo basado en entrevistas con mujeres del sector TIC en España. La investigación aporta una perspectiva metodológica feminista de investigación, que difiere parcialmente de la investigación tradicional, y que reconoce las contribuciones únicas de las experiencias de las mujeres a la producción de conocimiento, las relaciones de poder en la investigación, el interés propio y las experiencias sobre el tema investigado y la elaboración conjunta de nuevas narrativas. Como conclusión, observamos la digitalización del patriarcado en el lugar de trabajo, un sistema hegemónico masculino, basado en regímenes binarios de género, donde los roles culturales de género persisten y se refuerzan a través de factores intangibles y tangibles. Estos factores, en forma de prácticas de exclusión, tienen un efecto acumulativo en las trabajadoras que resulta en situaciones de "lucha, parálisis o huida", que son gestionadas a nivel individual y que impactan en la retención femenina y el avance profesional. Una transformación positiva del lugar de trabajo requerirá un liderazgo feminista para hacer visibles y priorizar las desigualdades de género y desmantelar el patriarcado.

1 INTRODUCTION

Is it possible today, in the 21st century, to maintain the female absence of the scientific-technological field, as a general topic, whether referring to discrimination or alienation? (Rubio, 2006, p.11)

The purpose of my dissertation is to identify the underlying barriers for women's advancement in the Information, Communications and Technology (ICT) workplace and to explore the personal experiences, perceptions and expectations of women ICT graduates working in technological corporations based in Spain. I have chosen this topic due to the persistent lack of women workers in the ICT sector. Women are shockingly underrepresented, or men overrepresented, in technological organizations and, most importantly, play a limited role in decision-making positions (e.g. Castaño, 2011; Corbett & Hill, 2015; EC, 2013, 2018). According to the European Commission report on women active in the ICT sector, only 30 per cent of the around 7 million people working in ICT are women and only 19.2 per cent of ICT-sector workers have female bosses, compared to 45.2 per cent of non-ICT workers (EC, 2013). ICT is a fairly new sector, open to innovation and with flat tech organizations that recognize the value of talent and working relationships over physical strength or old hierarchies, yet it fails to attract and retain female talent. Women graduate in technology or related fields in smaller proportions than men, they also join in smaller proportions than men ICT corporations and leave corporations at a faster rate than men (Corbett & Hill, 2015).

Technology has always been part of human life to the extent that the level of technology innovation is often taken as the index of a society's advancement. Throughout history, technological advances have had consequences for humankind, direct and

indirect repercussions in the political, economic and social spheres and its overall impact on gender equality (Bijker et al., 1989). These socio-technological waves have brought hope, euphoria but also fear and distrust; however, today's convergence of digital, physical and biological technologies in the so-called Fourth Industrial Revolution (Schwab, 2017), with the development of Big Data (McAfee & Brynjolfsson, 2012), Artificial Intelligence (Russell & Norvig, 2010) and the Internet of Everything (Miraz et al., 2015), there is reason to be slightly more cautious in terms of what sorts of takeovers will or will not happen and the subtle differences between freedom and control. It is important to examine the effects of technology on society but also to the effects of society on technology.

The underrepresentation of women workers in the tech sector illustrates an important social problem that affects in different ways our society and its future. On the one hand, it establishes an androcentric way of identifying, prioritizing and solving issues in our society without a gender perspective which deprives of the vision, priorities, contributions and opinions of half of the population (Harding, 1991; Schiebinger, 2007; Castaño & Webster, 2014) that serve to promote positive social outcomes and greater ethical accountability (Eagly et al., 2014). It implies that the only activities that shape social life are those that men have considered relevant; it leaves out crucial issues, such as the exercise of motherhood that shapes the economy and many public services. Even more so, 'living in a society co-produced with technology, to be in command of the very latest technology signifies being involved in directing the future' (Wajcman, 1998, p.110). This is a dilemma as women are not recognized as technology creators in Western societies and both women and men's experiences should guide the direction of technical innovation. Technology will be a decisive enabler to solve crucial problems of humanity

and therefore there is an urge to address adequately and accordingly the needs of its population considering both women and men; women must participate equally in the ICT field to make sure their specific needs are considered, to gain autonomy and avoid technological dependence on men (Wajcman, 2004; Castaño, 2010).

On the other hand, as it shapes the future of employment; technology is and will be, to a greater extent, an important employment engine. To increase the representation of women in ICT is also to increase a skilled workforce that will be required by the world of employment (Barker & Aspray, 2006). Technology-related jobs are predicted to grow dramatically over the next decade (WEF, 2017), in fact, the United States will need more than 1.7 million additional engineers and computing professionals to fulfil demand (Corbett & Hill, 2015). Adding to an increase in the demand for more technological jobs, mainly supplied by men, the tech gender gap could potentially broaden with the automatization of clerical work through the use of Artificial Intelligence and the rise of robots that will replace administrative tasks, traditionally held by women workers (WEF, 2017). Although the present research highlights the social need for women's participation in technology and the many challenges inherent in gender integration of groups and organizations. It is worth mentioning that, from a business perspective, there are several studies that show empirical evidence of how a more gender balanced organization is associated with improved financial value and better business results (Carter et al., 2003; Catalyst, 2004; Krishnan & Park, 2005; Desvaux et al., 2007; McKinsey, 2011; Castaño and Webster, 2014), collective intelligence increases (Woolley et al., 2010) and has a greater capacity for innovation and creativity (Tyson, 2003). In fact, companies with more women taking on leadership roles find an increase in 'innovation intensity' (Dezso & Ross, 2012). In addition, there is a positive correlation between talent competitiveness

and the strength of a country's economy, according to INSEAD's research (Lanvin & Evans, 2017).

My thesis draws theoretically from previous research pioneered by Rosabeth Moss Kanter in the late 1970s and continued by Judy Wajcman in the late 1990s, both sociologists analyzed the dynamics of women and men in male dominated corporations. These scholars have a common understanding that it is more useful to focus on what men and women workers share rather than their differences; although both of their approaches acknowledge the debate around gender differences in management (person-centered versus situation centered) as well as the impact of women's reproductive role in the workplace (reproductive role versus productive role) they are not the focus of my study. Kanter (1977) brings an organizational perspective based on the importance of the job as a 'human shaper' regardless of being male or female, and Wajcman (1998) brings a feminist perspective underlying the shadows of patriarchy in the male-dominated workplace dynamics. Their findings do not focus on individuals but rather on the structures of the organization itself. My research is informed by a theoretical framework based on thematic analysis of previous findings by Kanter (1977), Wajcman (1998) and other researchers in the field, that is later used in the qualitative methods based on individual interviews with women workers in tech corporations. Interviews were focused on women's subjective experiences, perceptions and expectations with a feminist approach, recognizing the importance of women's experiences as a resource for social analysis and acknowledging the power relations that exist in any investigation such as the relation between the researcher and the interviewees, the participation of the interviewees in the construction of the narratives and aiming for a mutual transformation towards activism (Fee, 1981; Harding, 1984; Haraway, 1988; Gandarias, 2014).

1.1 Research topic, objectives and research question

My thesis analyses the contrast between the equal opportunity approach promoted by ICT corporations and the social practices that make effective equality difficult amongst men and women workers. The main research goal is focused on determining which underlying factors slow down the representation of women in Spain's ICT sector, as well as their participation in decision making processes, assuming that a more equal representation will redefine society's priorities and needs in a more balanced way.

My thesis focuses on the following lines of analysis:

Firstly, it explores the relation between gender and technology from a feminist theoretical perspective. The continuities and discontinuities of the existing feminist theories on the topic, and the feminist debates around Science and Technology Studies (STS). These are examples of the type of questions that emerged during the last century: Are women naturally attracted or adverse to technology? Will new technologies emancipate or suppress women rights? Is technology gender neutral or is it socially constructed? Are technology and society mutually shaped? The cultural association of technology with masculinity is undeniable, though this association is real, it can be understood and constructed in different ways. Feminist scholars of STS assumed a mutual shaping relationship between gender and technology as source and consequence, and identified ways in which gender-technology relations were embedded not only in gender structures but also in gender symbols and identities (Wajcman, 2001; Faulkner, 2001). Understanding the debate and the evolution of different feminist perspectives about the relationship between gender and technology is key to understand that feminist politics, and not technology per se, is the key to gender equality.

Secondly, and in order to complement the previous feminist theoretical perspective with a practical insight, I question whether women have contributed with their achievements to the history of technology and acknowledge their role as technology creators. Why are men recognized as the only technology creators in Western cultures? Are the patent archives a valuable source of information to understand women's contributions? How has the absence of women impacted in the creation of artefacts? Are technologies perceived as second-class if they contribute to improve domestic life? Why are traditional female healers and their knowledge of herbs seen as mysterious, even magical, and not scientific? Could the complexity of female textile spinning be related to the first perforated cards in computing? In this context, it is important to highlight recurrent patriarchal strategies to maintain traditional gender hierarchies and power structures in technology, such as the 'fictitious' male monopolization of technology, ignoring or belittling women's contributions to the field or the paradigm of 'male technologies takeovers'.

Thirdly, I analyse women's presence and relationship with corporations' over time (e.g. position, roles, gendered power relations). It provides previous research regarding the workplace dynamics in male-dominated corporations from the late 1880's to our days. It explores women's roles and how they have transitioned in the corporate world, mainly based on organizational behaviour and managerial literature: from wives, to clerks, to secretaries, to tokens, to managers, to executives, to CEO's. It is important to contextualize women's first incorporation to the corporate world in order to understand that job conditions have been constructed around men's skills and patterns of work. Is there a connection between social patterns analysed in technology and managerialism? Are women's role in corporations a product of economic fluctuations? Have the 'female

traditional characteristics' discourse changed to respond to labour market needs? As we will see, corporations reflect a set of gendered assumptions that construct the office as a hegemonically masculine political actor and take shape within organizations in the form of a masculinist managerialism that remains today and needs to be dismantled. The aim is not to review the existing gendered theories of organizations, which try to create the conditions for a reorganization of organizational theories to account for the persistence of male advantage in male organizations, but to understand how and in what terms were women introduced in a dominantly male workplace.

Fourthly, it summarizes and categorizes the differing underlying barriers to women's career advancement and examines impediments to women's success in male-dominated corporations, particularly the ICT sector based on the participants' perceptions and accounts. It is mainly based on two masterpieces of feminist analysis acknowledged by feminist scholars: 'Men and women of the corporation' (Kanter, 1977) and 'Managing like a Man' (Wajcman, 1998), the former has more than 17,645 citations¹, and is recognized as a pioneer in the study of the gender dynamics that take place in male-dominated workplaces, and Wajcman (1998) has done a laudable research on the field taking into account tech organizations and STS with a feminist approach. Both research achievements have contributed significantly to academia from a qualitative and quantitative perspective, they have based their research work in thorough quantitative analyses of women and men workers, providing a comparative insight of their categories, age, length of service, job contract, status, etc. Kanter and Wajcman's body of work has

¹ Data from Google Scholar 11/02/2019 (<https://scholar.google.es/>)

strongly complemented the quantitative perspective with surveys and semi-structured interviews based on experiences, perceptions and expectations of men and women of the corporations. The literature review includes recent research on the topic by other relevant scholars and their findings specifically in the ICT field (Faulkner 2001, Rubio, 2006; Powell et al., 2006; Schiebinger, 2007; Castaño, 2011; Webster, 2014; Eagly, 2014; Corbett & Hill, 2015). As a result of this deepening in the literature, such theoretical framework provides the subtle, underlying barriers identified by scholars in the last decades which informed my research rationale. Each barrier is classified as a research theme and is extensively explored: Opportunity and power management; Gender stereotypes; Tokenism; Brotherhood; Sex and work; Corporate *manstreaming* and Organizational culture and gender identities. In this sense, thematic coding was selective and iterative based on knowledge of the research literature and the research question.

Lastly, my qualitative analysis explores the experiences, perceptions and expectations of women practicing managers in tech corporations located in Spain. Women's workplace experiences are examined at different stages and ages, from the first contact with a male-dominated environment as tech related students to the transitional process of becoming ICT professionals. The semi-structured interviews were aimed at covering pre-selected themes related to the research question under a feminist approach to them, the interview guide fundamentally covered questions related to how do ICT women workers experience their career advancement? Do they perceive the work environment? Does their discourse relate to the research themes identified? Why so few? In the past, much effort has been put on quantitative research methods and empirical evidence to study this topic. My intention is to have a deeper and richer understanding of

individual experiences of ICT women workers were qualitative data can yield information beyond statistics and data alone.

1.1.1 Research outline

I have structured my thesis in 10 chapters along with the main lines of analysis described earlier in this chapter (*Figure 1: Structure of the research.*

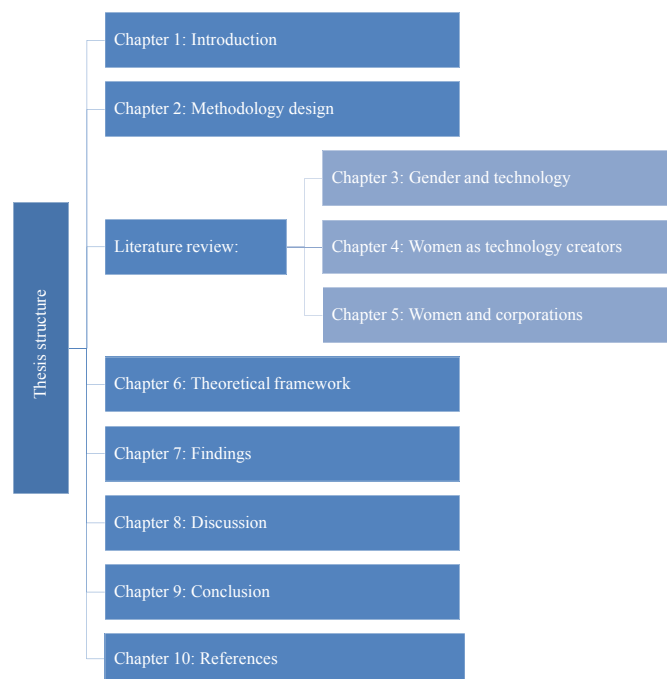


Figure 1: Structure of the research.

1.1.2 Binding constraints

As stated earlier, it is important to clarify that my research has obviated two important debates concerning the underrepresentation of women in ICT companies, namely: differences in gender management styles and women's reproductive role.

A binding constraint is a constraint whose value satisfies the optimal solution and that any changes in its value changes the optimal solution. This could be the definition for the following reservations to the research: gender differences in management and productive/reproductive roles.

1.1.2.1 Gender differences in management: Person-centered vs situation centered

Literature on women in management has considered both person-centered (e.g. personality, skills) and situation-centered (e.g. different rewards and opportunities, token status) variables in explaining the scarce number of women in decision taking positions. Eagly & Johnson (1990) underline the fact that authors in these two fields have based their conclusions on different kinds of data: the first, mostly explored their own experience in organizations as well as on their impressions from interviews with practicing managers; the second, typically based their conclusions on more formal studies of managerial behaviour in which data were gathered via questionnaires or behavioural observations and then analysed quantitatively. Early writers, who centered in both variables (Hennig & Jadim, 1977; Riger and Gilligan, 1980), considered that situation-centered variables were more important than person-centered variables since almost all evidence shows little or no difference between the supposed gender differences in

managerial behaviour, managerial effectiveness and the personal determinants of both behaviour and effectiveness. (Powell, 1990; Liff, 1997; Vinkenburg, 1997). Rosabeth Moss Kanter (1977) argues, from the organizational perspective, that organizational roles override gender roles when it comes to management or leadership positions. Dobbins and Platz (1986) completed a meta-analysis of 17 studies conducted between 1970 and 1981 examining gender differences in leadership. They concluded that both men and women have the ability for leadership, that their subordinates are equally satisfied, and that the results are still unclear as to whether sex is a major influence on leadership behaviour. There was little evidence for the existence of a distinctive feminine leadership as an 'empirical phenomenon' (Alvesson & Billing, 1997). As an example, and like I will analyse later on, Judy Wajcman (1998) interviewed male and female managers from five high-tech Anglo-Saxon firms on management styles. Interviewees agreed that management styles were different depending on the sex but both, women and men, described remarkably similarly their own management styles (Wajcman, 1998):

There is as yet no research evidence that makes a case for sex differences in either leadership aptitude or style (Kanter, 1977, p.199)

A consensus was constructed amongst social scientists at the time when comparing male and female leadership styles as collected by Eagly & Johnson's research (1990)

The preponderance of available evidence is that no consistently clear pattern of differences can be discerned in the supervisory style of female as compared to male leaders (Bass, 1981, p.499)

Contrary to notions about sex specialization in leadership styles, women leaders appear to behave in similar fashion to their male colleagues (Nieva & Gutek, 1981, p.91)

In general, comparative research indicates that there are few differences in the leadership styles of female and male designated leaders (Bartol & Martin, 1986, p.278)

Recent studies, continue to report no significant differences between female and male leaderships; female managers generally do not have more interpersonal skills than male managers, however, this tendency emerged, to some extent, in less male-dominated roles, where there was a slight tendency for women to be more participative than men (Eagly, 2013). Even more so, researchers have analysed a new leadership style, known as ‘transformational leadership’, that combines rational and emotional types of behaviour and is genderless (Avolio, 2010).

Yet there is abundant academic and informative literature focused on ‘individual differences’ or person-centered issues, such as corporate leadership style differences amongst women and men (Sargent, 1981; Loden, 1985; Helgesen, 1990; Rosener, 1990). Female leaders would have a predisposition to adopt a more democratic and participative style than their male counterparts (Merchant, 2012), taking into account the more social side of problems and would act in a more cooperative way than men. By celebrating the nature of female power in organizations, ‘we are witnessing the creation of a new myth which is formed from the qualities traditionally attributed to women, which are sensitivity, intuition, and concern and care for other people (Lipovetsky, 1997, p. 252). According to their gender, these studies give women workers a greater capacity than men in business requiring skills such as listening, communicating, being empathic or

negotiating, but also less self-confidence, greater aversion to risk or *momentum* than their male peers. It concludes that women are in part responsible for their lack of progress within the organization (Fagenson, 1990; Sandberg, 2013).

A review of the existing literature indicates that, at the individual level, women workers were said to lack the necessary qualities attributed to traditional management such as ambition, confidence, assertiveness and influencing behaviour in comparison to men (Powell, 1999). Many of the books on women's leadership address what can be done to ensure a faster pace of changes so that more women's talents are utilized by their organizations to their mutual benefit (Singh, 2008). A commercial by-product of such literature are self-help guides offering self-assessments and tips in order to avoid typical 'women' mistakes and make it to the top (Frankel, 2010). It does recall, in a certain way, the so-called feminism of difference, the political movement from the late 1960's: a feminism based on the exaltation of the feminine qualities versus the masculine qualities and very far away from a society made of individuals regardless of their assigned gender. Thinker Betty Friedan (1963) points out the obstacles that women's participation in society have had in these attributed female qualities that made many American women resign their professional careers because 'they learned that truly feminine women do not want careers' (Friedan, 1963). Philosopher Celia Amorós (1994) insists that difference of identity would not exist if there had not been a patriarchal system of domination.

In recent years, the 'Lean In' movement has emerged into the corporate world under the leadership of Sheryl Sandberg, member of the executive board of Facebook (Sandberg, 2013). This movement justifies the lack of female presence in the technological sector due in part to cultural limitations self-imposed by women themselves. The author urges women in the corporate world to be more ambitious, to get

involved in decisions and to take on new challenges. Ultimately, effective equality is a card that each woman must play on her own. In the following paragraph, Sandberg (2013) compares men's proactivity and impatience for their own development to women's excessive caution or need to persuade them to change roles or seek new challenges, from a gender-neutral standpoint:

During the six and a half years I worked at Google, I hired a team of four thousand employees. I did not know all of the personally, but I knew the top hundred or so. What I noticed over the years was that for the most part, the men reached the opportunities much more quickly than the women. When we announced the opening of a new office or the launch of a new project, the men were banging down my door to explain why they should lead the charge (...) They were impatient about their own development and believed they were capable of doing more (...) The women, however, were more cautious about changing roles and seeking new challenges. I often found myself trying to persuade them to work in new areas. I have had countless conversations where women responded to this encouragement by saying, 'I'm just not sure I'd be good at that'. Or 'that sounds exciting, but I've never done anything like it before'. Or 'I still have a lot to learn in my current role'. I rarely, if ever, heard these kinds of comments from men. (Sandberg, 2013, p.34)

This vision is shared by many supporters that consider that the problem lies mainly in women and not the organizations, concerned with women's choices, barriers and deficits and 'fail to address the societal and institutional factors that are at play' (Caprile et al., 2012, p. 16). As a result, many gender-sensitive organizations have launched programs aimed exclusively at women with the goal of filling the 'female gaps' through motivational talks, female leadership training, mentoring initiatives, establishing women corporate networks, among other initiatives. Segregation, between men and women in such programs, far from promoting equal opportunities, contributes to the promotion of

differences. In fact, in the words of Wajcman (1998), ‘the construction of women as different from men (taken as the standard) is one of the mechanisms by which male power is maintained’ (p. 23).

Research evidence has shown how some characteristics attributed to women at work (e.g. lack of ambition or motivation, interests outside the office) have been seen in men working in environments where they are excluded from the structures of power and opportunity (Cohen, 1958). Kanter (1977) argued that apparent sex differences in the behaviour of organizational leaders are in fact a product of the differing structural positions of the sexes within organizations. Because women are more often in positions of little power or opportunity for advancement, they behave in ways that reflect their lack of power.

The effectiveness of women leaders, then, like that of men, is a response to opportunities for power, to a favourable position in the power structure. Both men and women can exercise their authority more productively and with better results when they have power behind it. (Kanter, 1977, p.343).

Finally, it is important to highlight the latest trends that target equal opportunities on diversity rather than gender. Far from dissolving differences, this trend focuses on valuing them in order to create a productive environment in which everyone feels that their individual talent is valued and that it contributes in achieving the organization’s goals. The International Labour Organization (2012) defines diversity in the workplace as ‘the differences between workers, such as sex/gender, race/ethnicity, age, physical and mental ability, socio-economic class, language, religion, nationality, education, sexual orientation, family/marital status, HIV status, and so on’ (p. 110). It goes on to explain how a workforce that represents the diversity of a society in terms of gender and other

attributes is more likely to understand and respond more effectively to the needs of its customer or client in that society. Wajcman (1998) understands that managing differences does not imply changing the hegemonic order established by patriarchy, on the contrary, it can encourage a more diverse number of people to fit into conventionally structured positions.

Individuals are equally different but not equally powerful. Difference does not explain the subordination of one group to another, rather the ideology of difference is a way of enforcing subordination. The construction of 'others' as different from the dominant group (who are seen as the norm) is one of the mechanisms through which power is maintained. [...] So to engage in a dialogue about difference is to accept an approach which masks, and rationalize, inequality. Liff (1997, p.58)

However, Wajcman (1998) warns that too much emphasis on difference between women can lead to the disintegration of the category known as 'women' that contains women's institutional collective disadvantage at work. On the other hand, the author states that too much emphasis on sameness can lead to the uncritical reproduction of the male norm. Therefore, it is necessary to take into account some understanding of the way in which women differ from men in order to address the gender construction of workplaces.

Hence, this research has obviated the supposed gender differences and does not engage in a dialogue about feminization of leadership or female leadership since focusing on differences can be problematic. The focus should be on 'female leadership disadvantage' since similarities outstand the differences (Eagly, 2013). Liff (1997) goes on to explain further how the construction of 'others' as different from the dominant group perpetuates power and rationalizes inequality.

1.1.2.2 Productive vs reproductive roles

The second binding constraint in this research is related to women's reproductive role. My research aims to identify the underlying barriers that women encounter in ICT companies, beyond those conventional explanations associated with the reconciliation of professional and private life. Wajcman (1998) examined in her work 'Managing like a man' the interconnections between home and work and went beyond the analysis of the unequal domestic division of labour. She argued that the 'sexual contract' constitutes women and men as fundamentally different kind of workers. This investigation leverages its importance but on the other hand, questions to what extent it is decisive for the lack of female presence in the ICT sector.

The reproductive role of women in society has been a strong argument for the gender division of labour as a result of biological traits. According to the International Labour Organization (2012), the way work is divided between men and women according to their gender roles is usually referred to as the 'gender division of labour' (p. 113). This does not necessarily concern only paid employment, but more generally the work, tasks and responsibilities that are assigned to women and men in their daily lives, and which may, on their turn, also determine labour market patterns. In most Western countries, house chores and everything that relates to sustaining the household are typically women's or girls' tasks, even when they have a paid job outside the home (ILO, 2008).

This issue has been subject of recurring controversy and debate over time. Carole Pateman's (1988) work 'The Sexual Contract' dedicates a chapter to the genesis, fathers and political liberty of sons of sexual difference. The foundations of modern political and educational thought replaced the will of God with Reason, yet projected women as

mothers too: it brought a renovated patriarchy based on nature (Pateman, 1988; De Miguel, 2005). Enlightenment's major thinker Rousseau (1762) states that 'the earliest education is most important and it undoubtedly is woman's work. If the author of nature had meant to assign it to men he would have given them milk to feed the child' (p. 5). With some exceptions, almost all thinkers at the time, such as Thomas Hobbes (1640) or John Locke (1689), mostly acknowledged women for their reproductive function. The public and private sphere were dichotomized and disconnected, and the latter beyond the reach of public action. John Stuart Mill (1869) confronted these ideas arguing on 'The Subjection of Women', that the inequality of women in the family was incompatible with their equality in the wider social world. Mary Wollstonecraft (1792) objected to Rousseau's (1762) understanding of women's role and stated:

In the regulation of a family, in the education of children, understanding, in an unsophisticated sense, is particularly required: strength both of body and mind; yet the men who, by their writings, have most earnestly laboured to domesticate women, have endeavoured, by arguments dictated by a gross appetite, which satiety had rendered fastidious, to weaken their bodies and cramp their minds. But, if even by these sinister methods they really persuaded women, by working on their feelings, to stay at home, and fulfil the duties of a mother and mistress of a family, I should cautiously oppose opinions that led women to right conduct, by prevailing on them to make the discharge of such important duties the main business of life, though reason were insulted. (Wollstonecraft, 1792)

Pateman (1988) included Freud's understanding of women nature and compares it to Rousseau.

According to Rousseau and Freud, women are incapable of transcending their sexual passions and particular attachments and directing their reason to the demands

of universal order and public advantage. Women, therefore, cannot take part in the original contract. (Pateman, 1988, p.102)

The idea that a woman's reproductive role is her most important function prevails nowadays in explicit and implicit ways. Many public policies, programs and norms are based on this idea. It seems as if gender inequality in the workplace is based on the household's sexual division of labour. Governments can legislate and organizations can implement measures to create awareness but somehow, families are organizing household tasks on their own. Too few feminist philosophers have offered specific policy proposals for changes in domestic arrangements or for policies designed to counteract those arrangements that might lessen the hold of centuries of gender hierarchy (Satz, 2017).

Gender inequality discussions at the workplace are frequently taken into the reproductive and/or household arrangements level. The idea of the burden on women to take care of children and household tasks and, therefore, their lack of availability to access decision-making positions. Susan Okin (1989), a feminist political philosopher, termed a 'cycle of vulnerability' through which women's unequal position in the home interacts with women's unequal position in the workplace. For example, because women tend to earn less than men, if someone has to take time off to raise their children, it makes economic sense for it to be the female lower earner.

Many explanations to the scarce number of women in technology are based on women's reproductive role. Culturally women are expected to fulfil the responsibilities associated with home and family and may experience negative outcomes as a result. The idea that women change working priorities when becoming mothers has been normalized, implicitly stating that a professional career and motherhood are incompatible in some

ways. American scholar Shere Hite (2000), during her research for ‘Sex & Business’, analysed 10 major corporations, including interviews with their chief executives, focusing on unspoken problems that arise when men and women work together. The implicit associations between professional career and motherhood prevail in many of the interviews, as an example, the following quote of a global media mogul interviewed by Hite for the purpose of her research:

When I started working thirty years ago, I thought that hiring women with MBAs was the solution. However, I have been able to verify that it is not. When women are thirty years old something happens in their lives that forces them to leave the company. We lose many women in their thirties. (Hite, 2000, p.70)

There is empirical evidence of the implications of this implicit association, in fact, a survey of midlevel scientists and engineers in high-tech companies found that women were more likely than men to suffer poor health and to delay or not getting married and having children as a result of work demands (Simard et al., 2008). When employers in male-dominated fields expect employees to work long hours (more than 50 hours per week), women with children are much more likely than men with children or childless women not only to leave their employer but to exit the paid workforce entirely (Cha, 2013; Corbett & Hill, 2015). However, women leave technology and science fields at all stages of their careers—as undergraduates, graduate students, professionals, and in the transitions between each stage, a phenomenon described as the ‘leaky pipeline’ (see section 4.6.5 *Leaky pipeline*). Researchers have associated the leaky pipeline to the ‘life course’ perspective that predicts gender differences. The life course approach proposes that life transitions are interdependent across education, family, and work domains (Xie & Shauman, 2003; Castaño & Webster, 2011). It analyses the forces that lead fewer

women than men into technology and engineering careers. Their scope is the complete life cycle from high school to combining jobs with families, it explains women's trajectories through ICT studies and professional careers, situated in the structural and cultural contexts. This approach identifies the main factors affecting women's engagement in ICT at different moments in their lives, key transition and attrition points, and shows how their career patterns are shaped by domestic labour as well as workplace factors and public services. It crucially recognizes women's agency, as they shape and respond to their situations. In Etzkowitz et al. (2000) work, several factors are considered such as the relevant impact of early career achievements versus later career achievements, career decisions versus biological clock and the stigma associated to affirmative actions.

'Women in Digital Age', a recent study published by the European Commission, shows current figures related to the 'leaky pipeline' in the digital field. The following figure shows percentages of female tertiary graduates, ICT fields graduates and ICT fields graduates working in digital jobs² (*Figure 2*).

² Data elaborated for 'Women in Digital Age' study on the ELFS, ICT-related studies have been defined as: mathematics, statistics, computing and engineering. This concept excludes natural sciences, but includes more fields than ICT studies as defined by Eurostat.

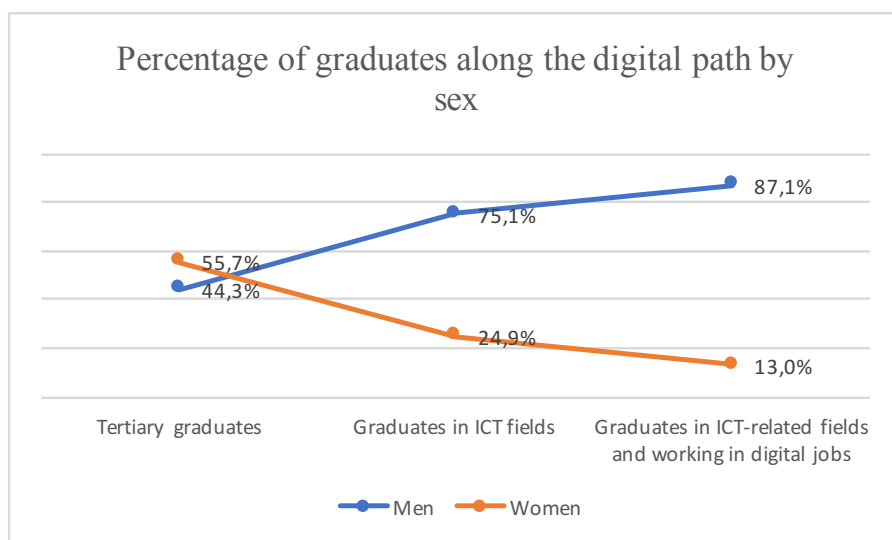


Figure 2: Share of men and women along the digital career path, 2015. ELFS, 2017.

The study also describes the ‘opting-out phenomenon’ which is the percentage of people with tertiary education who, for different reasons, have left and have not pursued their career in the ICT sector mostly determined by gender barriers (EC, 2018). Women leave the sector and enter other economic activities to a much greater extent than men. This is particularly clear in the age range between 30 to 44 years, the prime working age and the key stage of one's professional development. Taking into account data of women from all age groups, they leave less from digital jobs than they do when they work in other occupations and sectors. This trend changes in 2015 when the data showed that 8.7 per cent of women ages 30 to 44 left their jobs and became inactive compared to 7.3 per cent of women working in other jobs (Figure 3). The annual loss in productivity for the EU caused by women leaving digital jobs has been estimated to 16.1 billion Euros³ (EC, 2018).

³ The gap between men and women leaving their digital jobs to become inactive is 170.044 people. This figure refers to workers with medium or high levels of education. If we consider the average per person

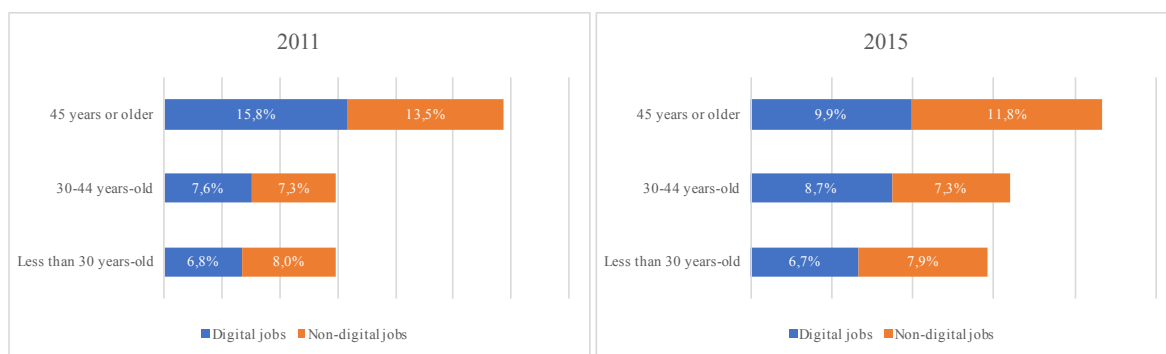


Figure 3: Women who previously had a job and are now inactive by type of job and age 2011-2015⁴.

The study finds these results to be consistent with existing literature and recollect the results of an international study by Beninger (2014) based on a survey to MBA graduates working in tech-intensive⁵ business roles⁶ that found that women were more likely than men to leave tech-intensive business roles for a different activity sector (53 percent and 31% respectively). The research also found that the reasons to leave differ, leaving their position for career advancement, more money or start a business accounted for 67 per cent of men versus 52 per cent of women; leaving for individual motivations such as raising children or relocation of their partners, counted for 21 per cent of women compared to 12 per cent of men.

Several contextual issues also appear to be crucial in shaping patterns of women's engagement in ICT jobs. The uneasy relationship between flexibility in the length of working time and gender equality as an obstacle to women in their careers has been

productivity of the ICT sector according to the 2017 PREDICT Dataset in the year 2014, € 94.830, the total productivity loss is € 16.125.288.451 (EU, 2018).

⁴ Calculated as % of men with tertiary education.

⁵ Tech-intensive industries include high tech, telecommunications, resources (including oil and gas), chemical and energy, utilities, automotive and manufacturing.

⁶ Business roles include administration, general management, consulting, consumer affairs, public relations, finance, accounting, purchasing, healthcare delivery, human resource management, marketing and sales, policy, legal, and teaching/training.

discussed and documented in many studies (Castaño, 2010). From an equality perspective, flexibility in the organization of working time seems to offer more opportunities as this strategy may, in principle, be based on full-time working hours of both men and women.

Studies have shown that ICT activities and occupations offer greater time flexibility and more autonomous in determining tasks, priorities, and goals compared with business, health, and law professions (Goldin, 2014). Another analysis found that women, predominantly in information technology and engineering fields, worked slightly fewer hours than did women in other professional occupations, such as management, financial operations, and nursing, and were more likely to have flexible schedules than those other professionals had (Glass et al., 2013; Corbett & Hill, 2015).

Conclusions from a European Commission (2010) report on flexible working time arrangements and gender equality⁷, stated that in South European member states, flexible working time schedules are often considered as a reconciliation facility, supporting working parents to combine work and family life. Yet, it appears that there are certain limits in the actual use of flexible working time schedules. The organizational culture seems to be a particularly important factor in this respect. As long as ‘flexibility’ continues to be considered as mainly a ‘female’ way of organizing working time, the use of these schemes may offer limited choice. Flexible working time schedules may also easily translate into blurring boundaries between paid work and leisure, which may have a negative impact on private and/or family life (EC, 2010).

⁷ Flexible working time arrangements and gender equality — A comparative review of 30 European countries, EU, 2010.

Even though they were targeted to all employees, the majority of part-time arrangements were opted by women workers (*Figure 4*), giving way to a career with fewer promotions, less salary and less hours worked, that will impact in their future retirement pensions. The ‘mommy track’ with organizational arrangements for corporate women with dependent children, so that they can spend more time home, have a tendency to slow or stop women careers (Schwartz, 1992). Pérez Zapata (2010) questions the effectiveness of flexible working as a reconciliation measure, he argues that frequently talent means there is no limits to working time, 24/7-hour commitment, and it is up to the individual and its own organization to stablish these limits, which can sabotage work-family balance.

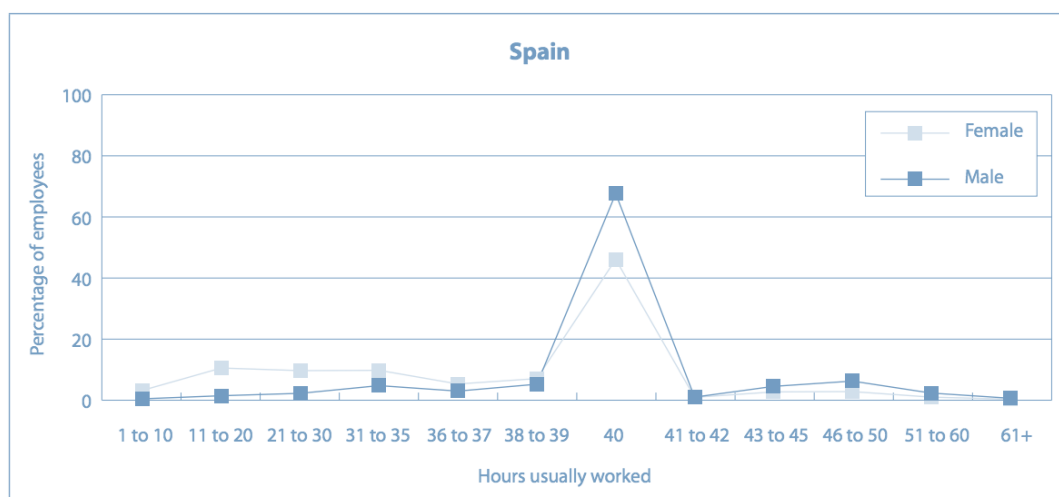


Figure 4: Hours worked by employees by gender, EC, 2010.

The adoption of Organic Law 3/2007, of 22 March, on Equal Opportunities for Women and Men included⁸, amongst others, measures aimed at improving family friendly policies with more flexible working time arrangements and reconciliation of professional and personal life. Almost a decade later, less than two per cent of men claim

⁸ Ley Orgánica 3/2007, de 22 de marzo, para la igualdad efectiva de mujeres y hombres. Publicado en: «BOE» núm. 71, de 23 de marzo de 2007, páginas 12611 a 12645.

to have had a part-time contract to take care of dependents (children, ill or disabled) with a variation of 0,10 points from the entry into force of the Law in 2007 (*Figure 5*):



Figure 5: Reasons for part-time contracts in males, INE, 2008-2017.

Part-time working hours have a negative effect on a worker’s career and salary and is a form of polarization (full time employees against part-time ones) that increases gender inequality as part-time tends to be more present amongst women in both indefinite and temporary employment contracts. Recent research findings in Spain, showed strong empirical evidence on the penalization of a father who uses a reduction of the working day or other family-friendly measures, similar to that experienced by the mother (Fernández et al., 2019). Firms may use promotions to stimulate human capital accumulation and skill acquisition, however, human capital accumulation is slow in part-time jobs and therefore the possibilities of promotion will be lower among part-time workers than full-time workers. In addition, promotion rates may be lower among part-time workers when firms use the number of hours worked as a screening device to measure effort, salaries or promotions for both men and women (Russo & Hassink, 2008).

There has been an increase in the number of family care leaves in the period 2008-2016, for both men and women in Spain. In fact, 3,140 more women than in 2008 opted for a leave, 565 in the case of men, related directly with the financial and employment crisis (Castaño, 2015). The percentage of women has remained the same since 2008⁹. Regarding child care leaves, there has been an increase of almost 1,000 men and a slight decrease of around 2,500 women but the percentage of men with child care leaves was still 7,1 per cent in 2016 (*Figure 6*).

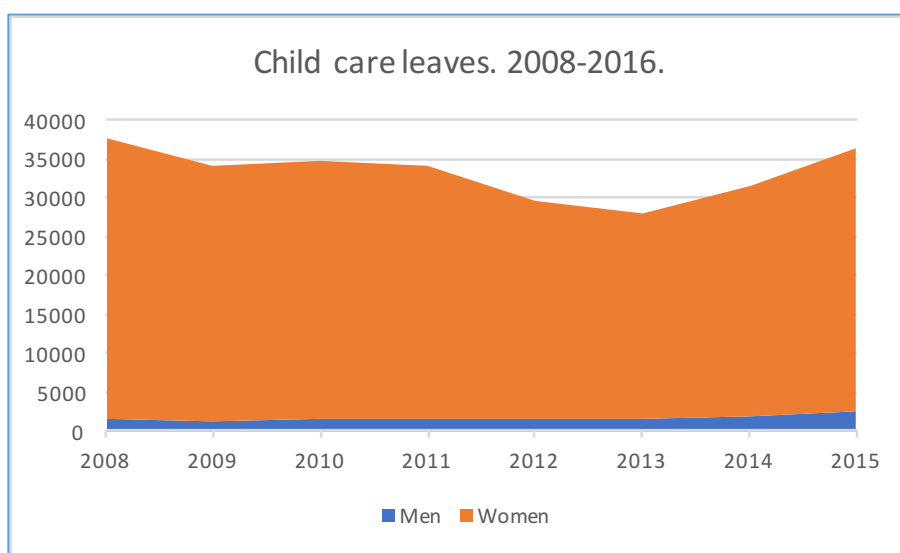


Figure 6: Child care leaves by gender. INE, 2008-2016.

The antiphon of motherhood in the workplace is clear: 2018 marked the lowest birth rate in the first half of the year, with a total of 179,794 births in Spain, the worst data since the beginning of the semester records in 1941 recorded by the Spanish National Statistics Institute (INE). In fact, today's child rate is half the births registered in the mid-70's. Before the outbreak of the crisis, Spain had managed to raise the birth rates above 255,000 births (always counting the first half of the year), 42 per cent more than at

⁹ Instituto Nacional de Estadística (Spanish Statistics National Institute), 2008-2016.

present. At that time, immigration and the economic boom helped raise maternity rates. Spanish mothers are the ones that most delay the birth rate of the entire European Union: for the first time in history, the average age of mothers has exceeded 32 years. In many cases, women delay their decision, whether to have children or not, for the sake of career advancement. Data obtained from INE, shows the correlation between women that delay maternity for work reasons and the impossibility of having biological children, reaching its peak in the 40-44 years-old gap (*Figure 7*):

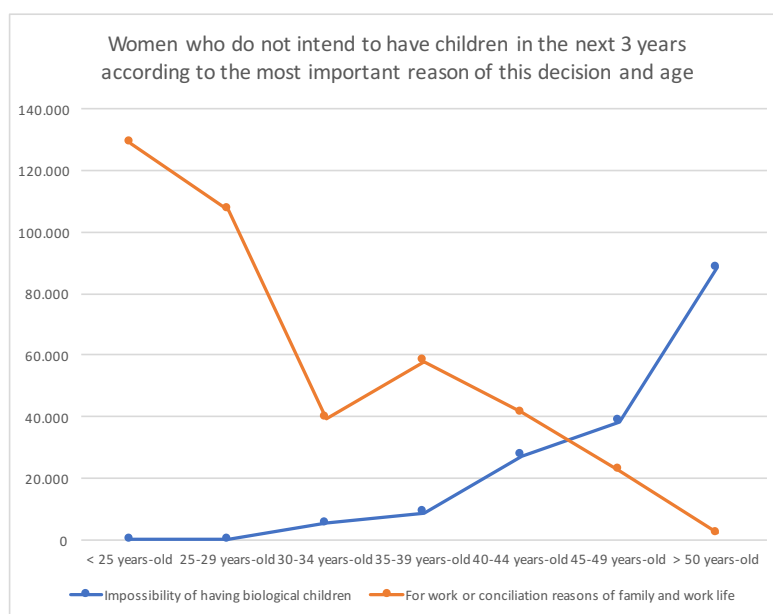


Figure 7: Correlation between delaying maternity for work reasons and the impossibility of having biological children, INE, 2018.

More than a decade after the enforcement of the 2007 Equality Law in Spain, the presence of women in the ICT sector and in management positions has not significantly improved. In this context, Castaño and Palmen (2010) analysed the implementation of reconciliation and equality measures in tech organizations located in Cataluña, Andalusia, Basque Country and Madrid (Spain) regarding the application of the mentioned law. Through the use of quantitative and qualitative methods, they analysed companies that

had the legal obligation to elaborate Equality Plans and promote women to decision making positions. Their findings showed that the majority of measures and actions put in place by ICT companies were focused on reconciliation measures such as flexible working, telecommuting, part-time jobs and parental leave to the detriment of other equality measures. Many of the companies analysed had a gender-neutral approach and took for granted an equal opportunities context where there was no need to implement equality measures or affirmative actions. Finally, they concluded that flexible working or telecommuting measures did not lead necessarily to more women in leadership roles and that equality issues, rather than reconciliation and reproductive issues, could be more effective in increasing the presence of women in ICT jobs.

The chances are that if women had equal access to structures of opportunities and power than men, with the same likeliness to promote and have an equal pay, they would have the possibility to negotiate and share more fairly, and based on their value in the workplace, the house cores and children care responsibilities. Accordingly, women's reproductive role was regarded as a binding constraint in the present research.

1.2 [Motivations for research](#)

Research can often be linked to the researcher preferences and experiences, which is clearly the case of this thesis: a female researcher, who worked for a tech corporation for almost 18 years. In 1996, I joined a male-dominated workplace as a change management consultant. I had a bachelor's degree in Journalism but most of my colleagues had technical academic backgrounds. I looked up to my female colleagues, as they were mostly engineers and had high performing tracks. I often wondered why there

were no women at the top, no female partners or managing directors, just a few managers. At that time, I always received the same answer: ‘women workers change priorities along the way’. I could not relate to the answer I was given, as my colleagues were very ambitious and demanding in their career tracks. Eventually, however, the majority of them did leave the company. Many felt it was time to leave, some could not cope with overtime, others had been invited to do so... I always had mixed feelings in their answers.

In 2008, the company commemorated International Women’s Day for the first time in Spain. Only women workers were invited to the event - years later it would be an exclusive women clients and senior management event -, as guests of the event, we were asked to participate in a workshop in order to improve our networking skills, which were apparently deficitary compared to those of men. I remember many of my colleagues outraged, especially those that excelled at networking. Many other initiatives oriented to women were to come. Around 2012, the firm I worked for and other tech companies were struggling to attract women candidates for entry levels and were failing to retain female talent. On the one hand, we were organising workshops with female undergraduates at engineering schools aiming to increase their motivation to join tech companies, and on the other hand, my female co-workers with technical skills and experience were leaving the company. Most measures implemented were counterproductive and weren’t changing the landscape.

I started reading on the topic and, since research is conducted to identify problems and/or to find answers, to share new knowledge with other researchers and ultimately benefit society, I thought about starting my own research. So... why so few? If technology was the future, whom were to direct the future? At that time, the *Feminist and Gender Research Doctoral Program* was taking off in the Institute of Feminist Research

(INSTIFEM) and I had the opportunity to attend a couple of doctoral courses given by Prof Asunción Bernárdez Rodal, former director of the Doctoral Program. Without a doubt, I enrolled in the doctoral program as the INSTIFEM was the perfect space for me to develop my research from a feminist perspective. I understood it was essential for my prospective study. Incorporating a feminist approach in practice was key to understanding and valuing women experiences and perceptions in the workplace. Upon contacting Prof Cecilia Castaño Collado, one of the most relevant scholars on this topic, who generously and carefully listened to my prospective study rationale, she suggested Judy Wajcman's book 'Managing like a man' as an introduction. This book was a revelation to me, it was written in 1998 but the conversations transcribed from the interviews were identical to the ones I could hear whilst having coffee at my own office. I was surprised to find how little improvement there had been after almost 20 years!

A lot of senior women have left... three senior women all on the same day... they were all voluntary. I think that a lot of women have found current environment hard and simply left: I don't have to put up with this any longer, I'm off. I don't think actually it's been discrimination against women. It's been an environment in which they have felt very uncomfortable. (Wajcman, 1998, p.103)

In July 2014, I left my position as Senior Manager Lead for Digital Cities in the company and enrolled in the Doctoral Program. I was not surprised when I read the headlines from The Guardian in October 2014: 'Apple and Facebook offer to freeze eggs for female employees'; I read on 'Facebook will pay up to \$20,000 while Apple will provide perk from January in effort to attract more women'. I sensed that something like this could eventually happen in a confused ICT sector. I was more confident than ever that carrying out my research was the right thing to do.

2 METHODOLOGY

2.1 Introduction

My aim in this chapter is to explain and justify the research design with mention to the orientation, the methods of research, data collection and data analysis in detail. Feminist research studies have redefined knowledge construction in many ways and, most importantly, have conceptualized and approached questions about gender and provided insight that cannot be addressed in conventional disciplines (Kitch & Fonow, 2012). Before feminist inquiry entered academia, there were no knowledge frameworks for understanding gender, in fact, gender was the ‘problem that has no name’ taking the words of Betty Friedan (1963, p. 15). Debates concerning women were not seen as gender issues but rather the ‘woman question’, where women were analysed almost as objects of study mostly by men (e.g. their nature, capabilities). Knowledge frameworks for understanding gender are necessary to identify and explain concepts, phenomenon and metaphors such as the sexual contract, the feminine mystique, the glass ceiling, the gender shrapnel, gender stereotype threat, gendered technologies, sexual harassment among other multiple concepts and theories of analysis that are now installed in academia through feminist and gender research. The Institute of Feminist Research (INSTIFEM) has carried out the course ‘History of feminist theories’ showcasing and amplifying women’s studies and genealogies over time for the past thirty years. First coordinated by philosopher Celia Amorós, nowadays by philosopher Ana de Miguel, the program goes back to the Illustration with philosopher Olympe de Gouges and her ‘Declaration of the Rights of Woman and the Female Citizen’ in 1791 to our days.

As I will explain in this chapter, my research study is based on feminist research methods based on Donna Haraway’s (1988) concept of situated knowledge and Nancy Hartsock’s (1983) and Sandra Harding’s (1986) standpoint epistemology to provide a framework for revealing and analysing women’s experiences in ICT while acknowledging my own experience in this field. Reinharz (1992), in her work ‘Feminist methods in Social Research’, concluded that ‘feminist methodology is the sum of feminist methods’ (p. 240). She identified ten themes relevant to feminist research that have informed my proposed methodology (*Figure 7*):

Ten themes in feminist research (Reinharz, 1992)
1. Feminism is a perspective, not a research method.
2. Feminists use a multiplicity of research methods.
3. Feminist research involves an ongoing criticism of non-feminist scholarship.
4. Feminist research is guided by feminist theory.
5. Feminist research may be transdisciplinary.
6. Feminist research aims to create social change.
7. Feminist research strives to represent human diversity.
8. Feminist research frequently includes the researcher as a person.
9. Feminist research frequently attempts to develop special relations with the people studied (in interactive research).
10. Feminist research frequently defines a special relation with the reader

Figure 8: Themes in feminist research proposed by Reinharz, 1992.

Using ‘feminist methodology’ for my research, such as standpoint theory and situated knowledge and mainly through the use of qualitative social science methods, has meant examining feminist theories, literary and historical texts, personal interviews, census data and archival material, as well as my relationship with the topic and the participants. However, the scope of my research has limited observations related to intersectionality (class, race, sexuality, disability, etc.) that have not been fully addressed,

or even omitted, though recognizing its vital importance in feminist research. Adding to the research process strategy, this chapter also incorporates detailed information on the guidelines I have followed in the elaboration of the interview script (see also *Chapter 11. Appendix A, 11.1 Research Interview script*), the selection of the sample of participants and how interviews were conducted, together with its limitations and suggestions for further research. Finally, I address other research methods, which have complemented my research such as the doctoral stage abroad and several interviews with outstanding scholars.

2.2 [Methodology design](#)

This thesis is interpretative and informed by a feminist approach to building theory and generating new knowledge. In this context, the data collected was qualitative and analysis was thematic, grounded in feminist theories. Strengths and challenges concerning my choices will be discussed in this chapter. These different methodological aspects will be explained in detail and have been simplified in the figure below (*Figure 8*):

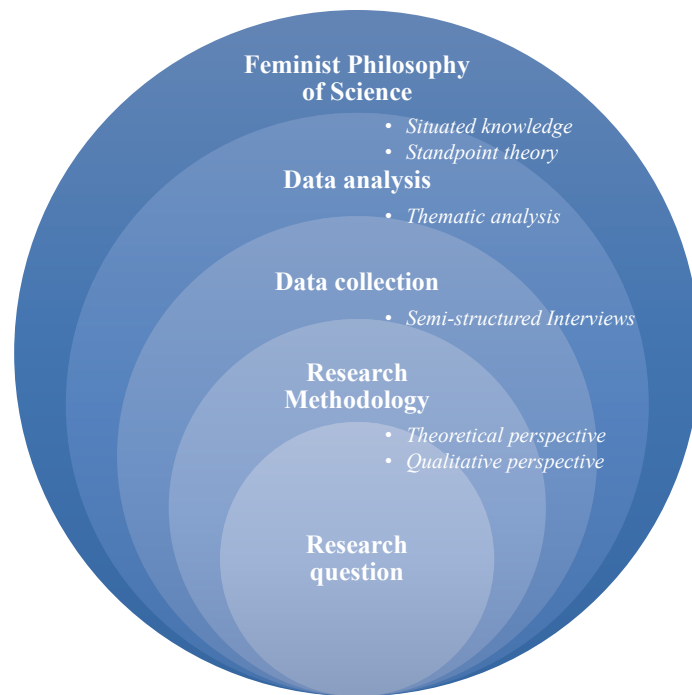


Figure 9: Mapping the research process

2.2.1 Feminist Philosophy of Science

Orientations in the philosophy of science refer to world views and ways of thinking related to understanding the nature of knowledge and understanding different ways of seeing the world. My research has a feminist orientation background as the basis of the methodological choices in my research. A feminist approach to knowledge is only but coherent for addressing my research question and design, my dissertation questions the absence of women in technological workplaces, an on-going social problem that has not significantly improved over time. It has been a recurrent topic in feminist epistemology, that evolved from the ‘question of women in science’ to the ‘the science question in feminism’ that questioned how technological and scientific knowledge was produced. Feminist thinkers connected ‘objectivism’, seen as a universal criterion for scientific

research, to androcentric knowledge production, a scientific knowledge that placed men as universal. Since the 1970's, the 'Standpoint theory' is examined as a feminist epistemology and as a methodology for feminist researchers in the social sciences. Sandra Harding (2004) and her contemporaries brought a critical theory about the production of knowledge and practices of power. It was proposed 'not just as an explanatory theory, but also prescriptively, as a method or theory of method to guide future feminist research' (p. 1) not only in women's studies but mainstreamed in all disciplines. It also aimed to empower suppressed or marginalized groups and value their experiences. Another significant contribution to feminist epistemology, was Donna Haraway's (1988) 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective' whereby knowledge is always part of a perspective impregnated by values and context formed by historical, social, economic and political factors. The theory of Situated Knowledge's states that knowledge is always situated in a place, at a time and that depending of those factors it can mean profoundly different things. Haraway encourages feminists to insist on having a better account of the world, that science must be grounded in the interaction of perspectives through communicative action and consciously away from categorization, social labels and hierarchies. Spanish philosopher Isabel de Torres states in her work 'Academic feminism in Spain today' that,

Gender Studies are fulfilling an interesting function in this end of the century, they have collaborated to create a different worldview within Science, in which women are present, underlining to what extent gender has distorted the social relations and the concept of identity and the vital development of the female collective. It can be affirmed with all property that such studies represent one of the most significant renovations that have been incorporated to research in the last decades (2000, p. 63).

This understanding of knowledge production has guided my research methodology categories based on a qualitative perspective were women's individual experiences - understood as subjective experiences, feelings, perceptions, ideas -, confront the theoretical perspective and co-produce narratives along with the researcher. My own preconceptions and perspectives have been addressed, taking into account my own individual experience as a women worker in the ICT sector, differing experience from knowledge or identity (Kitch, 2003). The literature review incorporates different contexts and perspectives in order to understand and explain concepts and terms that are later theorized. Limitations are also present, such as those associated to intersectionality, my research is centred in Western cultures and does not address sufficiently issues of sexuality, class, race, disabilities or other relevant factors which merit further research. Another limitation strives in subject's partial knowledge of experiences might be hidden from themselves or from the researcher or even fully understand the complex way their experiences as women are simultaneously shaped by other factors.

2.2.2 Research question

My thesis analyses the contrast between the equal opportunity approach promoted by ICT corporations and the social practices that make effective equality difficult amongst women and men workers. The main research goal is focused on determining which underlying factors slow down the representation of women in Spain's ICT sector, as well as their participation in decision making, assuming that a more equal representation will redefine society's priorities and needs in a more balanced way. In this sense, the present study aims to answer the following research question: **What are the underlying barriers**

for women's advancement in the ICT workplace? The question specifically refers to ICT women workers' career experiences, perceptions and expectations; women with a technological or related academic background who have already joined a tech corporation in Spain. 'Why so few?' is a recurrent question in feminist scholarship, the scarce presence of women in tech and scientific fields and its impact has been questioned from different perspectives, fields and situated knowledge (e.g. Faulkner & Arnold, 1985; Wacjman 1991; Faulkner, 2001; Castaño & Palmen, 2014). There is abundant academic literature, qualitative and quantitative, centred in classroom dynamics during school years that explore the impact of gender bias in teachers, gendered text books, entertainment, amongst other factors (e.g. Correll, 2001; Warrington & Younger, 2000; Baker & Leary, 1995; Schiebinger, 2007; Sáinz et al., 2014). The tech workplace has also been object of multiple research concerning my dissertation question; research regarding the absence of women in tech companies is frequent (Catalyst, 2014; Corbett & Hill, 2015; EC, 2018), more so in gender studies of Science and Technology Studies (STS) (e.g. Wacjman 1996, 1998; Faulkner, 2001, 2009; Powell et al., 2006). My aim is to go further into the analysis, not centred on the social or environmental factors that contribute to the underrepresentation of women in this field, but to explore female talent retention in ICT sector. My contribution to academia is to offer an insight into a sample of ICT women workers individual experiences, perceptions and expectations, women that were attracted to this field and remain it (*Figure 9*).

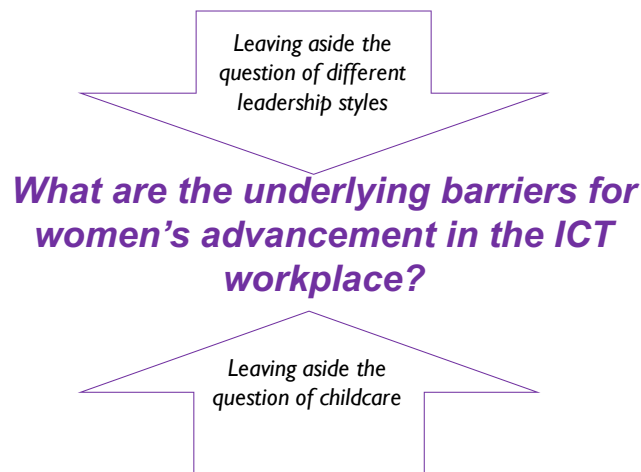


Figure 10: Research question and binding constraints.

As covered in the introduction chapter, there are two binding constraints to this question, my research has obviated two fundamental debates concerning the underrepresentation of women in ICT companies, differences in gender management styles and women's reproductive role. As a researcher in the field, I acknowledge the correlation and decisiveness of women's reproductive role and the impact of gender social construction in our expected behaviour. In fact, ignoring women's relation with the private sphere or gender roles would be penalising women for our difference, instead of confronting it (Wajcman, 1998). Thus, these barriers have not been included in the analysis in order to focus on other much subtler barriers, underlying barriers that are fundamental but difficult to name as they are not obvious to describe or to identify while trying to climb the corporate ladder.

2.2.3 Research design methodology

This research follows an interdisciplinary approach that combines theoretical and qualitative aspects: a) the theoretical framework has its foundation in the studies carried

out by sociologists Professor Rosabeth Moss Kanter, University of Harvard, and Professor Judy Wajcman, London School of Economics. The review of their findings on women in corporation's research, together with other relevant scholars in the field, has allowed to structure the theoretical framework. Contextual contributions of feminist theories on gender and technology and the evolution of women in the corporation have been included in this dissertation in separate chapters since they provide an important insight to the research question; b) the qualitative perspective led by social sciences methods which provide an approximate approach to behaviours and perceptions of women workers in the Spanish ICT sector.

2.2.3.1 Theoretical framework

My analysis is informed by scientific research on feminist theories, STS theories, organizational theories, communication studies, sociology, and management science. The theoretical framework is grounded in research, but I invoke a broad range of other sources –including interviews, work experiences, events and exhibitions – to illustrate the principles that emerged from research. The research includes a review of feminist theories that are considered most significant in relation to the concept of gender and technology and women in management. As explained earlier, the main pillars of the theoretical framework are Rosabeth M. Kanter (1977) and Judy Wajcman (1998) and their works 'Men and Women of the Corporation' and 'Managing Like a Man' respectively. Their works written twenty years apart, and another forty and twenty years respectively from this research, highlight essential barriers that persist today. Even though there are certain aspects of today's organizations that have evolved in different ways (e.g. employee's

loyalty or the importance of seniority in the company), real equal opportunity in ICT corporations remains a critical goal. In my dissertation, both authors have served to structure the discussion of what it is known about women’s experiences, perceptions and expectations in organizations; together with other relevant authors in the STS field, management field and contemporary research to help contextualize these underlying barriers into nowadays. Based on the theoretical review, selective areas of research have been identified, analysing recurrent ideas and patterns across literature that are important and associated to my specific research question. There is a total of seven research themes identified that constitute the theoretical framework of this thesis that are described below with a further explanation of the references used for each of them (*Figure 10*):

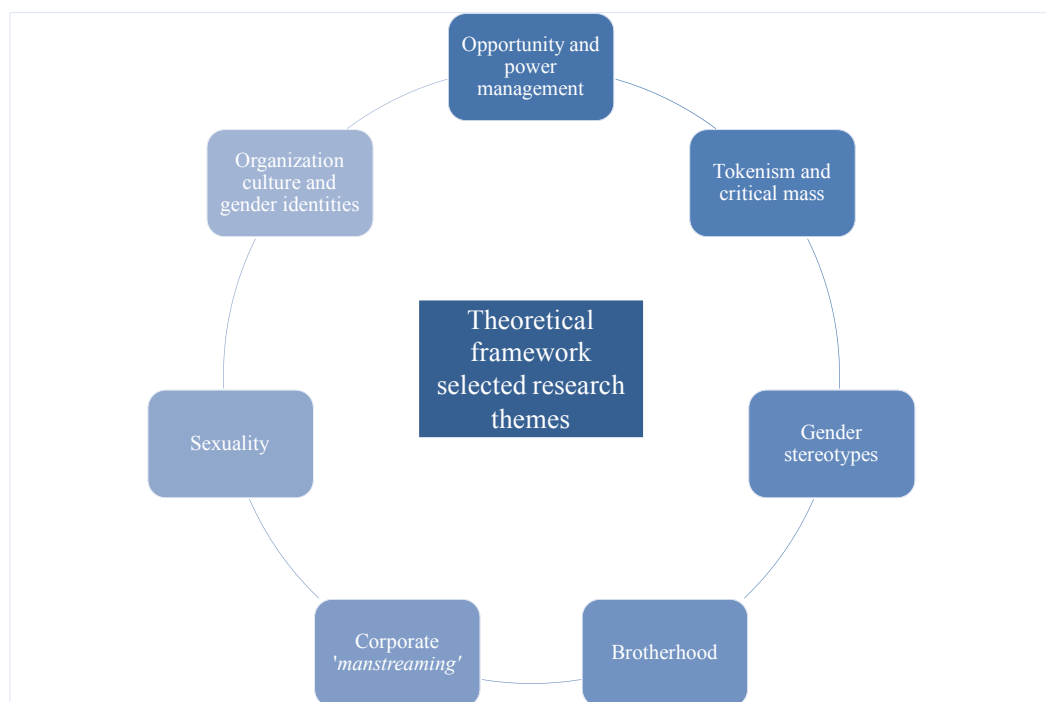


Figure 11: Theoretical framework selected research themes.

(a) Opportunity and power management; this research theme is two-fold as it analyses social and feminist research framed for both concepts, intimately related to gender inequalities in the workplace. Opportunity refers to expectations and future

prospects and how it defines the way people involve themselves at work and how their behaviour might account for 'sex differences'. Based on previous research, it analyses the effect of motivational factors in work behaviour in male and female workers and questions if there are fundamental differences between them. High career expectations, or rather feeling 'being stuck', correlates to aspirations, work commitment and organizational responsibility. Opportunities, or their absence, perceived by the worker intervenes in her/his attitude towards her/his work, making it a central part of their life or decreasing his/her involvement and commitment. The connections between recognition in a high opportunity context, and social recognition in a lower opportunity context are important and closely related to some preconceived ideas about female work patterns. Overall, workers, both women and men, respond in a rational way to opportunity, looking for recognition, control or dignity. Power management and the different sources of power are analysed from a gender perspective, identifying the correlation between disadvantaged positions with lack of power and the attitudes and behaviours it promotes in the individuals. Powerlessness is described as a major problem women face in corporations and questions the construct of 'empowerment'.

(b) Gender stereotypes; this research theme explores the association of gender stereotypes to the lack of women in the ICT sector. It explains the assumptions gender stereotypes carry and its consequences, not only in the workplace, but earlier in career options too. They can be descriptive, designating what women and men look like, and prescriptive, designating what women and men should be like. Several empirical studies and findings are reviewed in different and relevant stages of professional career including those before opting for the technological field as undergraduates. This category depicts women stereotyped roles at the office over time, describing the roles of the mother, the

seductress, the pet and the iron maiden; and explores other related stereotyped phenomenon's such as the Queen Bee and the 'stereotype threat'. A significant part of this research theme, explores gendered organizational practices, specifically those related to Human Resources processes: recruiting, evaluation and promotion; these processes and practices are questioned, exploring their gendered nature and gender stereotyped embedment.

(c) Tokenism and critical mass; this research theme explores the term, effect and implications of tokenism in organizations and, particularly, in female tokens in male-dominated workplaces. The proportional rarity of tokens is contemplated and analysed among three perceptual tendencies of the dominant group: the visibility and awareness given to tokens, contrast or exaggeration of the differences and the assimilation of highly stereotyped tokens not permitting the individuality of their own non-stereotypical characteristics. The encapsulation of tokens as a result is also explored and analysed in this research theme. Controversial views about tokenism are also reviewed, questioning if male tokens suffer the same effects in female-dominated workplaces. Together with tokenism, the theory of critical mass is explored in this theme; this theory argues that minorities are not as productive as they could be if they do not reach a specific percentage in the workplace and that reaching a certain presence could make it possible. Arguments challenging this theory have also been explored, arguing that minorities can reinforce the dominant groups' culture and remain isolated.

(d) Brotherhood; this research theme explores the phenomenon known as 'Old Boys Club', a familiar point of reference to explain women's marginalisation from the centres of power. This phenomenon, once linked to alumni of the so-called Clarendon Schools, an elite educational institution (e.g. Eton or Rugby school) and an informal system of

favours and mutual support that would last throughout their lifetime, has remained concentrated in the hands of powerful men, despite over a century and a half of social change. Women today perceive this factor as one of the most important barriers in their career progression. Exclusionary day to day practices, dominant informal networks, homophily, amongst other factors are explored within this research theme. Along with brotherhood, the figure of the organizational gatekeeper is also analysed, questioning how they exercise power and how they define values according to their own patriarchal beliefs, for example in the definition of meritocracy in the workplace. This theme also covers women's response to brotherhood, trying to break into male networks or creating their own networks (e.g. 'The blue-stockings', 'University Women's Club'), women movements that have been consistent through time, even though they have never played a central role and have been largely ridiculed by society with more or less intensity. Sexuality as a mechanism of exclusion is noted as a reinforcing factor of brotherhood and its exclusionary practices, which is further analysed in the following research theme 'Sex and work'.

(e) Sex and work; this research theme explores the control of female sexuality in the workplace and the need to position women as objects of male desire in a patriarchal organizational culture. It analyses the conflicts that emerge from women managing their 'otherness', even though they remain female and their bodies are sexualized in a way men's bodies are not. It establishes the differences between sexual harassment and hostile work environment (HWE) harassment, practices that are not exclusive of the workplace and prevail during school years. Sexuality in the office affects women in the way they present themselves, that is how they dress and their expected societal gender behaviour, the way women and men manage their sexual relationships in the workplace

and goes further into sexual reproductive rights. During the initial theoretical perspective analysis, this specific research theme was not included. In a feminist philosophy of science approach, it is important to acknowledge as a researcher that I was subjectively guided by my past experience as a consultant in a tech company and thought sexuality was not as relevant as the other identified research themes for women's careers advancement. The qualitative analysis of the interviews with ICT women workers, built new and necessary narratives around sexuality that urged for further research in this decisive topic and therefore, as we will see, the incorporation of this crucial research theme.

(f) Corporate *manstreaming*; this research theme explores the corporate male standard that positions women as different from men, a mechanism whereby male power is maintained in the workplace. It questions whether equal opportunity, in which women are treated the same as men, could effectively address inequalities since women are situated differently. Highlighting men's privilege is to imagine a form of equality were women's needs and interests are redefined as the standard, women adapting to a 'standard template' shaped around the typical circumstances of white men in an organization. I describe '*manstreaming*' as the way in which organizations normalize the status quo of men dominating the workplace, it prevails in its power pyramid, organizational chart and structure, from the board of directors to the segregation of occupations, to internal policies and procedures; the life cycle and professional habits of men are mainstreamed throughout the organization setting the tone of the workplace culture.

(g) Organizational culture and gender identities; this research theme aims to include the rational and irrational factors, explicit and implicit, that contribute to the creation of identities and influence the individual and collective behaviours. It builds the relationship

between organizational male-dominated corporations and technological androcentric cultures. Technology is no different from scientific or technical areas in terms of the basic cultural system, it is perceived as masculine, not only because there is a majority of men in the workforce but because the prevailing culture and ethos of the industry appears to be extremely male too. Feeling isolated, displaced and intimidated in a ‘chilly climate’ (Mills & Ayre, 2003) is a common barrier observed by women workers in ICT cultures and before joining the workforce as undergraduates. Previously analysed research themes convey in the organizational culture and gender identities, establishing a vicious circle that keeps women away from technology in a significant way. The question of what it means to be a technical engineer is challenged through theoretical and empirical research, with its symbols of power, competences, characteristics, styles of interaction, topics of conversations and feelings of ‘belonging’.

Regarding the selected research themes, the following authors have served as references for the theoretical frame of this research (*Figure 12*):

Research themes and theoretical framework authors	
1. Opportunities and power management	Guest, 1954; Burns, 1954; Chinoy, 1955; Dubin, 1956, 1962; Cohen, 1958; French & Raven, 1959; Herzberg, 1959; Purcell, 1960; Merton, 1961; Mayer & Goldstein, 1964; Croizer, 1964; Rantz et al., 1996; Lager, 1970; Kanter, 1977; Plott & Levine, 1978; Bacharach & Lawler, 1980; Pfeffer, 1981; Conger & Kanungo, 1988; Wajcman, 1998; Bassett-Jones & Lloyd, 2005; Sachau, 2007.
2. Tokenism and critical mass	Allport, 1954; Gittler, 1956; Segal, 1962; Blalock, 1967; Noel, 1968; Marden & Meyer, 1973; Laws, 1975; Taylor & Fiske, 1976; Frisbie & Neidert, 1977; Kanter, 1977; Giles, 1977; Martin, 1980; Forisha & Goldman, 1981; Rustad, 1982; Stiehm, 1982; Yetman, 1985; Benokraitis & Feagin, 1986; Zimmer, 1988; Zimmer, 1988; Gale, 1995; Rosener, 1995; Shrader et al., 1997; Wajcman, 1998; Henwood, 1998; Dainty, 2000; Etkowitz et al., 2000; Fox, 2001; Ferreira, 2003; French, 2005; Powell & Bagilhole, 2006; Kramer et al., 2006; Kelan, 2009; Castaño, 2010; Faulkner, 2000, 2009, 2011; Hillard et al., 2014; Schwartz-Ziv, 2015; Ursula, 2016; Bridges, 2017.
3. Gender stereotypes	Freud, 1912; Maccoby, 1966; Money & Ehrhardt, 1972; Staines et al., 1974; Kanter, 1977, 1993; Berger, 1977; Heilman, 1983, 2001, 2012, 2013, 2015; Faulkner & Arnold, 1985; Kahle, 1987; Curlan, 1988; Caputi, 1988; Curran, 1988; Collinson, 1990; Wajcman, 1991, 1998; Murphy, 1992; Bowles & Costes, 1993; Fyock & Stangor, 1994; Foschi, 1994, 1996; Ely, 1994, 2004; Baker & Leary, 1995; Steele & Aronson, 1995; Dickens, 1995; Henwood, 1996; Burfoot, 1997; Kunda et al., 1997; Rabin & Chambonneau, 1997; Ellemers et al., 1997, 2004; Steele, 1997, 2002; Lovaglia, 1998; Balsamo, 1998; Scullen et al., 2000; Warrington & Younger, 2000; Goldin & Rouse, 2000; Reskin & McBrier, 2000; Correll, 2001; Pittinsky et al., 2001; Faulkner, 2001; Bell & Nkono, 2001; Steele et al., 2002; Eagly & Karau, 2002; Kray et al., 2002, 2010; McIntyre et al., 2003, 2005; Bell et al., 2003; Liff, 2003; Uhlmann & Cohen, 2005; Blickenstaff, 2005; Edwards & Wajcman, 2005; Dobson & Iredale, 2006; Mavin, 2006, 2008; Adams et al., 2006; Bergeron et al., 2006; Adams et al., 2006; Schiebinger, 2007; Eagly & Carli, 2007; Opplinger, 2007; Hoyt & Blascovich, 2007, 2010; Hoyt & Chemers, 2008; Good et al., 2008; Parks-Stamm et al., 2008; Heilman & Eagly, 2008, 2016; Marx et al., 2009; Stroebe et al., 2009; Logel et al., 2009; Carr & Steele, 2009, 2010; Dovidio et al., 2010; Good et al., 2010; Hoyt, 2010; Hoyt et al., 2010; Taylor & Walton, 2011; Derks et al., 2011; Dasgupta, 2011; Gaucher, 2011; Shapiro & Williams, 2012; Biernat & Deaux, 2012; Furnham, 2012; Sáinz, 2013; Banaji & Greenwald, 2013; Reuben et al., 2014; Castaño & Palmen, 2014; Eagly et al., 2014; Corbett & Hill, 2015; Heilman et al., 2015; Lindsey, 2015; Dezsö et al., 2016; Hoyt & Murphy, 2016; Lorenzo et al., 2016; Sáinz et al., 2016; Baxter, 2010, 2017.
4. Brotherhood	Merton, 1973; Dobbs, 1976; Kanter, 1977; Baker, 1981; Han, 1983; Brass, 1985; Coe, 1992, 1993; Ibarra, 1992, 1997; Charlesworth, 1997; Ibarra & Smith-Lovin, 1997; Wajcman, 1998; Davies-Netzley, 1998; Rastetter, 1998; Osborn et al., 1992, 2000; Bencert & Staberg, 2000; McGuire, 2000; Hite, 2000; Etkowitz et al., 2000; Gersick et al., 2000; McPherson et al., 2001; Waldstrom, 2001; Singh et al., 2002; Higgs, 2003; McCarthy, 2004; Gupta, 2004; Bozeman et al., 2004; Doppler, 2005; Webster, 2005; Sambunjak et al., 2006; Faulkner, 2009; Castaño, 2010; Barnard et al., 2010; McDonald, 2011; Larivière et al., 2011; Haeussler, 2011; Kelan, 2012; Corbett & Hill, 2015; Uhly-Zippel, 2015; Fernández-Pérez (2015); Sagabiel, 2016; Paksi & Tardos, 201; Greguletz et al., 2018.
5. Corporate manstreaming	Millet, 1968; Kanter, 1977; Stechert, 1986; Connell, 1987; Pateman, 1988; Dickens, 1994; Liff & Wajcman, 1996; Wajcman, 1998; Moore, Griffiths & Richardson, 2005; Griffiths & Moore, 2010; Goldin & Katz, 2016; Beard, 2018.
6. Sex and work	Molloy, 1977, 1996; Williams, 1977; Kanter, 1977; MacKinnon, 1979; Farley, 1980; Abbey, 1982; Collinson & Knight, 1986; Stechert, 1986; Hearn & Parkin, 1987; West & Zimmerman, 1987; Crary, 1987; Burrell & Hearn, 1989; Martin, 1989; Mainiero, 1989; Acker, 1990; Cockburn, 1991; Tallichet, 1995; Collinson & Collinson, 1996; Herek, 1996; Wosinska et al., 1996; Bender, 1997; Lorber, 1997; Rospenda et al., 1998; Wajcman, 1998; De Coster et al., 1999; Tretheway, 1999; Powell, 2001; Quinn, 2002; Maass et al., 2003; Frankel, 2004; Bowles et al., 2007; Berdahl, 2007; Bilimoria, 2007; Hewlett et al., 2008; Das, 2009; Berebitsky, 2012; McLaughlin et al., 2012; Jeanes et al., 2012; Mayock, 2016; Beard, 2018.
7. Organizational culture and gender identities	Oakley, 1972; Kanter, 1977; Hacker, 1981; McNeil, 1987; Acker, 1990; McNeil, 1992; Martin, 1992; Murray, 1993; Gale, 1994; Wajcman, 1996; Wajcman, 1998; Evetts, 1998; Wajcman, 1998; Brainard & Carlin, 1998; Morley, 1999; Woodfield, 2000; Ashkanas et al., 2000; Wajcman, 1991, 1998; Faulkner, 2000, 2009; Fox, 2001; Bagilhole & Goode, 2001; Mills, 2002; Roberts & Ayre, 2002; Aaltio & Mills, 2002; Margolis & Fisher, 2003; Margolis, 2003; Wajcman & Mackenzie, 2005; Husu, 2005; Edwards & Wajcman, 2005; Bagilhole, 2005; Webster, 2005; Cohoon & Aspray, 2006; Burger et al., 2007; Anderson, 2007; Sagabiel, 2007; Van Nelsum, 2007; Hewlett et al., 2008; Meelisen, 2008; Wajcman, 2008; Servon & Visser, 2010; Castaño & Müller, 2010; Sagebiel, 2010; Fouad et al., 2012; Vázquez-Cupeiro, 2013; Castaño & Caprile, 2014; Castaño & Palmen, 2014; Corbett & Hill, 2015.

Figure 12: Research themes and references.

Accordingly, these seven themes integrate the theoretical framework that inform my qualitative analysis, challenged by the individual experiences, perceptions and expectations of ICT women workers in order to show how the theory does or does not apply to the phenomenon of my study.

2.2.3.2 *Qualitative perspective*

My research used qualitative research methods aligned with feminist epistemology. The debate between quantitative and qualitative methods, and between deductive and inductive approaches, have played a major role in feminist social science (Oakley, 1998; Hesse-Biber, 2007). Feminist qualitative research approaches have grown increasingly complex (Fonow & Cook, 2005; Olesen, 2005) with recurrent revisions and different views, from the standpoint theory to a collective feminist subjectivity (Weeks, 1998), to the recognition of researcher and participants power dynamics and co-production of knowledge, to valuing women's experiences and those of marginalized groups (age, class, race, sexuality, disability). Sociologist Virginia Olesen (2005) established three elements of feminist qualitative research:

It problematizes women's diverse situations as well as the gendered institutions and material and historical structures that frame those; it refers the examination of that problematic to theoretical, policy, or action frameworks to realize social justice for women (and men) in specific contexts (Eichler, 1986; Eichler, 1997); and it generates new ideas to produce knowledge about oppressive situations for women, for action or further research. (p. 236).

As explained by Harding 'starting off research from women's lives will generate less partial and distorted accounts not only of women's lives but also of men's lives and of the whole social order' (1993, p. 56). Individual perceptions are based on the informant's professional career and work experiences, this emphasis on perceptions of achievement on gender equality brings to light success and disappointments along a continuum of efforts made over the years, and therefore places equality gains and its gaps into perspective. It is perceptions that made often the difference between motivated or

disheartened champions of gender equality (ILO, 2012). Despite the importance of qualitative approach in feminist methods, and the increasing recognition of the utility of qualitative methods, concerns remain about employing these approaches over quantitative methods. A quantitative approach serves an important purpose in supporting generalized conclusions (Howard & Borland, 2001; Harper & Kuh, 2007) but a qualitative approach permits a deeper and richer understanding of individual experiences and behaviours. It is qualitative data that yield information beyond statistics alone (Denzin & Lincoln, 2005).

Harper & Kuh's (2007) stated among other reasons, that scholars have been socialized to accept the supposed superiority of quantitative methods or feeling more comfortable with the quantitative paradigm and statistical forms of sense making. Some of the myths analysed are linked to its lack of objectivity due to having the researcher as the primary instrument of data collection and analysis (Bogdan and Biklen, 2007). Findings could be contaminated by the views and predilections of the inquirer; the authors argue that there is no inquiry or assessment approach that can be completely objective. Objectivity and its meaning in techno-science research has been deeply questioned and discussed by feminist scholars since the 1970's, as we will illustrate in the following chapter (*Chapter 3 GENDER AND TECHNOLOGY*). A new term of 'strong objectivity' is proposed in order to extend the notion of scientific research to include systematic observations of background beliefs and to draw attention to ideological assumptions built into scientific research in social sciences (Harding, 1991). The claim of science to be the arbitrator of truth, to be presented as an objective force is rejected by many feminist scholars as a whole and thought to be 'a matter of political power' (Fee, 1981, p.7). Heather Douglas (2004) demands a feminist reconfiguration of objectivity, she argues that the 'complexity of objectivity provides for both, its flexibility in usage and the

strength of its normative force' (p. 468). Finally, discarding and minimizing a qualitative approach due to its lack of objectivity has been demonstrated to be a fragile argument of a prevailing myth since there is no value-free or bias-free research design (Janesick, 2000). Feminist scholar Donna Haraway (1991) explained the concept of situated knowledge understanding different perspectives and how deeply cultural assumptions penetrate into allegedly value-neutral research. She explained that 'feminist objectivity is about limited location and situated knowledge, not about transcendence and splitting of subject and object. In this way, we might become answerable for what we learn how to see' (p. 190). It is essential to acknowledge at all times the researcher's individual mindset, biases, skills and knowledge. Therefore, and since the qualitative researcher is the primary instrument of research, the interpretation of findings must be filtered through the researcher's 'cultural self' (Olesen, 2000) and its conceptual models, beliefs and prejudices (Kincheloe & McLaren, 2000). Awareness of personal bias is central to the qualitative approach:

Without developing a certain degree of wisdom, the qualitative researcher is likely to remain unaware of any personal bias introduced. It is this awareness of personal bias that is important – not whether bias is present or not (Fielden, 2003, p.128)

Another myth explained by Harper & Kuh is the assumption that the perspectives of a few do not represent many. Some reject qualitative methods because there are usually limited numbers of participants from whom information can be collected. In their example, they mention a group of black undergraduates that report alienating views of the campus racial climate in a focus group, probably they are not the only black students who feel the same. In fact, they explain how these results would be consistent with previous research findings that among all racial groups, black students are usually most

dissatisfied with the campus racial climate but even if these group of students represent an outlook that is not shared among the majority of their same-race peers, their perspectives should not be dismissed and data should be used to improve the experiences of students who feel this way, no matter how many or how few there are. Regarding my research, the individual experiences, perceptions and expectations of the women workers in their corporate ICT careers is the 'isolated truth' in a limited time, space and context.

Another myth to highlight related to the research methods, would be the case for the use of mixed methods (Howard & Borland, 2001) but not all qualitative studies require a quantitative perspective. Furthermore, qualitative findings have the ability to stand on their own and provide useful insights to guide policy, practice, and institutional decision making. Qualitative methods have been used to develop surveys and questionnaires or to simply augment quantitative findings (Fowler, 2002). But not all qualitative studies require quantitative verification, and vice versa. Quantitative research methods have been broadly used to address the underrepresentation of women in the ICT sector, different studies analyse through extended surveys and/or organizations employee structure, the possible barriers to women's advancement in ICT careers. The present research endorses the use of qualitative approaches because they can help answer some of the most complex questions that concern women workers in STEM fields (Powell et al., 2006).

Qualitative research is linked to the context in which my research takes place and therefore results should not to be generalised. My dissertation aims to bring a new individual qualitative perspective to the pool of knowledge about similar problems concerning the underrepresentation of women workers in the ICT sector in Spain, upon which meta-analysis can then be performed.

2.2.3.3 Participants

The sample of female informants was conformed in two different ways: a professional search tool (LinkedIn) whereby I located and selected public profile candidates in tech companies through the search field and through consultations to the European Network of Professional Women (PWN) association, as well as to the Equality Unit of Universidad Politécnica of Madrid for candidates that met proposed requirements for the purpose of the field work. Adding to their talent, participants all have in common being academic high performers, having science, technology, engineering and mathematics career degrees, also known as ‘STEM careers’, and working in ICT corporations based in Spain¹⁰, the common characteristics of these corporations are described below in section 2.2.4.1 *ICT corporation’s categorization* of this chapter (Figure 13):

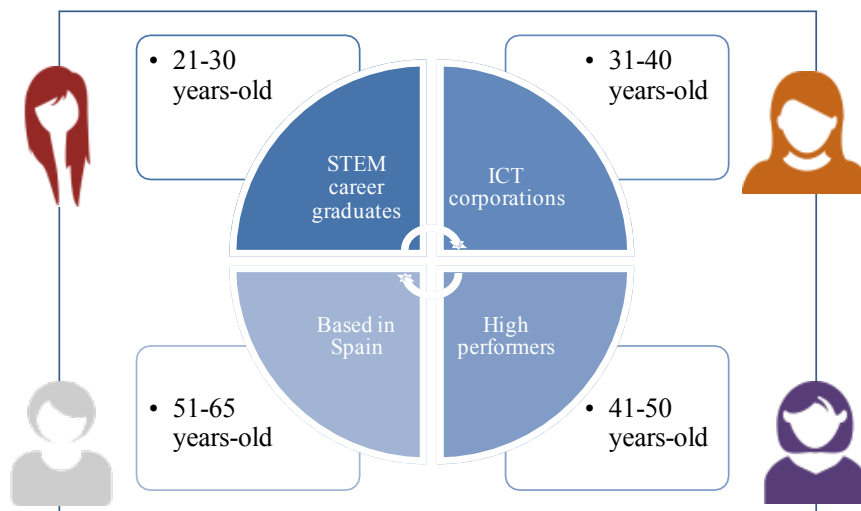


Figure 13: Common characteristics of female informants.

¹⁰ It is important to note that 95 per cent of informants are ‘white’, not incorporating ethnic and/or racial characteristics to the sample or other intersectionality such as class or sexuality.

Informants have not been categorized or grouped in order to understand group characteristics and behaviour, taking from a feminist research approach, their experiences are individual and should not extrapolate findings to determined groups (McRobbie, 1997; Czamaiwska, 2005). Nevertheless, informants belong to different age groups, in order to understand the impact and effect of length of service in the world of work of each individual informant. Age evolution in relation to career advancement and retention is an important perspective to analyse (Moore et al., 2005; Griffiths et al., 2006). In the labour market context, one area of special interest has been the recent generational shift, which has seen the arrival in the workplace of the first digital natives (Abrams & von Frank, 2014; Pyöriä et al., 2017). Defining generations and exploring their differences is a subject of much current debate that involves social, political and economic contexts and is not the focus of the present research.

It is important to clarify that Judy Wajcman (1998), centred her investigation of gendered relations in senior management. As she clarifies in her introduction to ‘Managing like a man’:

Managerial job is a repository of power and authority, the site of decision-making and rule-making within an organization. Women’s access to senior management is both a symbol and a measure of organization change. Over the recent decades, women have entered lower and middle managerial levels in large numbers without major disruption to the ways organizations operate. Only when they are present at the top are they perceived as a different threat and challenge to male power. (1998, p. 2)

Unlike Wajcman’s research, in order to understand women’s advancement from junior to senior jobs, the present thesis includes other positions along with managerial

jobs. As described earlier, studies highlight that women leave the ICT sector mid-career to a greater extent than men (EC, 2013, 2018; Catalyst, 2014; Hunt, 2010; Corbett & Hill, 2015). Therefore, it is central to this research to include in the qualitative perspective, the participation of women at the start of their professional career, at internship levels and more junior positions within the ICT sector. As the other reference author, Kanter, states in her research work ‘Men and Women of the Corporation’:

Age evaluation can help define for people whether or not they are moving quickly, slowly, or not at all, relative to peers in similar situation. Occasionally, people were told rather directly that they had ‘reached their level’ and were in a terminal job. But more often, awareness of being stuck came more indirectly: through seeing the low promotion rate from one’s job category, or knowing that there would be no place to go beyond the next job, or by seeing that one was getting ‘old’ in one’s position – beyond the average age in that job, or beyond the average number of years of service. (Kanter, 1977, p.136)

The mentioned age groups, with 5 informants each, have been considered to analyse experiences, perceptions and expectations of women workers in the ICT sector regardless of the generation they belong to (*Figure 13: Common characteristics of female informants*).

Group 1: 21-30 years-old women workers, in the early start of their career occupying internships, junior positions. Their extensive postgrad studies postpone their entry into the labour market. Most are labelled as *Millennials*, their work experience is limited to 5/7 years;

Group 2: 31-40 years-old women workers, that hold middle management positions within their corporation. Most are labelled as *Generation Y*, they have more than 8/15 years of experience;

Group 3: 41-50 years-old women workers, they hold senior or management positions. Most are labelled as *Generation X*, they have more than 16/25 years of experience;

Group 4: 51-67 years-old women workers, they hold senior or management positions and some are close to retirement. Most are labelled as *Baby Boomers*, they have more than 26 years of experience.

Academically, informants have been high performers since their school days. Most of them have been academic top performers at university, have double degrees and/or postgrads studies, mainly Masters, in international universities and/or prestigious Business Schools. Some of these postgrads studies have been funded through scholarships or by the corporation where they worked or are currently employed. More than half of the informants have national academic recognitions and academic prizes.

Sociodemographically, the majority of interviewees belong to middle-class families and only the father has attended university. In some cases, informants are the first university graduates in their entire families. Many of them lived in towns from different provinces of Spain and left their homes to Madrid or Barcelona with their first job. Three of informants came from abroad searching for job opportunities in Spain or due to having their Spanish husbands based in Spain¹¹.

As for marital status, almost a third are single, another third is married and the remaining third is divorced; there are no married women in age group 1 (*Figure 14*):

¹¹ Interviewees were from Latin-American countries.

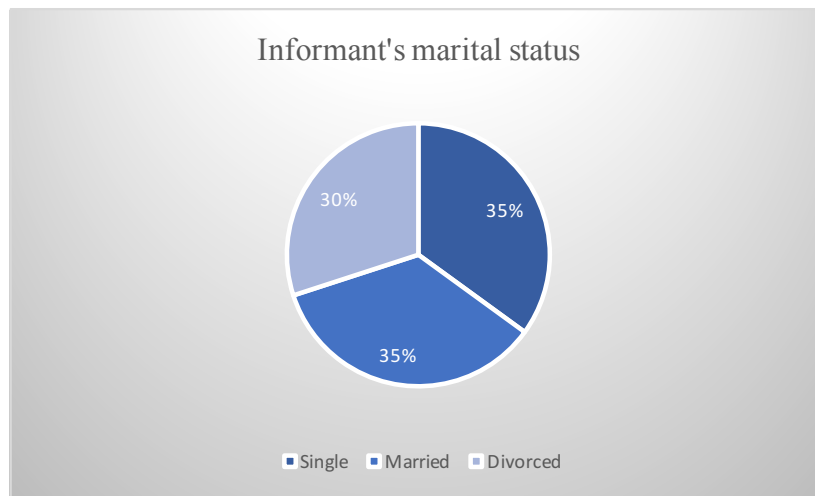


Figure 14: Percentage of informant's marital status.

A slightly more than a third of interviewees are mothers, another third would like to be mothers someday and the remaining third decided not to be mothers. Working mothers represent 35 per cent of informants and they all belong to the age groups 3 and 4 (Figure 15).

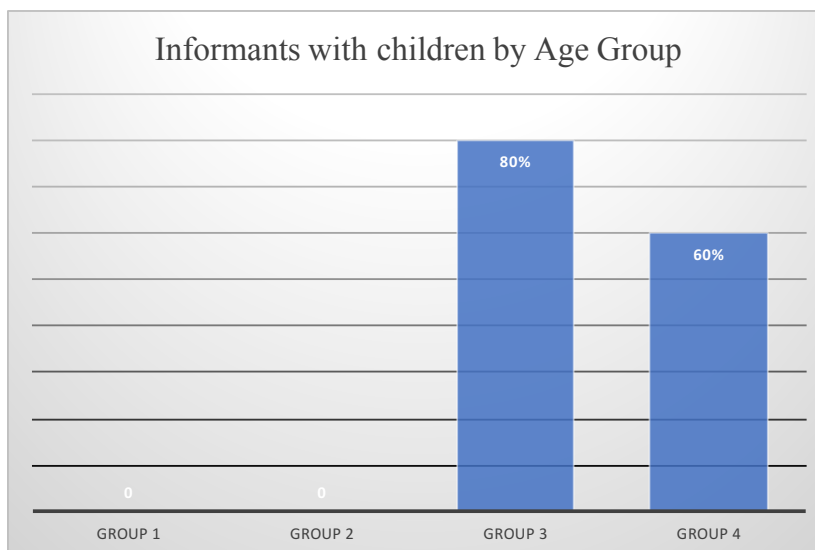


Figure 15: Percentage of motherhood in Age Groups.

With the exception of an internship, all informants have fixed work contracts and enjoy higher incomes than non-ICT workers. They have a different range of years of work

experience, positions occupied and seniority in the company. Most of them occupy positions related to technology. None of them have been unemployed.

In order to guarantee the confidentiality and anonymity of the informants, display of the information is limited. Data regarding university studies, job title and origin of the corporations where informants work is shown in *Figure 16*:

University studies	Informants	Job title	Informants
Computer	5	Intern	1
Computer Engineer	5	Systems analyst	2
Telecom Engineer	3	Information Security Manager	1
Mathematics	2	Team leader	1
Industrial Engineer	3	Project coordinator	1
Aeronautical Engineer	1	Partner	1
Physics / Electronics	1	Senior manager	1
		CEO	1
		Director	3
		VP Digital transformation	1
		Principal Business Consultant	1
		Client partner	1
		Digitization Director	1
		Technical Account Manager	1
		Associate manager	1
		Director of Security and Innovation	1
		IT Transformation Lead	1

Corporation origin	Informants
Anglo-Saxon	13
Spanish	4
French	2
Japanese	1

Figure 16: Informants university studies, job titles and corporation origin.

The qualitative perspective of the research explores the experiences, perceptions and expectations of the achievement of gender equality of a sample of women in their organization in order to better understand concrete facts and interpretations. The women that participated in this research are in Wajcman’s own words ‘exceptional women in an atypical context’ (1998, p. 2). They incarnate the meaning of ‘talent’, they are amongst the so-called ‘talent in the world of work’. Talent in the world of work has been defined in many different ways, in 1998, a group of McKinsey consultants, set a fundamental

belief in the importance of ‘talent’ to achieve organizational excellence (Michaels et al., 2001; Gallardo-Gallardo et al., 2013). Literature regarding the topic of talent and talent management has increased and it is seen more and more as a high-priority issue and considered a critical determinant of organizational success (Beechler & Woodward, 2009; Gallardo-Gallardo et al., 2013), and imperative for the livelihood and sustainability of organizations (Lawler, 2008). In 2013, Gallardo-Gallardo et al.’s article ‘What is the meaning of ‘talent’ in the world of work?’ collected several definitions from the academic human resource management literature, an excerpt of some of them are shown below:

(...) superior mastery of systematically developed abilities or skills. (Gagné, 2000, p.67)

The implemented capacity of a committed professional or group of professionals that achieve superior results in a particular environment and organization. (Jericó, 2001, p. 428)

A select group of employees –those that rank at the top in terms of capability and performance –rather than the entire workforce. (Stahl et al., 2007, p. 4)

A set of competencies that, being developed and applied, allow the person to perform a certain role in an excellent way. (González-Cruz et al., 2009, p.22)

In groups, talent can refer to a pool of employees who are exceptional in their skills and abilities either in a specific technical area (such as software graphics skills) or a competency (such a consumer marketing talent), or a more general area (such as general managers or high-potential talent). And in some cases, ‘the talent’ might refer to the entire employee population. (Silzer & Dowell, 2010, p. 13)

Talent = competence [knowledge, skills and values required for today's and tomorrow's job; right skills, right place, right job, right time] × commitment [willing

to do the job] × contribution [finding meaning and purpose in their job]. (Ulrich & Smallwood, 2012, p.60)

The article describes the etymological history of the term ‘talent’ from the Middle Ages to our days only to highlight the existing confusion around the term. The conceptualization of talent within the world of work is divided into object approach (talent as characteristics of people) and subjective approach (talent as people). Within the subjective approach, it identifies the exclusive approach (an elite subset of the organizations population) from the inclusive approach (talents of all employees of an organization (*Figure 17*):

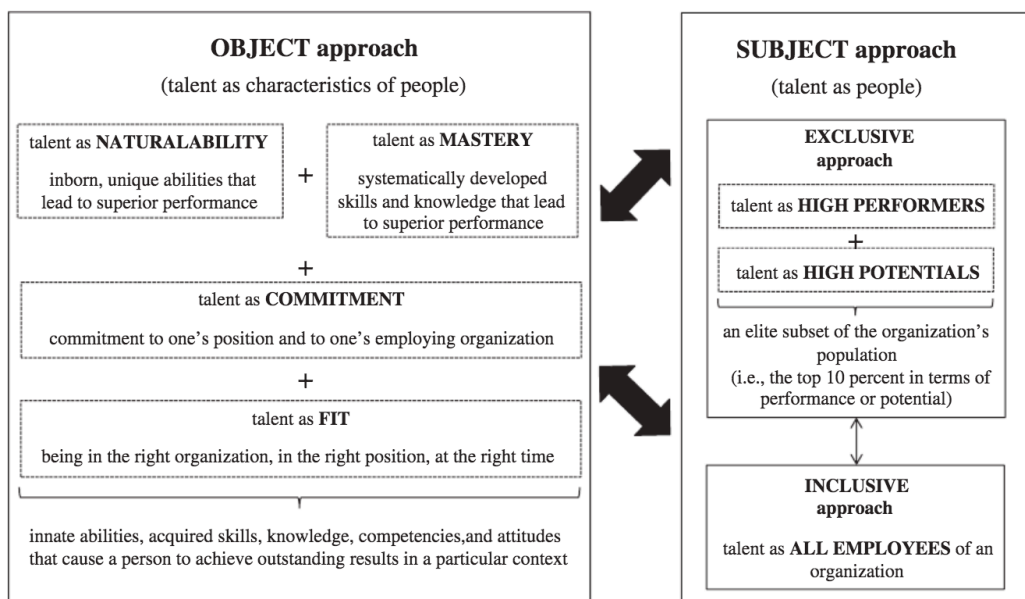


Figure 17: Framework for the conceptualization of talent within the world of work (Gallardo-Gallardo et al., 2013).

Based on Gallardo-Gallardo et al. framework, talent in women informants could be seen within the exclusive approach as ‘talent as high performers’; it must be noted that this framework does not contemplate a gender perspective, if we should analyse in detail the ‘elite subset of the organization’s population’, we might find an important

underrepresentation of women in any random corporation. More often than not, the exclusive approach to talent equates the term talent to high performers. Bradford Smart (2005), industrial psychologist, explains that the single most important driver of organizational performance and individual managerial success is talent. There is no doubt that the definition of talent has an impact on gender bias and discrimination (Festing et al, 2015).

The issue that most concerns us today, beyond the educational and legal barriers, is the loss of talent. To address these issues effectively, it is necessary to ask what happens and what are the factors that prevent women from occupying the top of the pyramid of business structures (Castaño et al, 2008, p.152).

Engaging with the perspective of talent described above, a total of twenty women informants have been chosen to make up a rather heterogeneous sample that covers different ages and perspectives. However, it is acknowledged that the number of research informants is modest; given the nature of the research, the participation rate is considered satisfactory. Judy Wajcman's qualitative research for 'Managing like a Man' (1998) included twenty individual interviews to men and women in one high-tech case study company referred to as 'Chip'; other scholars cited such as Davies-Netzley (1998), explored the perception of women in corporate positions 'above the glass ceiling' through interviews with sixteen men and women corporate presidents in Southern California. While understanding the importance of representative sampling, the judgement is inherent in sampling and it is linked to 'the extent to which what we have found in a particular situation at a particular time applies more generally' (Robson, 1999, p.135). After executing the first set of interviews, the data collection on perceptions, experiences and expectations from informants seemed redundant and contained what seemed like

unnecessary repetition in expressing ideas and perceptions. The interviews concluded when a saturation point was being reached, and where nothing different is added to the existing information (Blasco & Otero, 2008).

Even though no more interviews were thought necessary for the purpose of the research, interviewing other corporate profiles would be interesting in a further research. It is often difficult to assess gender differences and similarities between women and men without a comparative group with representation of both. Leading research in this field has acknowledged this and has included men and women in the research design. In fact, authors Kanter and Wajcman, have explored potential similarities and differences along gender lines. Nevertheless, it is important to clarify that the present qualitative research is based only on women's own perceptions, experiences and expectations. Analysing the perception of people occupying other positions within the company (for example, staff positions), as well as support positions (assistant director or administrative) has been taken into consideration mainly because they are prone to have a different perspective. They are permanent observers who can help identify possible gender biases in the organization. It is important to note that corporations, tend to recruit internally people for staff positions with professionals from business positions within the organization. These people are highly qualified and have developed their professional career within the company with great potential for growth. Female representation in this category is usually higher and, therefore, those who occupy these functional or staff directions are considered of interest for the research. However, the sample only contemplates women working currently in business positions.

2.2.4 Data collection: Semi structured interviews

Previously cited scholars, Kanter (1977) and Wajcman (1998), have used mainly semi-structured interviews as a qualitative research method for their studies of women in highly male-dominated corporations. Semi-structured interviews integrate a series of prearranged open-ended questions where the researcher has more relative control over the topics of the interview than with other qualitative methods, such as unstructured interviews or in-depth interviews, and are useful to explore perceptions of informants¹². During the interviews, participants have the opportunity to choose what they prefer to talk about, how much to say, how to express it and to what extent they want to expand their responses. Semi-structured interviewing is a very flexible technique for small-scale research (Drever, 1995), key issues identified previously during the research such as, influences and reasons for undertaking their degree, experiences of their work environment, the transition to work, project experiences, careers expectations and so on, can be explored, while at the same time interviewees can bring up other related issues, according to their own experiences and perceptions, that might have not been contemplated initially by the researcher. Interviews were divided into two phases: a correspondence (the basis of the information is the conversation with the person interviewed) and a phase of analysis where the conversations are worked out by thematic analysis, transcriptions and codifications. The interviews followed the model of peer-to-peer conversation, in an attempt to manage power relations and establish a similar status through «face-to-face meetings between the researcher and the informants» (Taylor &

¹² The SAGE Encyclopedia of Qualitative Research Methods, 2008.

Bogdan, 1975, p.101); meetings aimed at understanding inside perspectives of their lives, experiences and/or situations, as they express them in their own words; therefore, it was important to create a close, trustworthy bond with each woman was interviewed on equal terms, minimizing explicit or implicit power and authority of the researcher (Wahab, 2003). Interviews highlight similarities and contradictions between and across women's narratives, a way in which gender can be explored in relation to research themes, while preserving the heterogeneity of experiences which is vital to my methodological approach.

All interviews took place in Madrid and in the place of the informant's choice, wherever they felt comfortable and preferably outside the work environment (taking into account time-consuming commuting in Madrid limitations). Most of the meetings were held in nearby cafes with the exception of two interviews that took place in each informants' office and another two interviews that were conducted over the telephone as informants were not based in Madrid. Interviews had an average duration of ninety minutes, and four of the interviews were held in two different sessions of an hour each. Interviews have been transcript to a computer with the permission of the people interviewed but have not been recorded, they were held in Spanish and introduced in this language to the computer at the time, part of the work involved the translation of the interviews to English. Translating Spanish popular expressions was challenging, further research should contemplate keeping the original language used. The transcript also included field notes such as informants' silence, facial expressions, tone of voice, attitudes towards questions and issues that emerged along the conversation. These side notes taken during the interview are very effective, as they add contextual, supporting information relevant to the analysis, evaluation, and interpretation of interviewees and

their accounts. Interviews can contribute details that enable the evolution of a more solid understanding, information regarding spaces, such as their office or other private space, could add detailed information about the informant; information regarding their social style, whether the participant is closer to an analytical, driving, amiable or expressive style (Merrill & Reid, 1999) in order to complement or compare verbal and non-verbal communication styles, although this was not the case as interviews were held mainly in cafes.

Initially, I contemplated in-depth interviews as the ideal primary research tool for the qualitative analysis. There is a considerable amount of quantitative and qualitative research studies in this field, however, the analysis of the discourse of in-depth interviews could give relevant information that would otherwise not be possible to rescue. A perspective of the people interviewed where the information is placed in a multidimensional context, where the meaning of utilized words is analysed in order to understand the concepts and perceptions of informants would have been optimal. In-depth interviews would add value to the research but they have been discarded mainly due to its time-consuming cycle and the scarce availability of the interviewees. ICT sector employees work under a results-oriented scheme and struggle with time and slots in their day-to-day agendas. An in-depth interview approach brings a long-term perspective that many informants cannot contemplate in their busy schedules. Thus, in-depth interviews will be a tool to contemplate in further research.

Direct observation of informants in the office, as a tool for qualitative analysis, has been discarded due to the difficulty that it entails in this specific sector, where most decisions are taken in private meetings and the day-to-day work is carried out in projects at the client's offices (Kanter, 1977).

2.2.4.1 ICT corporation's categorization

The qualitative contextualization to the Spanish ICT sector, following a similar trend to Kanter and Wajcman, has focused on the analysis on multinationals with an important technological component and mainly of Anglo-Saxon culture, although companies from Spanish, French and Japanese origin have been included as well. Although international multinational's behaviour in relation to labour is shaped by the Spanish regulatory system, there seems to be a general move away from hierarchical organization towards more flexible structure. Corporate restructuring and the decline of the long-term, single-organization career is a common trend in capitalist economies and there is a trend to mirror management organizational processes that operate in the United States and other Western countries (Wajcman, 1998). Following Wajcman's 'Managing like a Man' research justification, these organizations have been selected for the following reasons:

Firstly, they are companies widely acknowledged to be at the forefront of equal opportunity policies. So the project set out to study best practice companies. Secondly, it seemed appropriate and timely to examine the private sector. Most existing research in this area deals with the public sector (...). Finally, it is often claimed that the new fast growing high-tech industries provide easier access to women managers than those have inherited long-standing organizational structures. (Wajcman, 1998, p.4)

For the same purpose, my thesis focuses on the organizations, based in Spain, that fulfil these characteristics, highlighting those where attraction and retention of talent is claimed to be a strategic factor to the organization. In addition, these companies are part of a formalized flexible model according to the classification of business cultures in the

implementation of policies of reconciliation and equality (Castaño, 2010) described around the elements shown in *Figure 18*: Cultural elements of the formalized flexible model / diversity (Castaño, 2010).

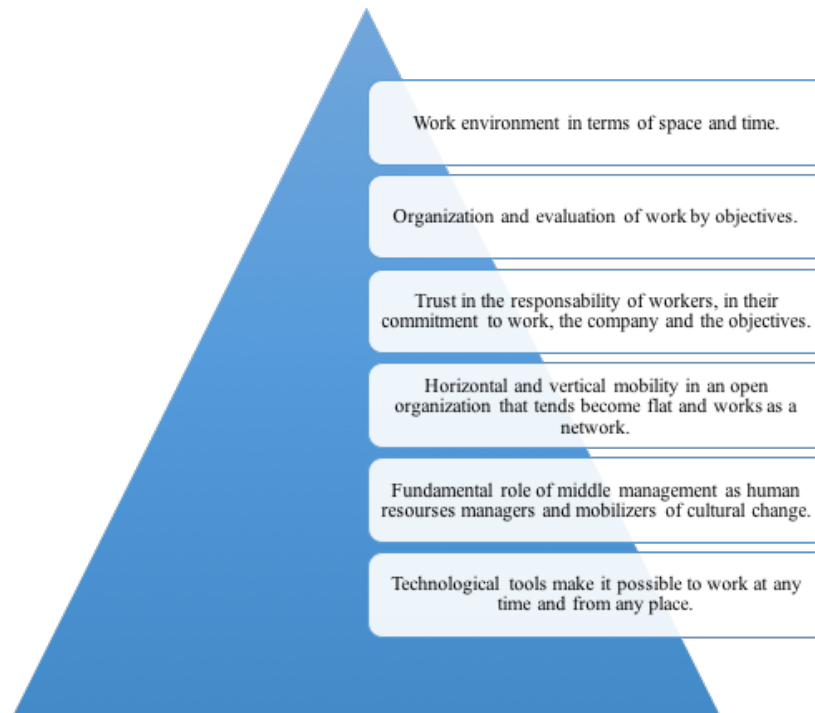


Figure 18: Cultural elements of the formalized flexible model / diversity (Castaño, 2010).

Companies on this model consider that the low presence of women is a problem for the business and have taken an active role to increase women representation in their organizations. These are companies that carry out actions aimed at improving this situation, either through internal actions and/or external actions at university and schools

such as institutional recognitions¹³, elaborating Equality Plans, having University chairs and/or events, public statements from their CEO, etc.

Most of the organizations involved in the research are signatory companies of the institutional agreement '*Más Mujeres, Mejores Empresas*' (in English 'More Women, Better Companies') led by the Spanish Ministry of Health, Social Services and Equality¹⁴. The agreement is described by the Spanish government as: 'A comprehensive and innovative initiative, which combines common interests, and materialized in the signing of the agreement by major companies to implement in their organization various actions to try to eliminate the obstacles that still limit the professional advancement of women. In this space, companies that express their commitment to equal opportunities are visible through actions and integration practices in the selection, training, promotion and retribution processes with the main objective of achieving a balanced presence of women in the positions of responsibility of the companies signing this commitment.'

These organizations applaud diversity as a way of improving performance but, nevertheless, understand their mission is to be high performance organizations and improve business results, not necessarily social change (Castaño & Palmen, 2014). Organizations have not been analysed per se, there is no judgements or conclusions reached on the basis of facts. The contextualization relies heavily on the perceptions and

¹³ 'Distintivo de Igualdad: Government registration of companies with a 'Equality Distinction' that the Institute for Women and Equal Opportunities must keep updated, as required by Order SPI / 1292/2011, of May 17 (BOE 21-05-11), with a series of data of the companies and other entities that have obtained and maintain this distinction in the different calls carried out.'

¹⁴ 'Más mujeres, mejores empresas' agreement, Ministerio de Sanidad, Servicios Sociales e Igualdad, 2018.

feelings of the informants on the work of the organization promoting gender equality in the workplace.

2.2.5 Data analysis: Thematic analysis

As alluded to previously, informants brought different issues with deeper theoretical implications that had to be framed to the categories of analysis identified and linked to organizational behaviour and feminist existing theories (Nicholson & West, 1988). Data collected through the interviews has been analysed using thematic analysis, a method for identifying, analysing, and reporting patterns within data, that aims to identify the essential topics or themes forming the data, themes that recur in data are then categorized to enable a closer and more detailed exploration. Thematic analysis is a very flexible method, independent from theory and epistemology, this is one of the reasons it was chosen in the research process (Braun & Clarke, 2006). It was central to the research to understand and, if necessary, incorporate new narratives and co-produce the themes together with informants. Thematic analysis was useful to identify new themes, as we will see, themes that I had not been prioritized initially, probably due to my own personal experience and bias, and that merged recurrently in conversations (e.g. sexuality, expected behaviour, etc.). Not incorporating these new research themes to the theoretical framework seemed dishonest as well as abusive from a researcher power relation perspective. Although thematic analysis is widely used, there is no clear agreement about what thematic analysis is and how to implement the method accordingly (Attride-Stirling, 2001; Boyatzis, 1998; Tuckett, 2005). However, there is an agreement on the active role the researcher plays in identifying patterns and selecting which are of interest for the

research (Taylor & Ussher, 2001) and the need to be consistent (Braun & Clarke, 2006). In my research, thematic analysis was used in a deductive way (e.g. themes from the theoretical framework) although it was also used in an inductive way (e.g. sexuality as a theme). As a researcher, I was engaged with the literature relevant to the research question prior to the analysis and interested in the way the seven research themes from the theoretical framework played out across the data and focus on that peculiar feature across data, but I was confronted with the identification of other themes that had no previous research on the topic. Thus, it was necessary to create a new theme and review related literature on the topic to be consistent with the theoretical framework. Having a previous theoretical framework might have misled the analysis of the data but it also favoured a subtler analysis of the features in the data. The analysis of the data collected involved a constant reading and re-reading of the transcript and coding, by using highlighters to indicate patterns and associations (*Figure 19*):

Data extract	Research themes coded
<p>'I worked a lot, my work was always very good, I was a perfectionist. I thought that would get me very far. When I was 32, I realized that I was not... that I was a woman. You realize that men start being promoted to managers... and you see that women dont... that they get promoted much later if ever (silence) ...that they (men) had their friends ... And women with their cleaveages, those were the ones that were their friends... (smiles) Why I put 14 hours of my day, if the possibilities are scarce? What effort should I put in?... Life owes me ... I lowered the expectations and the effort too. I looked for other things ... Other experiences...I dont want to be promoted to director... Lets be serious! Women directors are women transvested of men' (Group 3, 10)</p>	<ul style="list-style-type: none"> - Opportunities and power management - Brotherhood - Gender stereotypes - Sexuality and work - Corporate manstreaming

Figure 19: Research data extract, with codes applied.

Data extracts presented in the research findings chapters are embedded and cohere within the analytical narrative in order to construct the argument in relation to the underlying barriers for the advancement for women's advancement in the ICT workplace (Foster & Parker, 1995). The balance between research questions, design, data analysis and level of interpretation has not been always easy to find (Rubin & Rubin, 1995).

2.3 Other methodological aspects

As part of my research, and as a requirement to obtain an International mention, I had the opportunity to take part in a doctoral stage as a visiting research student in the Doctoral College of the Sociology Department of the University of Surrey in Guildford,

United Kingdom. My stage was crucial and very relevant for this research, a different perspective brought by my co-tutors, Prof Andrew King and Senior Lecturer Ranjana Das, contributed to a more structured dissertation, following the British PhD standards, and balancing the weight between the theoretical and qualitative perspective. A calendar with programmed lecturers from different Universities for the autumn trimester of 2018, and a monthly session of 'PhD afternoons' to exchange ideas and highlights on our research findings, organized by the coordinator of the program, Paul Hodgkinson, was key to understanding the doctoral process and gaining new insights applicable to my research. My stay also procured the opportunity to interview sociologist Sarah Arber, interim Professor at University of Surrey, as well as access to the Universities bibliographical resources.

In the early stages of my research, I had the privilege to discuss with Professor Judy Wajcman (1998) her book 'Managing like a Man' while having a tea at her office in London School of Economics. I was overwhelmed with her generosity and perceptiveness we shared thoughts on her research 'Managing like a Man' that, far from being outdated, her work described vividly my professional experience in the workplace culture of a tech male-dominated organization. She came across with a sceptic vision of cultural change. She had recently published 'Pressed for Time: The Acceleration of Life in Digital Capitalism' (2014), a study centred in the use of time and whether technology, smartphones and Internet, contributes to make us free to do other things or makes our life easier. It was Judy Wajcman who suggested the University of Surrey for my doctoral stage.

In 2016, I had the opportunity to interview microbiologist Sagrario Mochales del Val (1932). Mochales, together with my grandfather, Justo Martínez Mata, and Sebastián

Hernández, discovered the first Spanish antibiotic. In collaboration with Merck Sharp and Dohme, the Spanish penicillin company (CEPA) directed the research that identified *Phosphonmycin* from strains found in the coast road from Javea to Denia in Alicante, Spain (Hendlin et al., 1969). I had always been fascinated by the stories my father told me about Sagrario Mochales, my grandfather admired her wit, courage and determination. Even though Mochales had been retired for years, and with scarce mobility, she accepted my invitation to interview her. ‘My boss used to call me *the most brilliant in the company* until I married, from that day on I was just Sagrario’ she said laughing. ‘I did not mind, after all, I enjoyed so much my job as a microbiologist, I was very fortunate to do what I wanted’. Mochales’s sense of humor was notorious at age 85. She seemed to be satisfied and proud of her life achievements. She claimed it was just a matter of being in the right place at the right time, just as Alexander Fleming said ‘one sometimes finds what one is not looking for’. She belongs to that generation of hard workers that were taught to be humble regardless of successes. In Mochales’s case, being a woman, it also meant to be taken for granted as a subordinate despite her performance and outcomes.

Mochales was born in Madrid on November 19th 1932. At age 22, she obtained her university degree in natural sciences and, by the end of the year, on December 23, 1954, joined the factory of the Spanish penicillin-manufacturing firm, CEPA (Compañía Española de Penicilinas y Antibióticos). She was hired after two other male candidates declined the offer.

During my recruitment interview, I was asked whether I was not happy at home, my response was that I was both happy at home and happy at work. They also told me that the Director, Dr. Gallego, was not very fond of women workers... ‘That I am afraid, is difficult to solve’ I said (Mochales, 2017)

After much hesitation and concerns, mainly for being a woman, they opted to give her the job, whilst she was single, and offered her a lower salary than to the previous male candidates. She was not the only woman to join the research center. Previously there had been two other female biologists that had left CEPA after they married, it was the norm and a legal requirement at the time under General Franco dictatorship (*Figure 20*).



Figure 20: Sagrario Mochales with CEPA research team, 2016¹⁵

Mochales' personal experiences, perceptions and expectations were very valuable to this research, the life story of a Spanish 22-year-old women with a scientific academic background that joins a male-dominated research team in the 1950's until 1990's where she retired from her position as CEPA Director. Her personal experience, inspired *Chapter 4 WOMEN AS TECHNOLOGY CREATORS* of this research. A chapter dedicated to women workers in the techno-scientific field, their persistence and determination, the

¹⁵ Credit: Eva Sanleandro, Eldiario.es, 2016.

strategies to airbrush their contributions, men's monopoly of technologies and female technology takeovers.

Interesting for this research too, is my membership of the 'Permanent Seminar Contemporary feminisms' of the INSTIFEM coordinated by Esther Rubio Herráez and Mercedes Reina. During several sessions, I have had the chance to discuss and debate with the coordinators and other researchers' issues concerning technology and gender, as well, as the absence of women from the technological fields.

During my stage at the University of Surrey in autumn of 2018, my thesis director, Professor Cecilia Castaño, arranged a meeting with her co-writer and friend, Professor Juliet Webster, former Director of the Gender & ICT Program at the Internet Interdisciplinary Institute (IN3) of the Open University of Catalonia in Barcelona. My research was finalizing at that stage so it was a magnificent opportunity to have her insight and feedback as we discussed the preliminary results of my research.

Finally, my work as a gender consultant, certified as gender participatory auditor facilitator by the International Labour Organization (ILO), has been very useful. My consulting projects involve helping international and national public and private organizations mainstream gender in their internal and external dimension. Experiences involve conducting large amounts of individual interviews with the organizations personnel and main stakeholders; interviews are confidential and issues regarding inequalities in the workplace are central (gender, sexuality, class, disabilities, race, etc.). My work as a consultant has given me a broad experience in interviewing people and listening to different perspectives on the equal opportunities topic.

As part of my *pro bono* work, I have organized together with different Universities, such as Universidad Complutense of Madrid, Universidad Politécnica of Madrid, Universidad Rey Juan Carlos, Universidad Carlos III seminars, workshops and events regarding gender and technology. These events included debates with undergraduate students as well as women in ICT workplaces, analyzing opportunities and barriers. Along these lines, I have also given workshops to children in primary and high school, concerning gender stereotypes around technology and gender.

Last but not least, I have explored related topics to the absence of women in the creation and design, not only of new technologies, but in other fields like architecture, photography, painting, sculpture, literature. During my stay as a visiting research student, I attended the exhibition ‘Modern Couples’ in the Barbican Museum of London. It was based on the artist couples that forged new ways of creating. The exhibition illuminates these creative and personal relationships, from the fleeting to the life-long. Forty artist couples and their work was exhibited, most of their work was co-produced as both were artists in their field. As it happens, all of the men are well-known and belong to our collective history, their female couples are not.

2.4 [Conclusion](#)

This chapter has discussed the rationale for underlying the research design under a feminist approach from the research inception to analysis. While it is not the only orientation or methods which might have been used, and other options available have been discussed, the chosen feminist orientation and methods have been demonstrated to address compellingly the research question concerns. Not only is it important to name the

feminist theories that are informing the work but it is also central to apply them throughout all phases of the research (Gringeri et al., 2010). This is not an effortless exercise and requires, not only the enduring acknowledgement, articulation and revision of the researcher's 'cultural self' (Olesen, 2000) and power awareness, but understanding and valuing different individual perspectives and intersectionality. Fleeing from 'normative research' where research subjects lack agency and are scrutinized from a well establish hierarchy researcher-researched to co-producing knowledge and narratives. An adequate methodology is central to the research as it can facilitate or complicate the analysis. Even though my thesis had a deductive approach based on which pre-selected themes were chosen, there was a continuous iterative process of analysis that contributed to the richness of data analysis, while incorporating emerging themes. Taking into account the research process strategy, the elaboration of the interview script introducing the research themes in a subtle fashion was arduous work. My own experiences and perceptions as a consultant in a tech corporation were not to guide the open-ended questions, nor were the research themes identified during the elaboration of the theoretical framework. Questions should guide the conversation concerning their day to day experiences, perceptions and expectations and it was the researcher's aspiration to link later these life stories to the theoretical findings and co-create new narratives. As reflected in this chapter, it was vital to incorporate the different perspectives I gained through the interviews with recognized scholars on the gender ad technology field such as Judy Wajcman, Esther Rubio Herráez and Juliet Webster, scientists in a male-dominated world such as Sagrario Mochales and the several multidisciplinary activities, complemented by my doctoral stage abroad, that gave me the key to further interconnections to understand the underlying barriers for women's advancement in the tech sector.

3 GENDER AND TECHNOLOGY

3.1 Introduction

My aim in this chapter is to understand whether the absence of women from technology corporations is related specifically to the tecno-gender dynamics. It explores the relation between gender and technology, an ongoing debate since the mid-twentieth century. Much has been theorized about the relationship of gender and technology, literature has associated technology to masculinity and machines to an extension of male desires. Is technology intrinsically masculine or is it socially constructed? Is the relationship between technology and gender static or dynamic? Are women naturally more adverse to technology than men? If technological innovation will increase significantly in the next decades, and have a major importance in the overall advances of human beings, will the social relation of gender be different?

In the Western culture, feminist theories about the relationship between technology and gender have always been between utopian and dystopian perspectives. On one side, it seems that there is a new gender-free space for freedom, electronic networks, activism and participatory democracy; on the other side, the military origin of the Internet is questioned and its white male domination. How do gender and technology relate to women's emancipation? What are women doing in social networks?

In this chapter, I discuss the existing feminist literature and theories about the relationship between gender and technology thought-out recent Western history, from the initial feminist determinism theories that showed a deep scepticism about the masculinity inherent in technology and how it was accentuated with dichotomous and antagonistic

concepts such as reason/emotion, or artificial/natural to characterize it (Harding, 1986), to the neutral feminist theories in the early nineties of the twentieth century, that brought an unexpected optimism of the liberating potential of ‘techno-science’ for women and their power to transform gender relations (Castells, 1996, Green and Adam, 1999, Kemp and Squires, 1998). The cyber-feminists and their hope for a digital space where sexual differences would be diluted, where minds would be freed from their bodies, and their identity would not be determined by their physique (Millar, 1998, Plant, 1998). The ultimate metaphor of the ‘cyborg’ (Haraway, 1984) presenting the possibilities of transforming relations between women and technologies or the ‘cyber-feminism’ of Sadie Plant in her work ‘Zeros + Ones’ as a reaction to the patriarchal system in technological relations. This chapter concludes with the constructivist perspective of technology described by Wendy Faulkner and Judy Wajcman’s understanding of ‘tecnofeminism’.

3.2 Understanding of gender and technology in a post-industrial society

During the second half of the 20th century, Western countries transitioned from factory work to service industries with computer-based offices. The term ‘post-industrial society’ was coined by sociologist Alain Touraine in 1969 describing a new economy based on services, human capital and the valuation of knowledge. Post-industrialism brought social changes but social theorists focused on the difference of classes rather than the potential impact in gender issues. Soon, a second-wave of feminism emerged, together with feminist theorists, that identified women’s absence from spheres of influence as an important key of gender power relations (Wajcman, 2004).

From a gender perspective, there is an important technical change in the workforce since masculine-related skills and physical strength are basic measures of masculine status and self-esteem; the masculinity of technology becomes ingrained in the technology itself and part of the social construction of masculinity and hegemonic masculinity (Cockburn, 1983; Connell, 1987).

Of particular interest, here is the extent to which control of technology is involved in this archetype of hegemonic masculinity. The cult of masculinity which is based on physical toughness and mechanical skills is particularly strong in the shop-floor culture of working-class men. All things that are associated with manual labour and machinery (...) are suffused with masculine qualities. Machine-related skills and physical strength are fundamental measures of masculine status and self-esteem according to hegemonic masculinity (Wajcman, 1991, p.143).

Cynthia Cockburn (1983) describes in her work 'Brothers: male dominance and technological change', how print workers in the typesetting industry in Britain, organized themselves against the move from hot metal linotype typesetting to cold computerized photocomposition as though their virility depended on it. Another example is described by Ortiz-Gómez and Santesmases (2016) when they explored the representation of the gendered hierarchies in the manufacturing plants of the Spanish Company of Penicillin and Antibiotics (CEPA) since its creation in 1950. Their findings show that the workplace, gender constructed, the research laboratory and the factory, where spaces were differences between men and women, were reinforced by the everyday practice. In the factory, men dressed in blue, retained physical power and handled big machines and apparatuses, on the opposite hand, women dressed in white, handled delicately drugs, thus reinforcing the construction of identities through the use of technology perceived as masculine in the antibiotics industrial production (*Figure 21*).

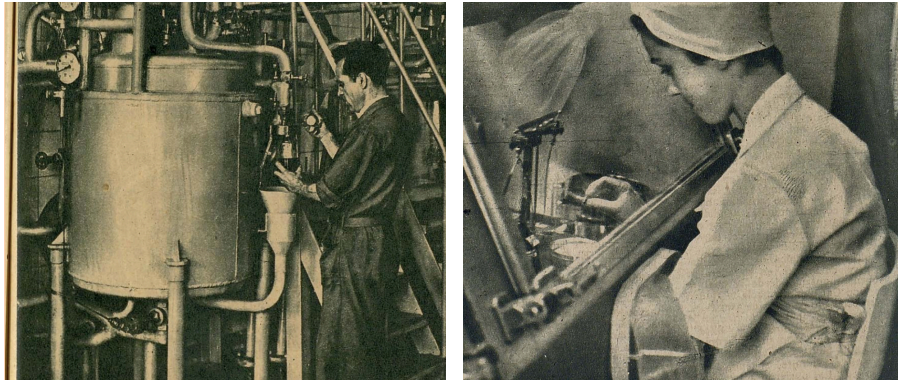


Figure 21: Bottling penicillin in CEPA factory, 1950¹⁶

This was not always so, before the late 19th century, technology was also associated to fabric and needle work, mainly feminized. There is a shift in technical expertise from blue collar to managerial status. By the 1930's, technology is perceived as an applied science, where engineers have exclusive rights to technical expertise.

A trend led by liberal feminism centred gender issues in equal access to opportunities. Increasing women's participation was an issue of access to education and employment whereby gender inequalities could be overcome by different socialization processes and equal opportunities in the workplace. It was a clear person-oriented situation with power in terms of individual people, liberal feminists located the problem in women and not in reshaping technology or the existing power structures to accommodate women. In fact, there was no prescription for 'degendering' men (Wajcman, 2004).

Since the 70's of the twentieth century, feminist scholars focused their research in visibilizing women and their contributions to science and technology; the biographical studies of Rosalind Franklin and DNA are an excellent example of this trend (Sayre,

¹⁶ Source: ABC newspaper archives, 1950.

1075) (see *Chapter 4 WOMEN AS TECHNOLOGY CREATORS*). Genealogies that included women's decisive participation in early development of computers and other disciplines. Later, feminist researchers went on from looking at outstanding women in these fields to understanding general patterns of women's participation in technology and science. Some of the barriers to women's participation were linked to education, gender stereotypes, critical mass, tokenism (Kanter, 1977). Nevertheless, the efforts to increase equal opportunities in the workplace had a limited impact.

3.3 [Technology seen as 'the master's tools'](#)

Just as social feminist Andre Lorde declared 'the master's tools will never dismantle the master's house' describing her distrust to bringing genuine change within the same movement, initial feminist theories challenged the essence of technology, they were sceptic about technology in the same way. Technology was seen as a key source of men's power and masculinity, the imaginary related to technology was masculine reinforced by an implicit association of machines to males since prehistoric times, when human beings began to elaborate their own tools (Castaño, 2005) and a biological-determinist ideology centred in the biological foundations of motherhood (Jordonova, 1980). Even the language associated with technical change was a concern and thought to exclude women, it was argued that men sought, knowingly or unknowingly, to facilitate the technological change process by drawing upon linguistic resources which reproduced relations of power (Wilson, 1992).

In the 1970s, but especially in the 1980s, the feminist discourse begins to emerge in discussions, denouncing science and technology as patriarchal and androcentric,

contributing to generate and perpetuate gender inequalities. It goes further to highlight other inequalities, such as biology, race and social class, arguing there is not only one dominating system (Millet, 1970). In 1986, Sandra Harding published 'The science question in feminism' where she describes the evolution that took place from an aim to improve science to calls to transform its androcentric foundations. This change of perspective, from a reformist to a revolutionary one, meant abandoning the 'women question in science' and taking the 'science question in feminism'. As Harding clarifies:

It should not need to be said – but probably does – that I do not wish to be understood as recommending that we throw out the baby with the bathwater. We do not imagine giving up speaking or writing just because our language is deeply androcentric; nor do we propose an end to theorizing about social life once we realize that thoroughly androcentric perspectives inform even our feminist revisions of the social theories we inherit (...) I am seeking an end to androcentrism, not to systematic inquiry. But an end to androcentrism will require far-reaching transformations in the cultural meanings and practices of that inquiry. (Harding, 1986, p.10)

Science and technology knowledge is assimilated as patriarchal knowledge and, therefore, there is an urge to elaborate a new concept of science and technology with women's values. In her work, Harding describes technology's inherent masculinity and how it has been accentuated with dichotomous and antagonistic concepts between men and women such as rational/irrational, reason/passion, public/private, objective/subjective, artificial/natural to characterize it. Indeed, technology related to men as much as nature is related to women. In her work, she analyses previous research on the conceptual dichotomizing central to scientific ideology and practice; among these scholars, Merchant, Jordonova and Fee argue that such dichotomies are distinctively

masculine and are evident in the entire Western history (Keller, 1978; Merchant, 1980; Jordonova, 1980; Fee, 1981). Ecofeminist Carolyn Merchant shows in her work 'The Death of Nature' how the controlling images and metaphors of nature as female have functioned historically, before the scientific revolution, to justify the domination of women and nature (Merchant, 1980, 1998; Warren, 1998). Jordonova highlighted the symbolisms in the eighteenth and nineteenth century that depicted 'nature as a woman to be unveiled, unclothed, and penetrated by masculine science' (Jordonova, 1980, p.45).

The construction of our political philosophy and views of human nature seem to depend on a series of sexual dichotomies involved in the construction of gender differences. We thus construct rationality in opposition to emotionality objectivity in opposition to subjectivity, culture in opposition to nature, the public realm in opposition to the private realm. Whether we read Kant, Rousseau, Hegel, or Darwin, we find that female and male are contrasted in terms of opposing characters: women love beauty, men truth; women are passive, men active; women are emotional, men rational; women are selfless, men selfish and so on and on through the history of Western philosophy. Man is seen as the maker of history, but woman provides his connection with nature; she is the mediating force between man and nature, a reminder of his childhood, a reminder of the body, and a reminder of sexuality, passion, and human connectedness. She is the repository of emotional life and of all the non-rational elements of human experience. She is at times saintly and at times evil, but always she seems necessary as the counterpoint to man's self-definition as a being of pure rationality (Fee, 1981, p.11-12).

These masculine dichotomies appeal to the belief that science is objective; Fee understands this is sustained by the need to disassociate (a) the production of knowledge from the social uses of knowledge, to prevent the responsibility of science for goals beyond the pursuit of knowledge or society being encouraged to demand what research is to be founded; (b) thinking from feeling, the separation of rationality from social

commitment that leaves the scientist only emotionally responsible in his or her role of private citizen; (c) expert from non-expert, the knowing mind is active, while the object of knowledge is passive, the first represents the authority, the latter responds only to what is being asked and (d) science from society to hide its political relationships (Fee, 1981).

Scepticism about scientific objectivity is shared by feminist scholars that seek to reframe the 'science question' (Keller, 1978; Haraway, 1988).

How is it that the scientific mind can be seen at one and the same time as both male and disembodied? How is it that thinking 'objectively', that is thinking that is defined as self-detached, impersonal, and transcendent, is also understood as 'thinking like a man'? (Keller, 1992, p.9)

Social constructionists make clear that official ideologies about objectivity and scientific method are particularly bad guides to how scientific knowledge is actually made. Just as for the rest of us, what scientists believe or say they do and what they really do have a very loose fit (Haraway, 1988, p.576).

In 1986, Sherry Turkle, Massachusetts Institute of Technology (MIT) sociologist from the STS field, in her work 'Computational Reticence: Why women fear the intimate machine' analysed the 'computer culture' from a qualitative perspective interviewing 200 children, ages 4 to 14 to find the social world of the computer 'as alien':

Women look at computers and see more than machines. They see the culture that has grown up around them and ask themselves if they belong. And then, in high school and college, they look at the social world of the computer expert, they see something that seems alien. At the extreme, they see the social world of the 'hacker', a culture of virtuosos. It is a world, predominately male, that takes the machine as a partner in an intimate relationship (Turkle, 1986, p.46).

Along the same lines of research, social feminism thinkers centred their studies in the gendered nature of technology itself, emphasizing the masculine bias in scientific culture. Power was embedded in social structures and technology is portrayed as a powerful tool in the hands of patriarchy. Socialist feminist thinkers were also concerned about the future of employment, with the reduction of office jobs due to the automatization of tasks, as well as the impact of technology on women's health and safety at work.

These dichotomies were reinforced by radical feminism, eco-feminism and cultural feminism that emphasized gender differences and technophobia: the violent masculine symbolism of technology versus the pacifist feminine symbolism of nature, masculine instrumentalism versus feminine expressiveness. In other words, technology was the opposite of femininity. Ecofeminists went further to believe that technology would transform the world away from nature and people (Mies & Shiva, 1993).

Technology was seen as a threat, more so, applied to human reproduction. The Feminist International Network of Resistance to Reproductive and Genetic Engineering (FINRRAGE) was created in 1984 and many feminist scholars joined the network. Artificial insemination, in vitro fertilization and the manipulation of embryos would detach women from their only recognized power, human reproduction, giving way to technological maternity (Stanworth, 1987).

Whether or not women are eliminated, or merely reduced to the level of 'reproductive prostitutes', the object and the effect of the emergent technologies is to deconstruct motherhood and to destroy the claim to reproduction that is the foundation of women's identity (Stanworth, 1987, p.16)

Almost like a premonition of our times, Gena Corea (1986) described an imaginary ‘reproductive brothel’ (Dworkin, 1983) like a mother machine with professional ‘breeders’ similar to the more than 350 ‘baby factories’ that existed since 2002 across India before they were banned in 2016 and are present today in Ukraine amongst other developing countries¹⁷. The rise of the ‘reproductive brothel’ in the global economy is a major concern in feminist research and debate today (Cherry, 2014).

The background deals with the social and political context in which the technology is developing. Here, the technology is seen as something created in the interests of the patriarchy, reducing women to Matter. Just as the patriarchal state now finds it acceptable to market parts of a woman’s body (breast, vagina, buttocks) for sexual purposes in prostitution and the larger sex industry, so it will soon find it reasonable to market other parts of the women (womb, ovaries, eggs) for reproductive purposes (Corea, 1986, p.2).

Overall, early feminist research of gender and technology perceive the role of technology in a pessimistic way, much of the narrative is characterized by technological determinism in an over-determined analysis of patriarchal technology. This idea emphasized the role of technology in reproducing the gendered division of labour. The pessimistic perception of technology as conceived by men for men and as a powerful tool of patriarchy had an impact in how women were perceived in these fields. In the US, computer degrees nearly halved between 1984 and 1999¹⁸ and women opted for social

¹⁷ Surrogacy (Regulation) Bill 2016, passed by the Lok Sabha and aimed at banning commercial surrogacy to protect women from exploitation, November 16, 2016.

¹⁸ Balancing the Equation: Where are women and girls in Science, Engineering and Technology? National Council for Research on Women, New York: NCRW, 2001.

sciences instead. The idea that computers and technology were for men became a narrative that remains strong today.

3.4 [From binary to fluid technology](#)

This pessimist trend was replaced, in the early 1990s, and since the hatching of the Internet in the mid-decade, by an unexpected optimism about the liberating potential of techno-science for women, and their power to transform social trends breaking up with hierarchical arrangements in a new post-traditional network society (Castells 1996; Kemp & Squires 1998; Adam, 2001). Indeed, the late 20th century brought enthusiasm and optimism towards a new technology amongst many feminist thinkers. The Internet and other technical developments involved a new connected, wired, open, malleable virtual community. Immovable traditional hierarchies were replaced by horizontal, flexible networks closer to traditional associated female values than those of men. A binary perspective of technology evolved to a fluid understanding of technology, fluidity as a female quality. Technology's rigidity transformed into a female weapon for freedom; cyber-cafes, mobile phones and new media as accomplices of women's agency in order to have a voice in society and influence public policy. Sherry Turkle (1990) pointed to the powerful impact of the Internet as a place to reconstruct gender and identity to suit one's fancy, not reality. These movement brought a new form of technological determinism that predicted advantages for women over men.

Cyber-feminists describe the digital age as a space where sexual differences are diluted, where minds are freed from their bodies and their identity is neither subject nor determined by their physical characteristics (Millar 1998, Plant 1998). The information

age was thought to lead to some areas of convergence between the sexes in their experience of future work and internet-based businesses were seen as a fruitful source of new jobs for women in equality with men (Stanworth, 2000).

While the social costs of flexibility can be high, a growing stream of research emphasizes the transformative value of new work arrangements for social life, and particularly for improved family relationships, and greater egalitarian patterns between genders. (...) Overall, the traditional form of work, based on full-time employment, clear-cut occupational assignments, and a career pattern over the life-cycle is being slowly but surely eroded away (Castells, 1996, p.290)

Along these lines, Donna Haraway (1984) emphasizes the liberating potential of technology with the arise of the cyborgs, half human half machine, that would emancipate women and liberate them from their reproductive role. Thus, Haraway turns around the most pessimistic predictions about technology developments in human reproduction and argues that biology, as the basis for gender difference, has lost its authority. She describes the cyborg metaphor - being that is neither human nor machine, neither male nor female - as a possibility of transforming relations between women and technologies (*Figure 22*). In her work 'A Cyborg Manifesto', Haraway explains:

The cyborg is a creature in a post-gender world; it has no truck with bisexuality, pre-oedipal symbiosis, un-alienated labour, or other seductions to organic wholeness through a final appropriation of all the powers of the parts into a higher unity. In a sense, the cyborg has no origin story in the Western sense—a 'final' irony since the cyborg is also the awful apocalyptic telos of the 'West's' escalating dominations of abstract individuation, an ultimate self-untied at last from all dependency, a man in space. (Haraway, 1997, p.8)

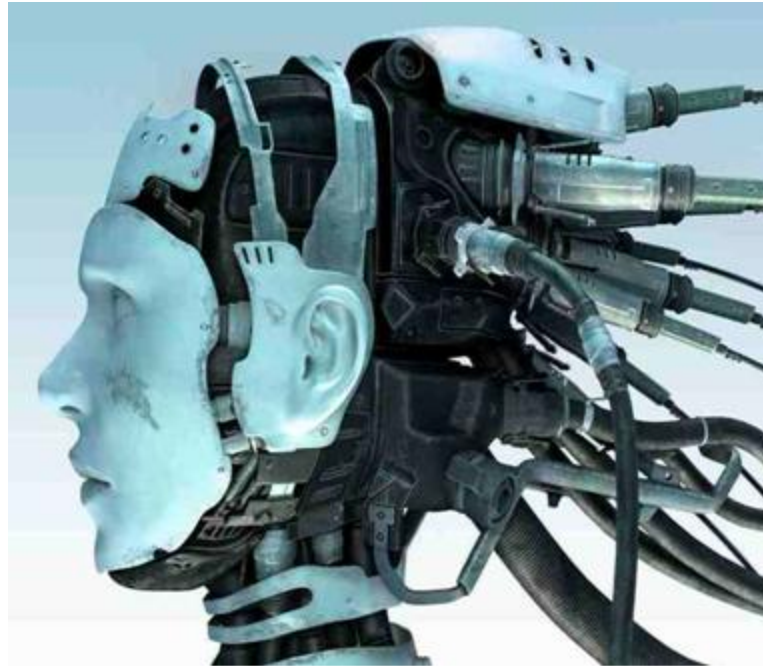


Figure 22: Cyborg in Post Digital Cultures

Another reaction to the scholar's determinism approach to technology is brought by post-modern feminist Sadie Plant (1997) and her work 'Zeros + Ones'. Plant understands technology as a liberating tool for a post-patriarchal future and shows a strong reaction to the patriarchal roots imbedded in technological relations. She goes on to explain the capital importance of women in the creation, assembly, composition and execution of digital machines.

But, as it turns out, women have not merely had a minor part to play in the emergence of the digital machines. When computers were vast systems of transistors and valves which needed to be coaxed into action, it was women who turned them on. They have not made some trifling contribution to an otherwise man-made tale: when computers became the miniaturized circuits of silicon chips, it was women who assembled them. Theirs is not a subsidiary role which needs to be rescued for posterity, a small supplement whose inclusion would set the existing records straight: when computers were virtually real machines, women wrote the software on which they ran. And when computer was a term applied to flesh and

blood workers, the bodies which composed them were female. Hardware, software, wetware... before their beginnings and beyond their ends, women have been simulators, assemblers, and programmers of the digital machines (Plant, 1997, p.37)

Other scholars went further on to argue that other selves can exist in the virtual world without a physical body (Irigaray, 1990; Stone, 1995). Along these lines, technology applied to human reproduction was perceived as a liberation for women. Technological maternity was seen as a strategy to attack the roots of sexual inequalities and technology would offer the knowledge to do so. Reproductive technologies, including contraception, abortion, artificial insemination or artificial wombs would help overcoming the undesired maternal link between woman and her offspring (Firestone, 1970) (*Figure 22*).

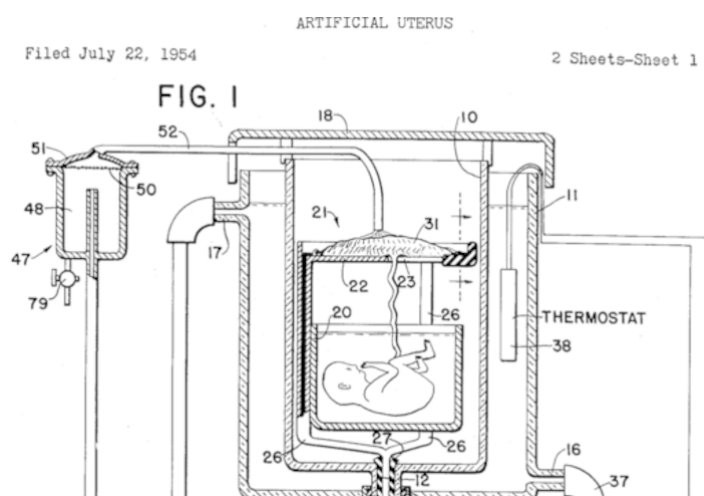


Figure 23: Patent of Artificial Uterus, 1955¹⁹

Artificial reproduction is not inherently dehumanizing. At the very least, development of an option should make possible an honest examination of the ancient value of motherhood (Firestone, 1970, p.235).

¹⁹ Diagram of the artificial womb concept by Emanuel M Greenberg, 1955. Credit: US Patent Office.

3.5 From 'women in technology' to 'gender in technology'

The 21st century brought a new social dimension to technology, treating technology as a socio-technical product, developing a new perspective known as the 'social and technology studies' (STS) or 'constructivist studies'. Social studies of technology reject any form of technological determinism, it does not presume that technologies develop in predetermined directions nor that technologies determine social change. Social scientists have studied the effects of technology on society but tended to ignore the more fundamental question of what shapes technology in the first place (Cockburn, 1985; MacKenzie & Wajcman, 1999). The constructivist approach to technology challenged previous technology's determinism, against or in favour of women associated traditional values, and any presumed neutrality of technology.

Social studies of technology incorporated a new and broader understanding of technical innovation. Social scholars challenged the much studied, and criticized theory of 'linear model of innovation', the mechanism used for explaining innovation in the literature on technological change and innovation since the late 1940s, whereby technological innovation starts with basic research, continues through applied research and then enters the development phase (Godin, 2006; Balconi 2010). They argued that multiple agents participated in innovation and technological change such as the economic, cultural, organizational, political and social spheres, innovation was no longer a monopoly of engineers and computer scientists. The idea of 'technological system' was key, a technological system had technical, economic, organizational, cultural and political factors. The 'actor-network approach' was another line of work of the constructivist research program. Social scholars showcased different inventions, such as the gas fridge,

the microwave or war weapons, where economic, political or social factors had been decisive to their success. Wajcman (2004) describes the failure of the gas fridge to illustrate how social elements participate in the process of technological innovation. Today consumers can choose to have an electric or gas cooking plate but not between having an electric or gas fridge in their homes. The main reason is no other than economical, General Electric could afford the investment to develop electric fridges and gas fridge manufacturers lacked the resources needed to develop it. In this case, economy, and not technical superiority, was decisive for technological innovation. Technology is seen as constructed in the social relations that produce and use it, introducing space to re-constructing these relations. Framing these issues in terms of ‘society’ and ‘technology’ should not hide the fact that both are human constructs (Bijker, 1997).

3.6 [From ‘manstreaming’ to mainstreaming](#)

Technological constructivism is centred in the idea that technology and society are coproduced. Technology is influenced by social conditions, ideologies, policies and other social factors as much as society is influenced by artefacts, techniques, information systems and other technical factors. In fact, technology and society are inseparable. This extension of the concept of technology to social sciences failed to consider the gender perspective of this new connected technology. Social scholars had limited the analysis of gender issues to those studies where women were the subjects. In her work ‘Feminism confronts Technology’, Judy Wajcman (1991) builds a strong case for bringing a feminist perspective into social science debates about technology. She explores the way hierarchies of sexual difference affect the design, development, diffusion and use of

technologies and artefacts and sets several examples to illustrate her findings such as contraceptives, houses, weapons and even work processors. In Wajcman's own words 'technology is seen as socially shaped, but shaped by men to the exclusion of women' (2004, p.30). Along this line, Wendy Faulkner (2001) states in her paper 'The technology question in feminism: A view from feminist technology studies' that technology has been socially constructed, or coproduced, along with gender.

One obvious stream within feminist scholarship on technology concerns 'women in technology' most commonly the question 'why so few?' women in engineering. Despite nearly two decades of government and industry backed 'women into engineering' campaigns, the numbers entering engineering are still derisory in most countries, even compared with those going into science. Quite apart from any discrimination or discouragement they may face, most girls and young women are voting with their feet: it does not occur to them to get into either craft or professional engineering; they just are not interested. The virtual failure of these initiatives indicates a failure to critically analyse the ways in which technology itself gets gendered in the eyes of would-be technologists. In particular, I believe the continued male dominance of engineering is due in large measure to the enduring symbolic association of masculinity and technology by which cultural images and representations of technology converge with prevailing images of masculinity and power (Faulkner, 2001, p.79)

Feminist scholars Berg & Lie (1995) criticize constructivism and its lack of concern for gender and explore its relationship with feminism in order to identify where they can mutually benefit from each other. In their work 'Feminism and Constructivism: Do Artefacts Have Gender?', the authors challenge the use of constructivism theories with a feminist perspective. A classic example in the field of the social shaping of technology and artefacts with a gender perspective is the analysis of the evolution of the bicycle

design (Bijker, 1997). How can gender relations affect the design of a bicycle? The bicycle design that finally emerged is the result of multiple users and design preferences such as security concerns, suitability of clothes, social status, etc. Although it was later seen as a tool for women's emancipation and suffragists²⁰, the first designs reinforced the existing gender order, the high-wheeled was considered unsafe and uncomfortable for women but very appealing to young men, women could only ride tricycles and preferably with two seats, one to be occupied by a male (*Figure 24*).

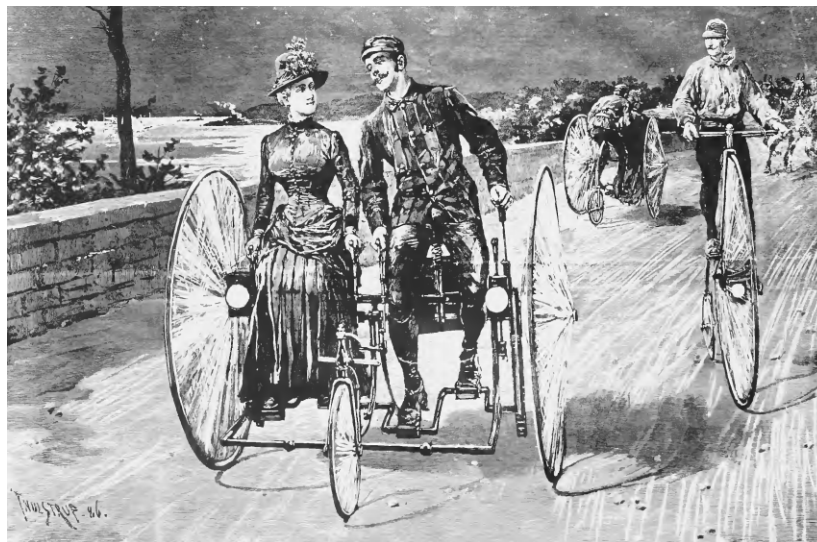


Figure 24: The effect of gender relations on the design of bicycles²¹.

Soon enough the low-wheeled bike, called 'Safety Bike', that allowed road transportation resulted as the most successful design to our days. In his book, Wiebe Bijker narrates an illustrative anecdote at the time:

²⁰ 'Let me tell you what I think of bicycling. It has done more to emancipate women than anything else in the world. It gives a woman a feeling of freedom and self-reliance. I stand and rejoice every time I see a woman ride by on a wheel...the picture of free, untrammelled womanhood.' Herbert George Wells, *New York World*, 2nd February, 1896.

²¹ 'Wheeling on Riverside Drive' a wood engraving appearing in *Harper's Weekly*, 17 July, 1886 by Thure De Thulstrup. Source: *Wheels and Wheeling*. Smithsonian studies in history and technology, number 24. (Smith Hempstone Oliver & Donald H. Berkebile, 1974).

In 1898, a female cyclist was touring the English countryside. She was dressed in knickerbockers, which seemed the most practical and comfortable clothing for a woman on a safety bicycle. After a good lap, she spotted an inn and decided to take a bit of refreshment. To her surprise, the proprietor refused to seat her in the coffee room and insisted that, if she wanted the service, she would to go into the public bar. The inn-keeper's objection centred on the cyclist's clothes, evidently, she did not think it proper for a woman to appear in public in anything but a long skirt (...) Can we say, then, that the design of this technological artefact, the safety bicycle, which allowed our cyclist to travel on her own and to choose more comfortable form of dress, played a role in challenging traditional gender roles and building modern society? (Bijker, 1997, p.1)

Wendy Faulkner (2001) provides a solid framework for understanding the ambivalence women experience about the relationship between gender and technology, from uncritical endorsement to outright rejection. Faulkner sets as an example of the described ambivalence with modern reproductive technologies. Reproductive technology is portrayed as an extension of male desires to control women's biological role in reproduction (Wajcman, 1991) and neglected by ecofeminists for its dissociation from nature and people (Merchant, 1980; Mies & Shiva, 1993) whilst cyber-feminism was overly optimistic (e.g., Plant, 1997; Spender, 1995) with the liberation from the reproductive role. By contrast, feminist scholarship within the field of technology studies, rather than feminist research on technology, seem focus on 'gender and technology', not in 'women and technology' and understand it is socially shaped and therefore can be reshaped.

Similarly, the opening up of the internet is greeted enthusiastically by some women as an exciting tool and a means of gaining technical confidence, while others want nothing to do with yet another 'toy for the boys.' It is notable that much of the

available scholarship on women and technology fails to capture or explain women's ambivalence about technologies; it is characteristically either pessimistic or optimistic. In the latter case, there is a tendency to present technology as deterministically patriarchal (or capitalist) and to portray women as victims of men's technology (Berg, 1997). (Faulkner, 2001, p.80)

Along these lines, Judy Wajcman expressed how naïve the cyber-feminist movement had been in relation to technology and its possibilities offered by a world without assigned, neutral, and constructive identities not taking into account how technology is literally designed by men with men in mind (Cockburn, 1985; Wajcman, 2004). She pointed out that the role played by masculinity in technology has been largely ignored (Wajcman, 2004); in fact, material objects used by men are called technology, material objects used by women are called tools or utensils. The cultural association of technology with masculinity is undeniable, but associations are cultural constructions (Stanley, 1998). Although this association is real, this association can be understood and constructed in different ways. Feminist scholars of social studies of technology, assumed a mutual shaping relationship between gender and technology as source and consequence; these studies also identified ways in which gender-technology relations were embedded not only in gender structures but also in gender symbols and identities (Cockburn, 1985; Wajcman 1991).

Avoiding both technological determinism and gender essentialism, a new theory of techno-feminist emphasizes that the gender-technology relationship is fluid and flexible, and that feminist politics, and not technology per se, is the key to gender equality (Wajcman, 2007). Judy Wajcman, the founder of Techno-Feminism, explains in her work a new approach to gender and technology. Techno-Feminism is a combination of the

cyborg theory and a constructivist theory of technology (Wajcman, 2004), technology is essentially patriarchal and has been socially constructed that way.

If society is co-produced with technology, it is imperative to explore the effects of gender power relations on design and innovation, as well as the impact of technological change on the sexes. (Wajcman, 2004, p.107).

It is critical to expose gender-blindness of mainstream techno-science studies. Wajcman (2004) synthesizes the reasons as a marginalization of gender in mainstream methodology and routinely marginalized or excluded from network. She understands the issue is no longer to accept or oppose techno-science, like in previous feminist movements, 'but rather how to engage strategically with techno-science while at the same time being its chief critic' (Wajcman, 2004, p.107). Francesca Bray (1997) inserts gender into the history of technology and adds technology to the history of gender in her feminist history of eight centuries of private life in China. She proposes a concept of 'gynotechnics', 'a set of technologies that produce ideas about women and gender, as a creative new way of looking at how societies give material form to their ideas' (Bray, 1997, p.380). Tracing female developments from 1000 to 1800 A.D., she focuses on how domestic space embodied hierarchies of gender and follows this shift in the textile industry from domestic production to commercial production. She suggests developing an 'androtechnics' to analyse the role of technologies in the construction of masculinities.

And still, technology as a concept needs to be revised, it is not only artefacts, technology is the combination of artefacts together with social practices, social relationships and arrangements, social institutions, and systems of knowledge (Johnson, 2010). The relationship between gender and technology is not static, it is a mutually

constitutive, mutable and fluid relationship open to transformative research, practice and possible changes. Catharina Landström (2007) argued that the influence of heteronormativity on the conceptualization of women and technology in feminist constructivist technology studies creates analysis problems. The reproduction of heteronormativity, present in culture and technology, has prevented the adoption of different approaches of life and technology and turns to queer theory for ideas about how to produce criticism that does not rely on the stability of identity.

Feminist research of technology is critical to the current context of ICT and society while looking for new opportunities for change; there is a need to step away from a fictitious mainstreaming that could be seen as ‘manstreaming’ and to review technology from a diverse understanding, away from all-white all-male eyes (Wajcman, 2004, 2010; Landström, 2007; Kelan, 2009; Castaño, 2011; Verges Bosch, 2012).

3.7 [Conclusion](#)

The aim of this chapter was to explore, from a feminist theoretical perspective, whether the absence of women from technological corporations is related specifically to tecno-gender dynamics. The relationship between technology and gender has never been indifferent to feminist scholars; either from a determinist, overly optimistic or pessimistic, or a constructivist approach, technology brings more to debate than its machinery and physical artefacts. In fact, technology ‘fundamentally embodies a culture or set of social relations made of certain sorts of knowledge, beliefs, desires and practices’ (Wajcman, 1991, p.149). In a reciprocal relationship, technology shapes society and society is shaped by society. Since post-industrialism to our days, we have seen how technology, despite

its novelty, operates in relation to gender interests and reinforces traditional power and hierarchies; the connections between past and present social practices regarding the differentiation of the two sexes are embedded in technology. The terms in which technology and science are understood is gendered, far away from the presumed objectivity that has been so evidently dismantled by feminist scholars. Nevertheless, it is understood that these social practices are a human construct and, as such, they can be reconstructed. Although there is no need to ‘throw the baby out with the bathwater’ taking Harding’s words, there is a long due challenge of rethinking technology in terms of gender, eliminating ‘manstreaming’ androcentric practices and working towards mainstreaming gender in all innovation programs, policies and research. The master’s’ tools must be reconstructed and appropriated by women and men, including social categorizations such as race and class, to become the ‘peoples’ tools’. Rather than getting more women into technology, the approach shifts to examining the general patterns of women’s participation in ICT and the persistence of structural barriers in this field and the way it is constructed (e.g. standardized career structure in technology is strongly linked to masculinity and male needs).

Drawing more women into design [...] is not only an equal opportunity issue, but is also crucially about how the world we live in is shaped, and for whom (Wajcman, 2009, p.140).

So, if technology is co-constructed along society, and not necessarily determined to be masculine, what other elements operate to marginalize women from tech corporations? What are the general patterns of women’s participation in tech and scientific fields? Are women technology creators? At what expense? What are the structural barriers they face and how are they constructed? What is the impact of gender in the artefacts we use daily?

4 WOMEN AS TECHNOLOGY CREATORS

4.1 Introduction

In this chapter I explain how Western cultures have defined technology to the exclusion of women and how men's enduring monopoly of technology has impacted in the design, the content and uses of technological innovation in our society. I go on to review the science question in feminism brought by Sandra Harding (1986) and other scholars in the mid-1980s that suggest that science and technology has been conceived as patriarchal and androcentric, however, claiming to be universal and objective. The intents to transform science and technology from its foundations have failed since women's participation and achievements in these fields are often ignored or belittled. Women haven't been portrayed as technology creators but have contributed significantly to science and technology at all levels and at all times. Examples of such female genealogies are introduced in this chapter by reviewing Autumn Stanley's exemplary collection of women's inventions and, further on, analysing the 'male takeover of women's technology' paradigm whereby technologies developed by women are taken over by males when they acquire the professional or academic status (e.g. cosmetics, pediatrics, textile). 'Why is a submarine considered a great technological achievement but not a feeding bottle or a disposable diaper?' wonders researcher Eulalia Pérez Sedeño (2000). Additionally, I question who are technology creators today? I review the representation of tech women in Silicon Valley companies, the mecca of technological innovation, and also in tech corporations in Spain for the research purpose. The number of women workers in tech companies increase overtime but not in tech positions, where men are

extremely overrepresented. According to a recent report on distribution of ICT specialists by sex, in Spain only 15.6 per cent of ICT professionals were women in 2017 (Eurostat, 2018). What are the apparent barriers they face once they join the workforce? This chapter includes a section with different surveys of tech women workers in ICT companies in Spain, designed to elicit the main barriers women pinpoint in their sector, these insights will establish an initial context for the purposes of the qualitative perspective. The chapter finalizes with an overview of the main metaphors, concepts and related terms built around the different explanations for women's underrepresentation in the ICT sector or/and in decision making positions in male-dominated organizations from the academia and management literature.

4.2 [Men's monopoly of technology](#)

Compared to people in earlier times, we rarely have a chance to live outside technology. More and more of life is somehow mediated by technology, so that today there is hardly any human activity that occurs without it. (Wajcman, 2004, p.1)

The participation of women is decisive when it comes to visibilizing and prioritizing existing problems and their possible solutions in this society of knowledge. In sociologist Judy Wajcman's own words 'to be in command of the very latest technology signifies being involved in directing the future' (1998, p.110). There is a need for a gender perspective since our 'society as a whole is deprived of the vision, contributions and opinions of half the population' (Castaño & Webster, 2014, p.41).

Scholars have documented how women's exclusion has structured knowledge and impacted disciplines meant to be objective and universal (O'Barr & Harding, 1987; Harding, 1991; Schiebinger, 2007). There is empirical evidence, that show how the marginalization of women from the technological community has influenced the design, technical content and use of artefacts such as the telephone (Martin, 1991), microwave (Cockburn & Ormrod, 1993), military cockpits (Weber, 1997), robotics and software (Suchman, 2008) or early voice-recognition systems (Margolis and Fisher, 2002). This also occurs when women are dramatically underrepresented, many technical decisions are based on the experiences, opinions, and judgments of only men and women may be overlooked (Williams, 2014; Corbett & Hill, 2015).

As an example of how it has influenced the uses of artefacts, Michèle Martin (1991) in her book 'Hello, Central?' explains the impact women had on the development of the telephone as we know it today. Bell Telephone originally thought of the telephone as a business tool for a rather small group of male professionals. The female operators working at the time, anticipated the telephone's potential for domestic use and two-way communication. Due to the many women who began to use the telephone, Bell Telephone changed its approach and transformed the telephone concept. During her research, Martin analysed more than a hundred years of Bell Canada archives of the development of the telephone system in Canada. The feminization of telephone operating functions was broadly extended into Western cultures, it was the case of Spain too (*Figure 25*):

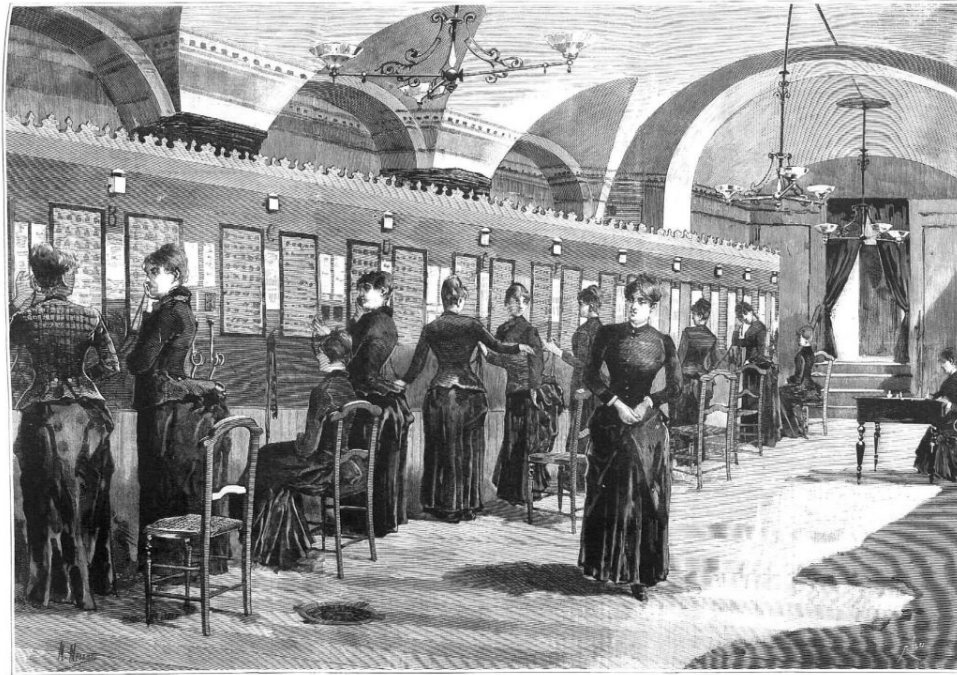


Figure 25: Telephone operators in Central Telephone Station of Madrid, 1886.²²

Another illustrative example of how female absence from technology impacts innovation is the microwave. Cynthia Cockburn & Susan Ormrod (1993) in their book ‘Gender and technology in the making’, explain the evolution of the microwave, how it started as a state-of-the-art masculine technology and how, eventually, it was sold as a humble kitchen female white appliance. The process took years from its military use in the 1940s, to catering ovens, to a sophisticated brown good -targeted to single men- and eventually a domestic white good -targeted to family households and women-.

The gendered design of the military airplane cockpit described by Rachel Weber (1997) is also well-known. Both defence and civilian cockpits have traditionally been built to engineering specifications based on male anthropometry, designed to

²² Central Telephone Station of Madrid in Calle Mayor 1 Illustration by Manuel Alcázar. Published in ‘The Spanish and American Illustration’ in 1886. Source: National Library of Spain.

accommodate 90 per cent of men, and embody a physical bias against women, 70 per cent of women were too small to safely function the cockpit, reinforcing the practice of not allowing women to be pilots. The cockpit had to be redesigned when it was ordered that all women should be allowed to compete in all aviation assignments. Another recent example took place on March 2019, NASA had to cancelled an all-female spacewalk due to the lack of spacesuit in right size²³.

Recent studies, have also associated word embedding - key for Artificial Intelligence and learning machines to make sense of language - to existing gender biases in the software engineering that program them. The laboratory findings concluded that female names are more associated than male names with family than career words, with the arts than with mathematics and more associated with the arts than with the sciences (Caliskan, Bryson & Narayanan, 2017). Another example of the implications of the absence of females in tech can be seen in dating smart phone apps, such as Tinder. French writer Duportail (2019) published the results of her research analysing the data of her dating app for over 4 years. The app lets the user like or dislike as much profiles as desired, based on the user's interests; when the profile liked also likes the user, a match is established with the possibility of starting a conversation. Apparently, the app stored information of Duportail's 870 matches and employed a secret desirability score 'Elo score'. Tinder reserves the right to evaluate its users on their physics, intelligence, education and income using tests used by the US military. A man with a good career will earn bonus points while a woman will be penalized. It can be deduced that Tinder

²³ <https://www.theguardian.com/science/2019/mar/25/nasa-all-female-spacewalk-canceled-women-spacesuits>

evaluates women and men differently, it is definitely a sexist algorithm. These results are not exclusive to the ICT sector, similar cases are found in many other sectors, like the design of automotive airbags (Margolis & Fisher, 2002) or the elaboration of pharma products for coronary diseases. Holdcroft (2007) analysed gender bias in research and its implications in evidence based medicine, her findings showed that United Kingdom's National Health Service (NHS) did not incorporate gender data into evidence-based medicine or guidelines, despite well recognized gender differences in coronary heart disease management in critical care units. If research does not use women subjects then the guidelines should state that the evidence has been obtained only from men. Holdcroft analysed further discrepancies regarding evidence based medicine in the United States National Institutes of Health and Sweden. On another note and paradoxically, reproduction technologies are experimented mostly on women, leaving aside the male reproduction function, with the risks and suffering their bodies undergo in these programs and the scarce research on the consequences for their health (Corea, 1986)²⁴. In sum, men's monopoly of technology involves technology for men, developed by men and with men in mind.

²⁴ Gena Corea (1986) analysed women in in vitro fertilisation (IVF) programs and how real the 'informed consent' of these women actually was in the risks and the suffering their bodies undergo in these programs and the scarce research on the consequences for their health. Women are subject to psychological and physical violence in many forms: probe, scan, puncture, suction, cuts, injections, large doses of artificial oestrogen and progestogen and surgery. Meanwhile, men are asked to ejaculate into a sterilized bottle, regardless of the quality of their sperm. In 2017, Human Reproduction Update magazine published a systematic review and meta-regression analysis of sperm concentration (SC) and total sperm count (TSC) trends between 1973 and 2011, to find a decline of 52.4 per cent (Levine et al., 2017).

4.3 Women's contributions airbrushed from techno-science history

Even though women have been scarcely represented in technology and science, it is important to highlight that women have contributed significantly to science at all levels. Their achievements have had limited prominence and have been mostly ignored or attributed to men, such as their partners or colleagues. Feminist debates around science and technology begin by recognizing the scarcity of women a product of their being ignored, belittled or socially segregated. Harding (1987) cites Rosalind Franklin as a notorious and well known example of the sexist treatment and devaluation of her contribution to science when her colleagues were awarded the Nobel prize for their DNA research. Her colleagues used without Franklins knowledge 'Photograph 51', an X-ray diffraction image of crystallized DNA with the double helix taken by Raymond Gosling (a PhD student working under the supervision of Franklin) that was critical evidence in identifying the structure of DNA (*Figure 26*):

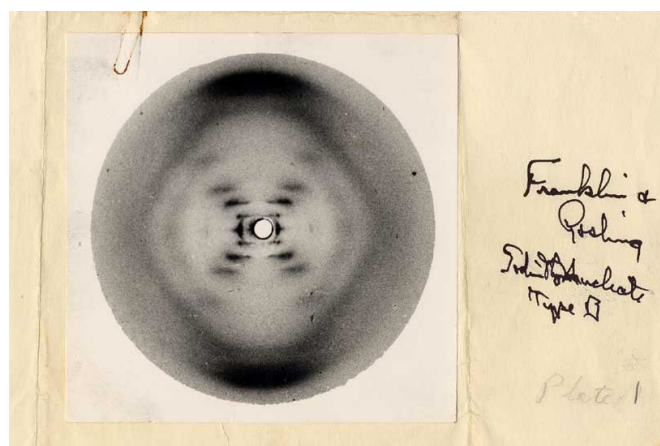


Figure 26: 'Photograph 51' taken by Rosalind Franklin and Raymond Gosling, 1952.²⁵

²⁵ Credit: King's College London Archives/CC BY-NC 4.0.

The event took place in King's College London, a place that had been an all-male university for over a century and that kept women scientists socially segregated in the 1950's. Women were not allowed into the dining room nor invited to the pubs with colleges, which left Franklin and other women researchers out of the relevant fieldwork that took place in different spaces, places, time, movement. Male staff at King's lunched in a large, comfortable, rather clubby dining room though the female staff – of any age or distinction whatever – lunched either in the students' hall, or off the premises (Sayre, 1975, p.97).

It was the case of American crystallographer, Isabella Karle, and her contributions to solving molecular structures (*Figure 27*):

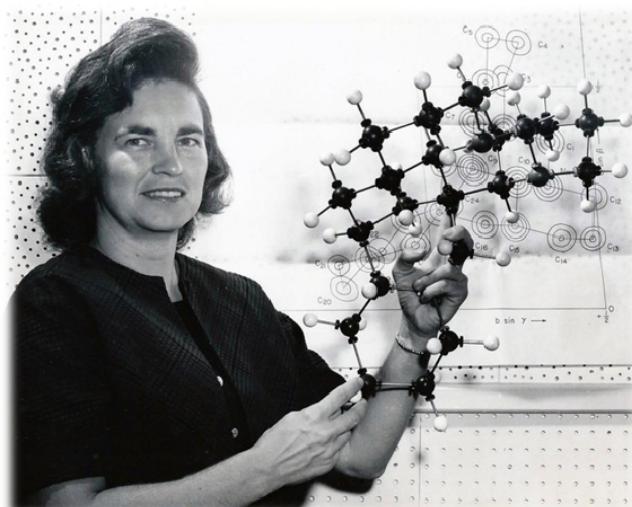


Figure 27: Crystallographer, Isabella Karle²⁶

In 1946, Isabella and her husband, Jerome, were invited to join the US Naval Research Laboratory, where they began working on a new method to determine the structure of complex biological molecules. Jerome worked on the experimental equations

²⁶ Photography from US Naval Research Laboratory.

needed to analyse the molecules while Isabella provided the experimental data to prove that they worked. With the help of some of IBM's earliest computing machines, Jerome and Isabella were able to verify their equations. This new methodology significantly improved scientists' ability to analyse and understand complex biological molecules and contributed to the development of new pharmaceuticals. In 1985, Jerome and colleague Herbert Hauptman were awarded the Nobel Prize in Chemistry for their work on the mathematical equations. Despite her experimental work on the project, the Nobel Committee ignored Isabella's contribution. 'Jerome was devastated that Isabella was not included in the prize, and many other scientists agreed with him. Isabella's contribution to the success of the direct method was crucial,' collected by Magdolna Hargittai of Budapest University of Technology & Economics in her work 'Women Scientists' (2015).

Hargittai (2015) spent over fifteen years of in-depth conversation with female physicists, chemists, biomedical researchers, and other scientists to form an idea on the state of the modern female scientist. In her chapter, 'Husband and wife teams' she describes the joys but also the disadvantages of scientific couples. Couples would decide to work 'together separately' in order to achieve their overall common goal at a faster pace, this strategy played adversely to women researchers. It was the case of Mathematician Mileva Marić, Albert Einstein's first wife, whose contributions were ignored until correspondence between the couple was found in 1986. The letters reveal their shared common interest in physics and science, they were reading together the classic works of Boltzmann, Drude, Helmholtz, Herz, Kirchhoff and Osgood, and Einstein refers in his letter to 'our work on relative motion'. In a letter from Mileva to Einstein written from Heidelberg, she expressed her fascination with a lecture of the

German physicist Phillip Lenard about the relationship between the velocity of molecules and the distance traversed by it between collisions, a topic relevant in Einstein's studies of Brownian motion. Her work is not fully recognized today with an on-going debate (Troemel-Ploetz, 1990; Esterson, 2013). There are other examples where team achievement was recognized exclusively to the male supervisor, this was the case of Astrophysicist, Jocelyn Bell, who, as a postgraduate student, co-discovered the first radio pulsars in 1967, considered one of the most relevant scientific achievement of the 20th century. The discovery was recognised by the award of the 1974 Nobel Prize in Physics, but despite the fact that she was the first to observe the pulsars, Bell was not one of the recipients of the prize, it was her thesis supervisor Antony Hewish. These are not isolated cases: Physicist, Lise Meitner, who worked on radioactivity and nuclear physics; Microbiologist, Esther Lederberg, pioneer of bacterial genetics; Physicist, Chien-Shiung Wu, her leading expertise in beta decay earned her an invitation to collaborate with two other scientists, Tsung Dao Lee and Chen Ning Yang, on an experiment that helped Lee and Yang's develop Nobel Prize-winning theories (Hargittai, 2015). It is clear that official history in Western countries has recognized men, and not women, as technology creators.

In other cases, women contributions were belittled and considered second class inventions. This was the case for the invention of the feeding bottle or water bath. Pérez Sedeño (2000) questions: 'Why is a submarine considered a great technological achievement but not a feeding bottle or a disposable diaper?' It is clear that the masculine Western culture of technology and science deprive women from its role in production and reproduction as well (Noble, 1993). In fact, in the early days of computer science, women were important members of the profession until they disappeared without a trace (Van Oost, 2000; Mass, 2010; Sáinz et al.; 2016), until rediscovered thanks to a wave of

scholars that rescued existing individual histories of female participation from oblivion: Ada Lovelace, Grace Hopper, ENIAC programmers²⁷, Erna Schneider Hoover²⁸, Hedy Lamarr²⁹, amongst many others. To illustrate their achievements, transcripts are shown below as an example:

My interest in Ada Lovelace originally stemmed from her computer connection. Around 1972 a friend who was a computer specialist mentioned her now-famous ‘Translation and Notes’, and assured me that in it she had produced a sophisticated and polished computer program the first in the world -and that no comparable, similar, or related work existed, either published or among her papers, leading up to or following this unique achievement. I was at once filled with a craving to see for myself the papers and correspondence, which few people at that time had looked at with the question of the origins of such an achievement in mind. As a psychologist with an interest in thinking and reasoning, and as a former computer programmer, I hoped that a careful examination would shed light not only on this particular mystery of creativity but also on the more general processes of the acquisition of mathematical concepts and the assimilation of technical innovation, which have so often been probed without success by both psychologists and scientists themselves. (Stein, 1985, p.x)

Rear Admiral Grace Murray Hopper, the U.S. Navy’s oldest active-duty officer at the time of her retirement, developer of the first compiler for a computer

²⁷ In 1946 six brilliant women (Jean Jennings, Marlyn Wescoff, Ruth Lichterman, Betty Snyder, Frances Bilas, and Kay McNulty) programmed the first all-electronic, programmable computer, the ENIAC (Electronic Numerical Integrator and Computer), a project run by the U.S. Army in Philadelphia as part of a secret World War II project. They learned to program without programming languages or tools (for none existed)—only logical diagrams. By the time they were finished, ENIAC ran a ballistics trajectory—a differential calculus equation—in seconds! Yet when the ENIAC was unveiled to the press and the public in 1946, the women were never introduced; they remained invisible. <http://eniacprogrammers.org/>

²⁹ BLACKBURN, Renée (2017) The secret life of Hedy Lamarr. *Science* 22, Vol. 358, Issue 6370, pp. 1.546.

programming language, developer of UNIVAC I and COBOL (common business-oriented language), and coiner of the terms ‘computer bug’ and ‘debugging’. She was known as the ‘Grand Lady of Software’. (Dickason, 1992)

Dr. Hoover is said to have ‘revolutionized modern communication’ with her invention of stored program control. With it, the computer would automatically adjust a call’s acceptance rate, which helped eliminate overloading problems. Switching systems of the telephones were moving from electronic to computer-based technologies at the time, and the systems had an annoying habit of freezing up when inundated with too many calls. Dr. Hoover earned one of the first patents in software ever issued for her invention, and the technology is still used today in call centers around the world (Jiménez & Carrasquilla, 2010).

The work of rescuing the achievements of women as technology creators goes on today. In Spain, philosopher Eulalia Pérez Sedeño (2000) has done much research on the topic of contributions of women to technology and science, and understands there is a turnover:

Women that have contributed to science and technology and do not belong in history books are starting to be known: Aglaonike, and Hypatia in Ancient times, Roswita and Hildegard of Bingen in the Middle Ages; the Italians Maria Ardinghelli, Tarquinia Molza, Cristina Rocatti, Elena Cornaro Piscopia, Maria Gaetana Agnesi, and Laura Bassi; the Anglo-Saxons Aphra Behn, Augusta Ada Byron Lovelace, Mary Orr Evershed, Williamina Paton Stevens Fleming, Margaret Lindsay Murray Huggins, Christine Ladd-Franklin, Henrietta Swan Leavitt, Annie Russell Maunder, Charlotte Angas Scott, Mary Somerville, Anna Johnson Pell Wheeler, Caroline Herschel and Maria Mitchell; the Germans Maria Cunitz, Elisabetha Koopman Hevelius, Maria and Christine Kirch; the French Jeanne Dumée, Sophie Germain, Nicole Lepaute. And more recent natural and social scientists are no longer relegated to oblivion, although some are not recognized as deserving in the first instance, due to their sex: Maria Goeppert Mayer, Sonya

Vasilyevna Kovalevskaia, Lise Meitner, Emmy Noether, Gerta Ayrton, Virginia Apgar, Gerty Cori, Rachel Carson, Elisabeth Schiemann, Christiane Nusslein-Volhard, Margaret Mead, Barbara McClintock, Rita Levi Montalcini are beginning to take their place in history and have been deserving of articles or biographies (Pérez Sedeño, 2000).

In 2013, the Spanish Government published the biography of the Galician school teacher, Ángela Ruíz Robles, the inventor of the first electronic book or *e-book* amongst other inventions (*Figure 28*). Until recently the invention had been attributed to American Michael Hart in 1971. However, in 1949, Ruiz Robles registered the patent number 190,698 in the Spanish Patent and Trademark Office, a mechanical, electrical and air pressure procedure for reading books. She aimed to reduce the weight of children's school bags and devised an artefact composed of a series of text tapes and illustrations that were going through reels, all under a transparent and unbreakable sheet, with magnifying glass, and gifted of light to read in the dark, besides incorporating sounds with the explanation of each subject³⁰. The Mechanical Encyclopaedia, built with bronze, wood, zinc, wood and paper, is exhibited at the Science and Technology Museum of La Coruña, Spain.

³⁰ Ministerio de Economía y Competitividad (2013) *Ángela Ruiz Robles y la invención del libro mecánico* Madrid.



Figure 28: Ángela Ruíz Robles with her invention ‘the mechanical book’³¹

Obtaining information of women’s contribution to technology or science was, and is still today, a complicated task. Autumn Stanley, an American scholar from Stanford University, devoted much of her academic life to the area of women's studies, with a focus on issues of gender and technology literature. She states that women’s contributions to technology have been systematically and deliberately excluded from History. The Autumn Stanley Papers (2004) document her research in women's history and women in science and technology. Until 1809 there were no official patents from women inventors (*Figure 29*), and, still then, it was not easy to identify women inventors from patent records, the gendered nature of archives, designed and constructed for other purposes, was not enough. As many other scholars, Stanley had to resort to correspondence, manuscripts, side notes, letters, testimonials and other existing and obscured secondary

³¹ Photography from ‘Álbum de mulleres’ culturagalega.org

sources of information for her major work ‘Mothers and Daughters of Invention: Notes for a Revised History of Technology’ (1995).

WOMEN INVENTORS.

No.	NAME AND ADDRESS.	TITLE OF INVENTION.	DATE.
	Mary Kies	Straw weaving with silk or thread.....	May 5, 1809
	Mary Brush	Corset	July 21, 1815
	Sophia Usher	Cream of tartar, carbonated liquid.....	Sept. 11, 1819
	Julia Planton	Stove, foot	Nov. 4, 1822
	Lucy Burnap	Hats, weaving grass	Feb. 16, 1823
	Diana H. Tuttle	Spinning-wheel heads, accelerating.....	May 17, 1824
	Catharine Elliot	Moccasins, manufacturing	Jan. 26, 1825
	Phœbe Collier	Wheel-fellies, sawing	May 20, 1826
	Elizabeth H. Buckley	Shovel, sheet-iron	Feb. 23, 1828
	Henrietta Cooper	Straw, leghorn, whitening	Nov. 12, 1828
	Elizabeth Oram	Globe for teaching geography.....	Jan. 12, 1831
	Emma Stienbauer	Cook-stove	Feb. 3, 1831
	Luna Bishop	Bellows	Dec. 22, 1831
	Elizabeth Bartlette	Balsam lavender.....	Jan. 29, 1833
	Harriet Cook	Calash balloon for ladies.....	Feb. 20, 1833
	Ethel H. Porter	Straw cutting and fodder	Mar. 14, 1834
	Margaret Gerrish.....	Asclepias syriaca, manufacturing external fibers.	Mar. 27, 1834
	Phebe Atwell, assignor to Levi Ward.....	Fur, extracting, from skins and manufacturing it in yarn.	Apr. 30, 1834
1, 075	Eliza Ann B. Judkins.....	Shedding	Feb. 2, 1839
1, 197	Sarah Hammond	Fire-place	June 25, 1839
1, 676	Marie F. C. D. Corbanx, Francis G. Spilsbury, and Alexander S. Byrne, of England.	Improvement in the mode of applying distemper colors having albumen or gelatine for their vehicle, so as to render the same more durable, and preserving the same when not wanted for immediate use.	July 10, 1840
1, 940	Elizabeth Adams.....	Corset.....	Jan. 21, 1841
2, 630	Maria P. Dibble	Bandage	May 20, 1842
3, 254	Nancy M. Johnson	Ice-cream freezer	Sept. 9, 1843
3, 995	Sarah P. Mather	Submarine telescope and lamp	Apr. 16, 1845

*Figure 29: The first page of the Patent Office’s list of women patentees in United States, 1888.*³²

Regarding technology, she clarifies that ‘women have contributed to the computer revolution in all areas, from theory and machine design to languages, and to various applications of computer technology in business’ (Stanley, 1995, p.442). Her book dedicates a full chapter to women inventors and innovators in computers and related technology and describes contributions in hardware, machine design, software, applications and Artificial Intelligence (AI). On AI, for example, she recalls Mary Shelley’s ‘Frankenstein’ recognized as the first exposition of Artificial Intelligence followed by Ada Lovelace’s visualization of computers composing their own music, as

³² Washington, DC: Government Printing Office, 1888.

well as Ruth Davis, Steve Shirley, Sheila Adele Greibach... all pioneers credited for their contributions to AI.

Stanley not only includes women's contributions to technology but redefines technology and attempts to revalue these contributions correctly; she goes on to describe the paradigm of male takeover of women's technology.

4.4 [Male takeovers of women's technologies](#)

In addition to the scarce recognition of women's achievements in technology and science, technologies created by women throughout history have been discarded or undervalued by men. Stanley describes a paradigm for the male takeovers of women's technologies and male intrusion along history. Technologies developed by women had no consideration or classification until it was taken over by males, then it acquired the professional and academic status. The very definition of technology has a male bias, this emphasis on technologies dominated by men diminish the significance of women's technologies, such as horticulture, cooking and childcare (Wajcman, 2001).

Autumn Stanley states in her work:

We know few women creators because technology has been defined excluding the work of women. Even when the work of women has been discussed in the history of technology, it has been relegated to a lesser position or an insignificant position. And this is still happening today. (Stanley, 1995, p.31)

Stanley traces women's inventions, from prehistoric times to our time, in five essential areas of technology -agriculture, medicine, reproduction, machines, and computers-, unveiling hundreds of hidden contributions and their female inventors. She

questions the gender bias in the definition of technology and argues that technological development refers only to activities considered relevant to men and where technological inventions of women fall outside that definition. There are documented cases that analyse technological innovations created by women in traditional female fields such as cosmetics, pharma, reproductive health, pediatrics or textile. Women were excluded from the field of knowledge mainly because they were developed in the domestic sphere that has been deprived of political meaning and has been excluded from the world of knowledge (Stanley, 1995; Cabré, 2002; Rubio, 2006). Cosmetics, for example, has been a technology created and used by women for health purposes. As such it has taken its place in medical practice in the Middle Ages and, however, until very recently we have not had knowledge of it (Cabré, 2002). Women were credited with ‘supernatural powers’, instead of knowledge about curative herbs and remedies inherited from their previous generations. In the late 18th century, an anonymous woman from Shropshire in England, was able to cure oedema, a condition characterized by an excess of watery fluid collecting in the cavities or tissues of the body, where others had failed. She elaborated a remedy with more than 22 herbs and flowers. At the time, Dr. Whitering, who witness the miraculous recovery of a patient treated by this woman, analysed the remedy and was able to identify one flower, the *Digitalis Purpurea*. He spent ten years analysing how it needed to be grown, what parts to use, the proper dosage and how to avoid side effects. Dr. Whiteing became famous for his research and contribution to medicine, yet there is no record of the woman’s name. In some cases, history has attributed inventions to men who had stated explicitly the invention belonged to a woman, it is the case of Marie Colinet, a midwife and surgeon of the late 16th century, who was the first to use a magnet to remove steel fragments from the eye, although the invention was attributed to her

husband Fabricius of Hilden, a surgeon, who had insisted that the invention was his wife's. Another example of female traditional technologies, covered by Stanley, are textile inventions. The Jacquard loom cards, punched cards that laced together into a continuous sequence simplifying the process of manufacturing textiles with complex patterns, were said to be invented by Mme. Jacquard, the wife of the official inventor in 1801. These were the first means used to enter information and instructions to a computer in the 1960s and 1970s know as punch cards (*Figure 30*):

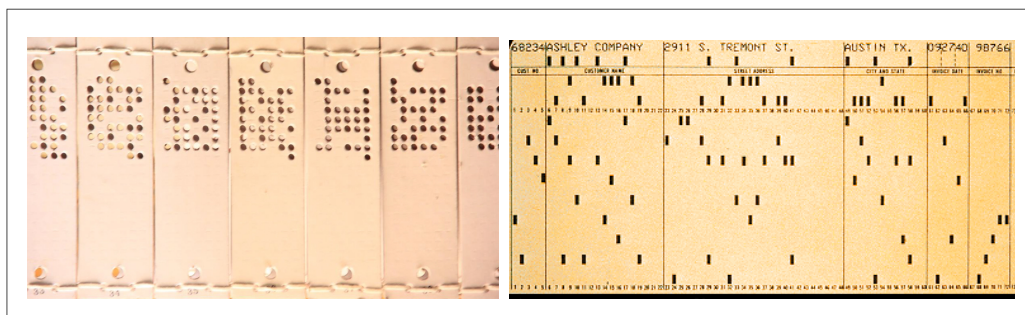


Figure 30: Jacquard loom cards were the precursor of computer perforated cards³³

Other relevant scholars, such as Francesca Bray (1997), studied the major role of women in the production and laborious elaboration of silk in late imperial China. Women weavers dominated a complex storytelling art (almost like program codes), that was transferred through generations. Women's experience making silk was said to improve the spindle wheel, the treadle-operated loom, and the silk-reeling frame (Kuhn, 1988).

Eulalia Pérez Sedeño (2005), Spanish philosopher, concludes from her own research on gender and technology that women are excluded when seen as competitors

³³ Source of Jacquard loom cards: Museum of Paisley and source of perforated cards: Computer Desktop Encyclopaedia, 2000.

by their male colleagues. Regarding male takeovers, she clarifies that this occurs when new disciplines become institutionalized, at the beginning when they are considered amateur, women do not constitute any competition, but they do when becoming a profession. For example, historically, nursing has been a female-dominated occupation, and although it requires extensive knowledge and training, it has not been regarded as ‘a technical job’ because it is women’s work and therefore undervalued (Wajcman, 1991, p.36). Braverman noted, even though without a feminist perspective, that ‘the sex barrier that assigns most office jobs to women, and that is enforced both by custom and hiring practice, has made possible to lower wage rates in the clerical category’ (1974, p.353). Nowadays, when women takeover areas of expertise dominated traditionally by men, such as medicine, the discipline tends to turn precarious.

4.5 [Representation of female technology creators today](#)

After exploring the challenges women have faced as technology creators over time, this section of the chapter will review the representation of female technology creators today, from the mecca of tech corporations in Silicon Valley to tech corporations in Spain in order to contextualize Spain’s ICT sector for the purpose of the thesis.

The representation of women in the ICT field is important and contributes to creativity, productivity and innovation. However, women are chronically underrepresented in the ICT sector in the creation and design of technical systems. This occurs both horizontally and vertically; according to the definition of the International Labour Organization (2008) horizontal segregation refers to the extent to which men and women are located in different occupational sectors, women are usually highly

concentrated in the sectors that require lesser skills, that promise little chance for career advancements and that are related to care-giving which often coincide also with low wages. On the other hand, vertical segregation refers to the extent to which men and women occupy different hierarchical positions within the same occupational sector. Within the same sector, women tend to occupy the lower ranks of the hierarchical ladder (and consequently the lower salary ranges).

One of the main challenges to understand the representation of women technology creators today is, on the one hand, the very definition of what are considered tech jobs, and, on the other, the lack of data disaggregated by sex, as well as the greater knowledge of some aspects such as distribution of positions within technology companies and the presence of women in technological positions in companies from other sectors. With the data available, and regardless of definitions more or less precise about the consideration of tech jobs, it is clear that women today have scarce representation as tech specialists and that this trend is not significantly improving.

4.5.1 Female employment in Silicon Valley technology companies

Studies by Statista.com, based on public US company reports of Silicon Valley ICT companies, considered the mecca of technology innovation, published in 2014 and 2018, show an average of 32.8 per cent of women workers in the workforce in 2014, compared to a slightly lower 32.4 per cent in 2018. However, corporations like Apple, Facebook, Google and Twitter experience an average increase of 4 percent in their female workforce (*Figure 31*):

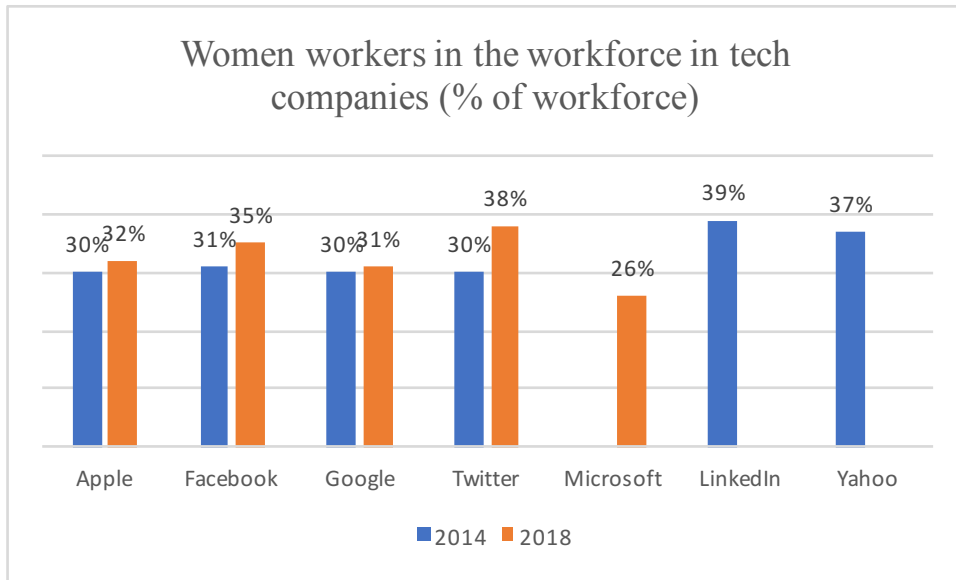


Figure 31: Percentage of women workers in tech companies, 2014-2018.

The studies also show a notorious horizontal segregation in occupations where women hold a very scarce percentage of the technical jobs. The data shows an average of 15.67 per cent of tech women workers in 2014, compared to 19.6 per cent in 2018. All companies analysed have increased the number of women in tech jobs with an average increase of 4 per cent (Figure 32):

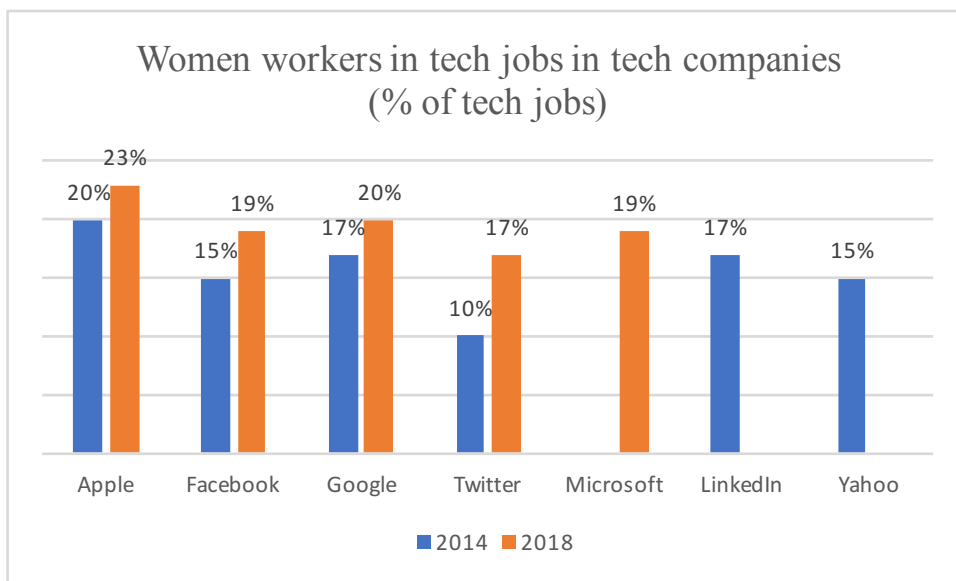


Figure 32: Percentage of women workers in tech jobs in tech companies, 2014-2018.

Vertical segregation also occurs since women, mostly in charge of office and administrative related functions, are also underrepresented across leadership roles and boards, areas where strategic power resides and the future of the organization is decided and where, eventually, gender norms could be changed (Castaño et al., 2017). An average of 26.8 percent of leadership roles were occupied by women in the tech companies selected in 2018 (*Figure 33*):

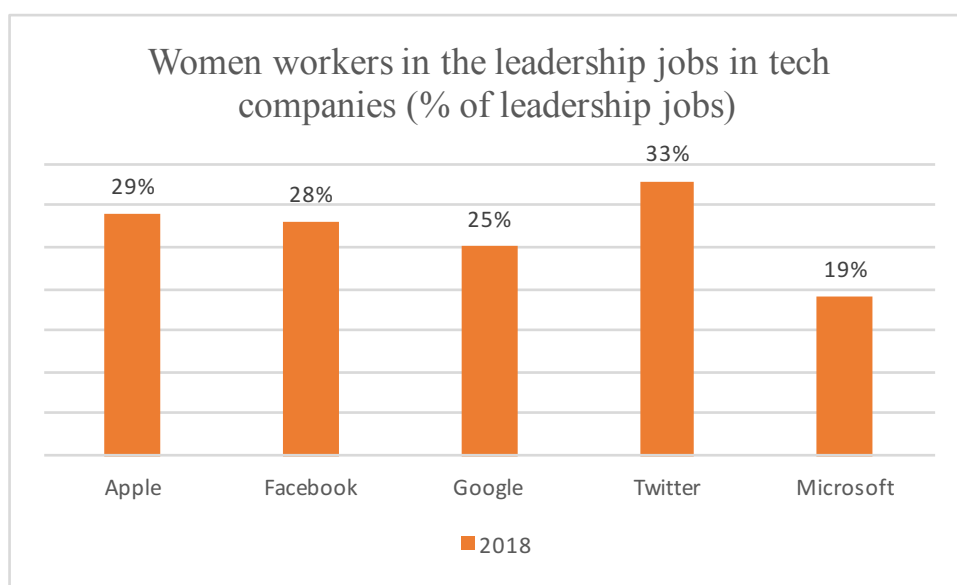


Figure 33: Percentage of women workers in the workforce of tech companies, 2018.

The discrepancy persists and in some cases, worsens, as women leave ICT jobs at higher rates than men do. Studies highlight that women leave the ICT sector mid-career to a greater extent than men (EC, 2013, 2018). In fact, research results have shown that women in business or technical roles at ICT companies, tend to leave at higher rates than male workers do (Catalyst, 2014; Hunt, 2010; Corbett & Hill, 2015).

In the United States, a AAUW's analysis of National Science Foundation data found that while most women and men who graduate with degrees in engineering initially take engineering jobs, by 10 years into their careers, only about 40 per cent of graduates,

both women and men, remain in engineering. While men's retention rate levels off at around 40 per cent for the next 25 years, the retention rate for women continues to decline. Thirty years into their careers and women are half as likely as men to report that they are still working as engineers (Frehill, 2010). In the UK, women continue to leave the sector in disproportionate numbers, the drop from 27 per cent of women making up the ICT workforce in 1997 to 21 per cent in 2004 suggests a continually declining trend of 'disappearing women' (Griffiths & Moore, 2010).

4.5.1.1 US surveys on perceptions of barriers to female presence in ICT

Catalyst surveyed 325 CEOs and 461 women at levels of Vice-President and above in corporations to determine how women attribute their success. The main factors identified were consistently exceeding performance expectations (77 per cent), developing a style with which male managers were comfortable (61 per cent) and seeking out difficult or high-visibility assignments (50 per cent) (Catalyst, 1996). In addition to over-performing, women had to make men feel comfortable with them. Others have reported similar findings in other samples of women (Morrison, White & Velsor, 1987; Ragins, Townsend & Mattis, 1998).

4.5.2 Female employment in the Spanish ICT sector

The low representation of women in the ICT professions is a widespread persistent phenomenon in Western countries, including Spain where women continue to be underrepresented in ICT companies and have a small role in decision-making positions

(Castaño et al., 1999; Castaño & Caprile, 2010; Martínez & Castaño, 2017; EU, 2013, 2018). The growing presence of women in higher education and highly qualified employment is one of the main trends of structure change in recent decades. However, this progress has not yet been translated into an equal presence in all scientific and professional fields, such as those related to ICT. In addition, the presence of women decreases as the level of responsibility increases and decision-making capacity. Women remain, to a large extent, absent from innovation and new technologies (Castaño & Caprile, 2010). An analysis of the distribution by sex of the number of affiliates to the Social Security system in the Advanced Computer Services sector³⁴³⁵ (ACS), shows that it is mainly a male dominated sector with scarce improvement over time. Based on Social Security General Treasury (TGSS) data from 2014 and 2018, *Figure 34* shows graphically how men accounted for 68.33 per cent of the affiliation, compared to 31.67 per cent of women in this sector 2014, and a slight increase of 0.29 per cent in men and a slight decrease of 0.29 per cent in women in 2018.

³⁴ Prospective Study of the Sector of Advanced Services for Companies in Information and Communication Technologies, State Public Employment Service, 2015. Advanced computer services are those services included in the economic activities of the CNAE 2009 described below: 62. Programming, consultancy and other activities related to information technology and 63. Information services.

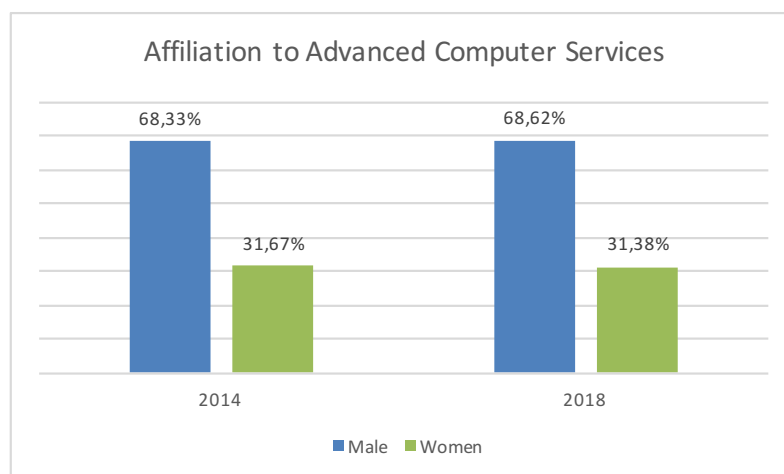


Figure 34: Affiliation to ACS by sex, TGSS 2014, 2018.

On the other hand, in 2014 the total affiliation for men and women in Spain is more equal (53.38 per cent and 46.62 per cent respectively), concluding that the representation of women in Advanced Computer Services was fifteen percentage points lower than in the total number of affiliates in Spain. As for contracts and hiring in the sector, women were hired 2.33 percentage points less in 2018 than 201 as shown in *Figure 35*:

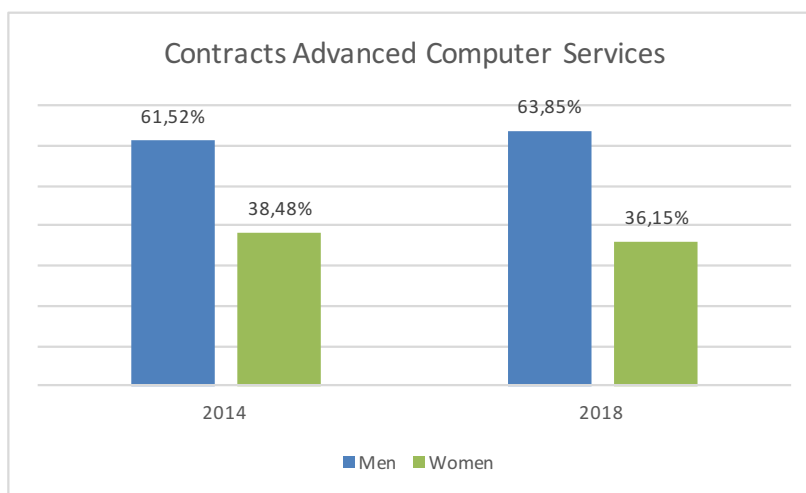


Figure 35: Affiliation to ACS by sex, TGSS 2014, 2018.

Regarding unemployment, the same data shows a slight increase of share of women's participation in unemployment accounted for 48.55 per cent in 2014 and 49.21 per cent of long-term unemployment in the ACS sector (*Figure 36*):

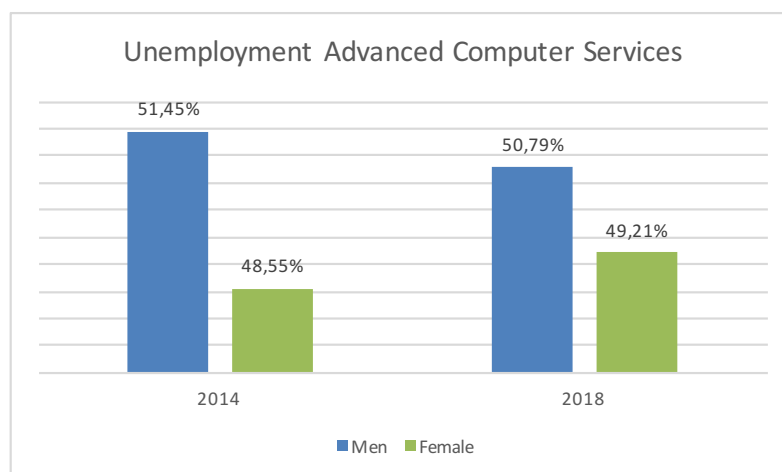


Figure 36: Unemployment to ACS by sex, TGSS 2014, 2018.

In 2014, within the European Union, women were underrepresented among ICT specialists³⁶ in all Member States (Figure 37) where men summed up to 80 per cent of specialists in the sector. It should be highlighted the contrast between the proportion of men and women in ICT jobs with men and women in total employment, where they appear more equal (53.9 per cent of men and 46.1 per cent of women) (Eurostat, 2014).

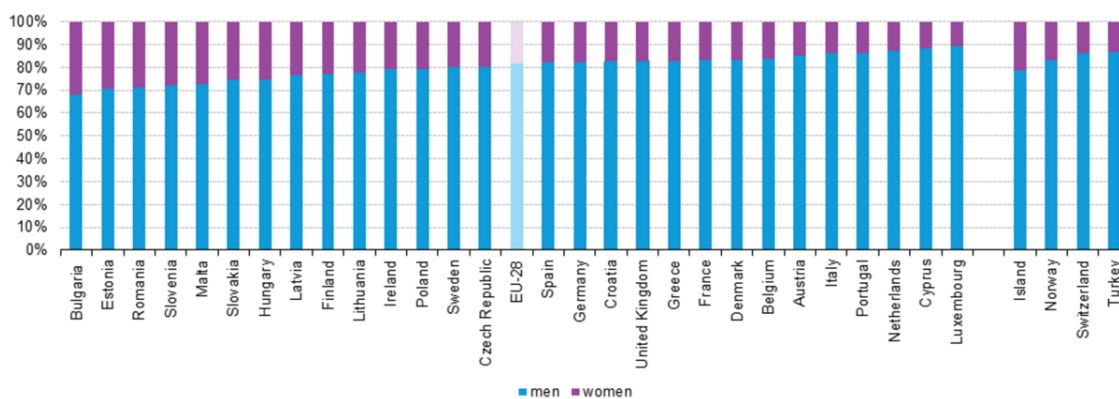


Figure 37: ICT specialists by gender, Eurostat 2014.

³⁶ ICT specialists are defined as persons who have the ability to develop, operate and maintain ICT systems and for whom ICTs constitute the main part of their job (OECD, 2004).

The last Eurostat report in 2017, showed the number of men employed as ICT specialists in the EU-28 rose by 3.8 per cent per annum during the period 2007 to 2017, while the corresponding rate for women was 0.4 per cent per annum. As a result, during the period 2007-2017, the overall number of male ICT specialists increased by 45.3 per cent, while the overall increase in the number of female ICT specialists was 4.3 cent (Figure 38). According to the same report on distribution of ICT specialists by sex, in Spain only 15.6 per cent of ICT professionals were women in 2017; Spain is slightly above the EU average in the case of men and below in the case of women (Eurostat, 2018).

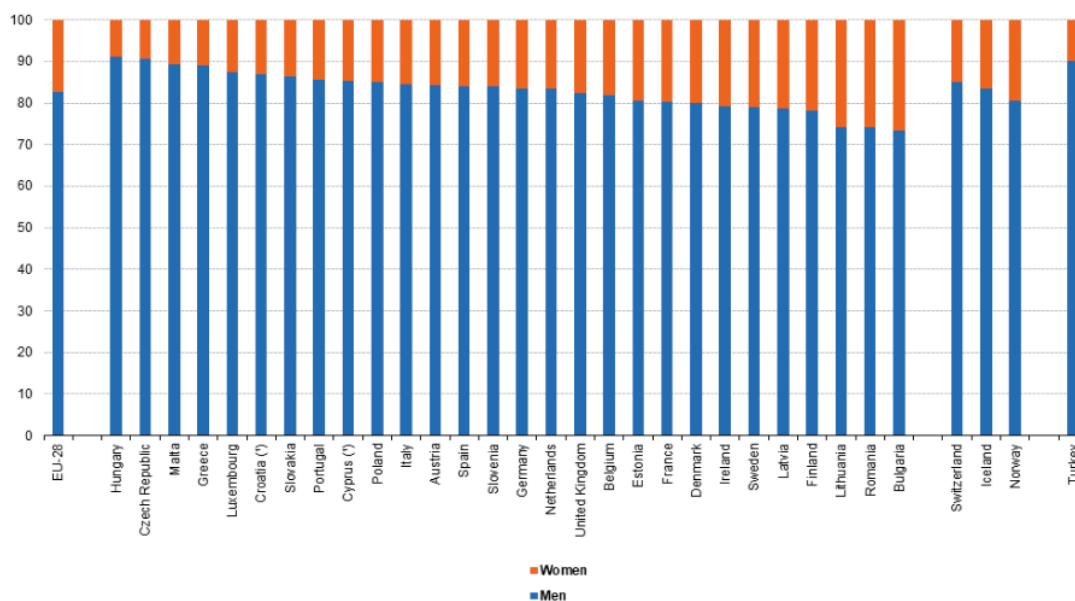


Figure 38: ICT specialists by gender, Eurostat 2017.

The study ‘Women in Digital Age’ by the European Commission (EU, 2018), identifies a decrease from 22.2 per cent in 2005 to 16.1 per cent (Figure 39). During this decade, male ICT specialist workers have replaced their female peers in a 6.1 points share (EU, 2013). It is clear from analysing previous data that there has been a negative trend in the growth of female ICT specialists in Europe:

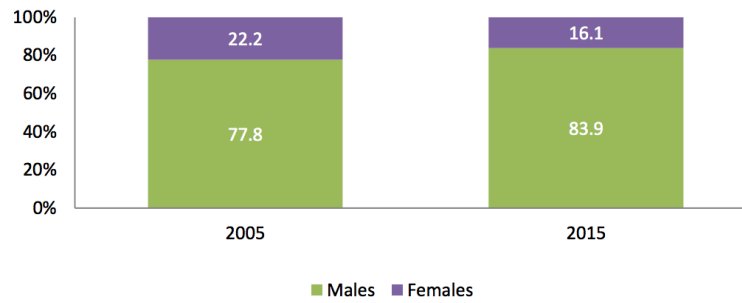


Figure 39: ICT specialists by gender 2005-20115, Eurostat 2017.

In comparison, the study analyses data from the ELFS that show that women make up 11.8 per cent of workers from the digital sector with ICT-related studies, that is, those workers at digital jobs with technical educational backgrounds (*Figure 40*). In 2011, women represented around 14 per cent of these workers³⁷.



Figure 40: Population working in digital jobs with ICT-related studies by gender, 2011-2015, ELFS 2017.

The report clarifies that this data includes a wider variety of positions in the digital sector than statistics on ICT specialists since it also considers positions such as senior management in the Information and Communications sector. The trend, however, is consistent and shows a clear decline of female participation in technological jobs.

³⁷ Data elaborated for ‘Women in Digital Age’ study on the ELFS, ICT-related studies have been defined as: mathematics, statistics, computing and engineering. This concept excludes natural sciences, but includes more fields than ICT studies as defined by Eurostat.

In addition, only 19.2 per cent of senior management positions are occupied by women³⁸, and are mainly in staff positions (Finance, Marketing, Human Resources, etc.) without a direct line responsibility or positions associated to business strategy or sales, positions that naturally tend to form the ladder to top management positions. In the United States, only 26 per cent of ICT professionals are women, the same proportion as in 1960; the figure worsens for engineers who represented only 12 per cent in 2013³⁹.

In Spain, the evolution of female representation among ICT professionals has not improved significantly in recent years. According to data from the Spanish Survey of Active Population (EPA)⁴⁰, a relatively stable representation can be observed around 30 per cent as shown in *Figure 41*:

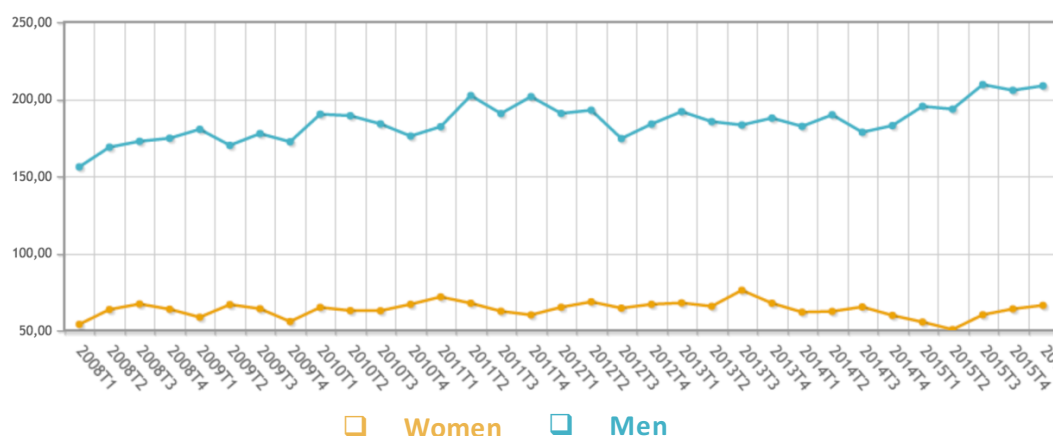


Figure 41: Gender and ICT activity evolution by sex, 2008-2016, EPA 2016.

In 2017, another study regarding companies with ICT specialists at the Spanish national level, the ‘Survey on the use of information and communication technologies

³⁸ ‘Women active in the ICT sector’, European Commission, Directorate-General for Communications Networks, Content and Technology, 2013.

³⁹ Solving the Equation: The Variables for Women’s Success in Engineering and Computing, 2015.

⁴⁰ Active Population Survey for the employed population in Programming, consultancy and other activities related to information technology (according to the National Classification of Economic Activities 62. Programming, consultancy and other activities related to information technology and 63. Information services), absolute values by gender. EPA 2016.

and electronic commerce in companies' by the National Statistics Institute (INE), 48.1 per cent of companies have female ICT specialists employed and, among them, only 4.8 per cent have at least 50 per cent of these specialists (*Figure 42*):

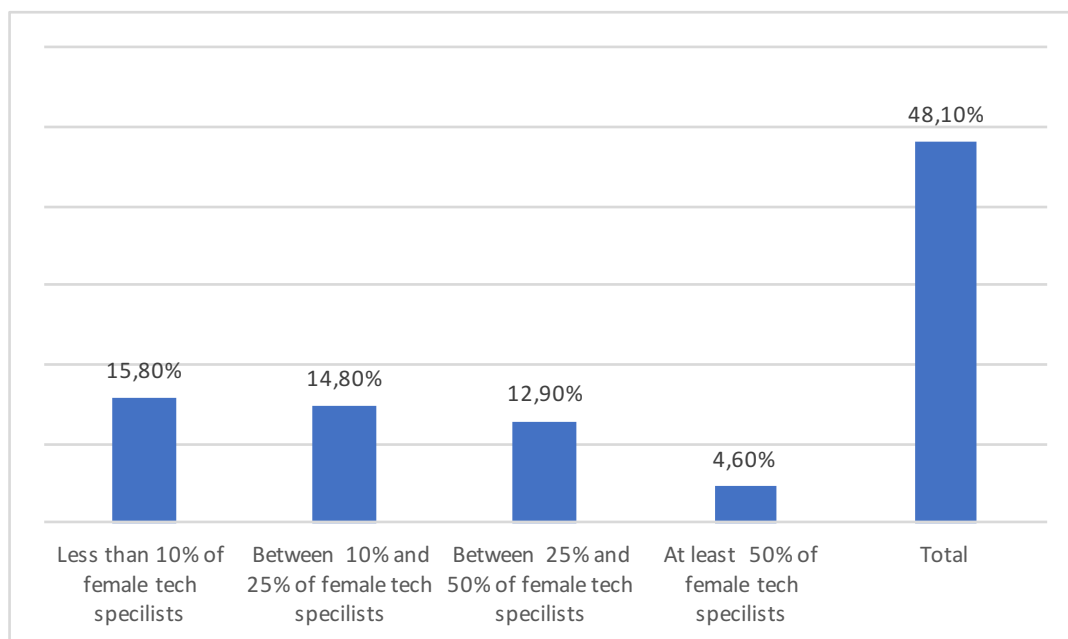


Figure 42: Companies that employ female tech specialists (% over total of companies that employ tech specialists), INE 2017.

A recent study by González Ramos and colleagues (2017) that analyzes the employment characteristics of women employed in the technology sector in Spain has calculated more concrete data delimiting the definition of digital jobs⁴¹. Regarding the employment rate of women in this field indicates that it is lower in all age ranges. The highest participation for both sexes are found between aged 25 to 30 years-old and, especially, between 31 to 45 years-old, although, it is precisely in these bands where the

⁴¹ The occupational categories analysed are: code 27 of the National Classification of Occupations that comprise the categories of software and multimedia analysts and designers and specialists in databases and computer networks; code 31 comprising occupations in technical positions in science and engineering; and code 38 technical personnel of the technologies of information and communications, which comprise technology operations of the information and assistance to the user, computer programmers and recording technicians audio-visual, radio broadcasting and telecommunications.

gender gap is greater. These percentages are made on the total of working population (Mateos & Gómez, 2019). Other conditions of the study analyses employment temporality, in which there are no relevant differences between women and men in the sector, although the former present a somewhat higher rate: 15.8 per cent compared to 13.8 per cent. Regarding part-time employment, the difference is greater, 5.5 per cent in women and 3.4 per cent in men. In addition, it indicates that 33.5 per cent of women, compared to 4.5 per cent of the men, explain that they have a partial employment due family responsibilities. These results show that it is possible that many of the women who work part-time do not do so by choice. Another feature that highlights the study is that while the unemployment rate of qualified people who have been in this situation for less than a year is 10.1 per cent, unemployment rate of the employed skilled population in technological professions is of 3.2 per cent. Gender differences in the unemployment rates of the skilled persons of the technological sector that have been unemployed for less than a year are almost non-existent (3.1 per cent men and 3.7 per cent for women according to the Spanish Active Population Survey (EPA) data for the second quarter of 2015). In contrast, women have an average of ten months more than men in the situation of unemployment (Mateos & Gómez, 2019).

As for leadership roles in tech companies, women are underrepresented at all levels. ‘The White Paper on women in the technological field’ explains that according to data collected globally from Grant Thornton in 2015, the percentage of managerial positions (senior management) occupied by women in the technology sector was 19 per cent, close to the real estate and construction sector (18 per cent) and extractive industries (12 per cent) and further away from the education and health sectors (41 per cent). The previously mentioned study ‘Women in the Digital Age’ (2017) shows that Spanish companies on

the stock market have 11,5 per cent of women executives. The same study reveals that there has been a slowdown in the growth of women's participation in executive positions in European listed companies. Considering the growth rate, it is observed that it went from 11.38 per cent in 2015 to 4.7 per cent in 2017 (EC, 2017; Mateos & Gómez, 2019). The context is similar to Europe in terms of women managers in IBEX 35 companies and in the boards of director, the percentage of female directors increases, but that of presidents and vice-presidents instead, has decreased and stagnated since 2014.

4.5.2.1 Spanish surveys on perceptions of barriers to female presence in ICT

A survey carried out in Spain about the perceived barriers to female presence in the tech sector to ICT professionals⁴², highlighted the glass ceiling as the main barrier, as well as unattractive wages at the beginning (91.89 per cent and 89 per cent respectively). Almost 86 per cent of respondents believe that there is a male image of the profession, 76 per cent pointed out the importance of gender stereotypes during secondary education and 88 per cent argued the lack of information on women's success stories.

Figure 43 shows all the factors and opinions gathered among the participants:

⁴² Survey 'ICT professionals' opinion about low female presence in technological employment' made from 1370 valid answers through online questionnaires (58.1 per cent men and 41.9 per cent women) of people who work or develop its activity in Spain (98.5 per cent). Association of Computer Technicians (ATI) (European Center for Women and Technology), 2013.

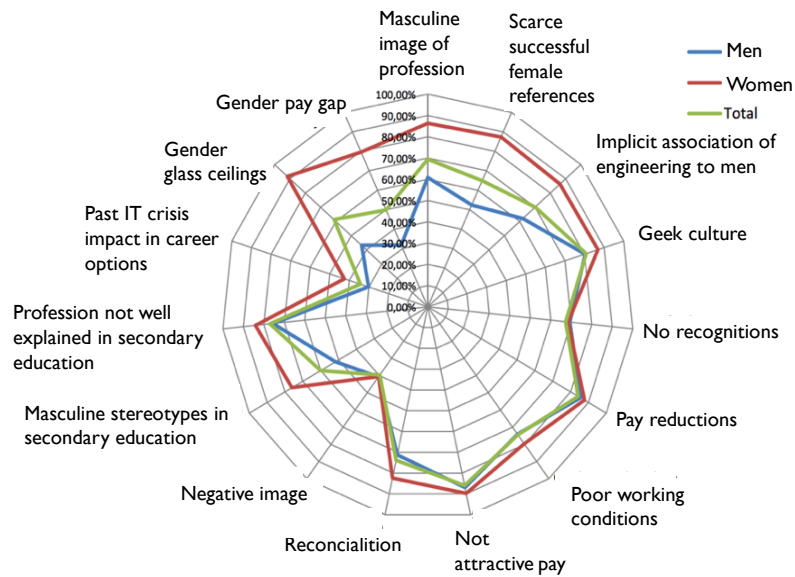


Figure 43: Factors that influence the low female presence in ICT, ATI 2013.

Another survey to 246 companies in the ICT sector in Spain, points out the shortage of qualified professionals as the main cause⁴³: lack of specialization to carry out the tasks required by companies (28.44 per cent), lack of experience (25.93 per cent), as well as insufficient training (19.11 per cent) to be able to perform the job’s tasks. However, there is an increasing demand in ICT jobs that is not always met; in Spain, the percentage of companies that face difficulties to meet the demand for ICT professionals has been growing for the last years from 2.38 per cent of companies in 2016 to 3 per cent of companies in 2018 (Figure 44):

⁴³ The questionnaire was answered by 246 companies that can be grouped according to the National Classification of Economic Activities (CNAE-2009), mostly group 62. Programming, consultancy and other activities related to information technology and 63. Information services (65,85 per cent and 6.91 per cent, respectively).

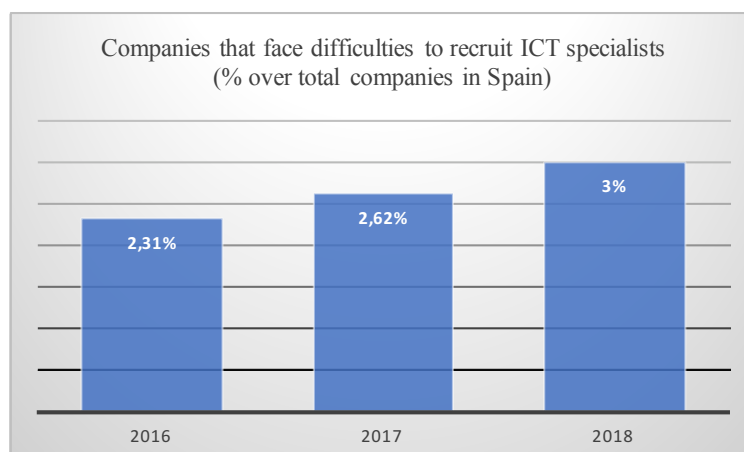


Figure 44: Percentage of companies that struggle to hire ICT specialists. INE, 2018.

4.5.3 Female STEM graduates

My research explores the factors underlying the underrepresentation of women in the ICT field, including stereotypes and biases, and workplace environment. It is centred in the workplace and in women workers. Even though the qualitative analysis tackles women workers that opted for ICT careers as well as their reasons or factors that motivated them, it is centred in women's workplace experience, not career options or experiences. However, the lack of female students in the so-called STEM⁴⁴ fields is a common factor to almost all advanced countries. STEM fields are often grouped together although engineering and computing stand out as the STEM fields that offer the best opportunities for the greatest number of people, accounting for more than 80 percent of STEM jobs (Landivar, 2013) as well as offering a higher return on educational investment (Corbett & Hill, 2015). Engineering is the STEM field less well represented by women

⁴⁴ STEM is the acronym for Science, Technology, Engineering and Mathematics.

and computing is the only field where female presence has been declining for the last decades. In recent years, several universities have elaborated strategies to attract female students to STEM careers (Castaño, 2011; Corbett & Hill, 2015), as well as growing collaboration between ICT companies and universities (opening of Chairs, programs aimed at female students, etc.).

In Spain, differences between men and women tech choices are subtler in high school. In fact, in academic year 2015/2016, students that opted for the science and technology itinerary were 53.7 per cent boys and 46.28 per cent girls; although it is important to note that the presence of women in this itinerary also contains professional careers linked to the health sciences and biology, where women are the majority. However, the same source shows that in Computer Science and Communications degrees, the percentage of women for the same academic year was slightly more than 12 per cent (Mateos & Gómez, 2019). As for professional training, according to the report 'Women in the digital economy in Spain', in Europe about 36 per cent of people with technological studies have completed professional training, while in Spain that figure does not reach 28 per cent, and in the case of women it does not reach 8 per cent (Mateos & Gómez, 2019).

Research and action plans to increase women's presence in STEM careers are essential but it is important to understand that efforts in attracting female talent to these fields and, not in retaining them later as they advance in their professional career, will not be as effective.

4.6 Career advancement barrier concepts, metaphors and related terms

Academic and management literature have coined, more distinctively since the 1970's, several terms conceptualizing barriers for women's advancement in the workplace. The theoretical framework in this thesis, covered in chapter 6 *THEORETICAL FRAMEWORK*, examines these concepts and metaphors and the way they have been theorized by feminist scholars. This is a brief introduction to understand generalized explanations to women's underrepresentation in decision-making positions in the corporate world and applied further to the representation of women workers in the tech or scientific field.

4.6.1 *Glass ceiling*

The 'glass ceiling' metaphor was used for the first time in the 80's to describe invisible barriers through which women can see elite positions but cannot reach them. The phrase glass ceiling was first used in 1984 in an Adweek profile of Gay Bryant, editor of Working Woman magazine at the time, saying 'Women have reached a certain point—I call it the glass ceiling ... in the top of middle management and they're stopping and getting stuck.' In 1985, the national chairwoman of the National Organization for Women (NOW) used the phrase in an interview with United Press International, stating that without the women's movement, women would have no chance of moving beyond the 'glass ceiling'. The very next year, the 24th of March of 1986 edition of the Wall Street Journal, Carol Hymowitz and Timothy Schellhardt introduced the term 'glass ceiling' in

their article about the challenges faced by women in the business world (Boyd, 2012) accompanied by a drawing of Douglas Smith (*Figure 45*).



Figure 45: Wall Street Journal illustration by Douglas Smith, 1986.

These barriers prevent large numbers of women from obtaining and securing the most powerful, prestigious and highest earning jobs in the workforce. Moreover, this effect prevents women from filling high-ranking positions and puts them at a disadvantage as potential candidates for advancement (Davies-Netzley, 1998). Additional research has stated that the ‘glass ceiling’ metaphor should be replaced by a ‘labyrinth metaphor’, an image to symbolize the situations that women face as leaders and potential leaders. In ‘Through the Labyrinth: The Truth about how Women Become Leaders’ (Eagly & Carli, 2007) it is understood that the ‘glass ceiling’ metaphor portrays a rigid and impenetrable barrier and that it is misleading, the authors sustain this argument with seven different reasons (*Figure 46*):

Seven reasons the ‘Glass Ceiling’ metaphor is misleading (Eagly & Carli, 2007)
1. It erroneously implies that women have equal access to entre-level positions,
2. It erroneously assumes the presence of an absolute barrier at a specific high level in organizations,
3. It erroneously suggests that all barriers to women are difficult to detect and therefore unforeseen,
4. It erroneously assumes that there exists a single, homogeneous barrier and thereby ignores the complexity and variety of obstacles that women leaders can face,
5. It precludes the possibility that women can overcome barriers and become leaders,
6. It fails to suggest the thoughtful problem solving can facilitate women’s paths to leadership.

Figure 46: Reasons identified by Eagly & Carli.

Eagly & Carli describe the evolution from the ‘concrete wall’ of the past, where exclusion was explicit and normalised, to the ‘glass ceiling’ with an absolute barrier to leadership roles to the ‘labyrinth’ where ‘women are still excluded more frequently than men, but the processes underlying this result are varied and not necessarily obvious as they were in the past’ (Eagly & Carli, 2007, p.7). The labyrinth symbolizes the complexity of the causes of women’s situation as leaders, defined by the authors as a person who exercises authority over other people.

4.6.2 Glass escalator

The ‘glass escalator’ is another phenomenon linked to women’s advancement in the workplace but concentrates in men’s advancement in an antagonistic way. It can be defined as how more men are joining fields that were previously occupied mainly by women, such as nursing and teaching, and within these fields, the men are passing the women and going straight to the top, similarly to if they were on an escalator and women were taking stairs. Men are being offered more promotions than women when sharing

equal work and performance results. Women are still not being offered the same chances as men are in the same circumstances (Williams, 1992). Research from Carolyn K. Broner shows an example of the glass escalator in favour of men for female-dominant occupations in schools; while women have mostly occupied the position of teachers, men are taking the higher positions in school systems as deans or principals (Broner, 2013).

4.6.3 *Glass cliff*

Additional evidence suggests that when women do achieve leadership roles, they are more likely than men to find themselves on a ‘glass cliff’, such that their positions are risky or precarious. Research findings evidenced that during a period of stock-market decline, women were appointed to boards in companies more likely to have experienced consistently bad performance in the preceding five months than those who appointed men. The study examined the performance of Financial Times Stock Exchange 100 Index companies⁴⁵ before and after the appointment of a male or female board member. These results expose an additional, largely invisible, hurdle that women need to overcome in the workplace (Ryan & Haslam, 2005; Castaño et al., 2017).

⁴⁵ The Financial Times Stock Exchange 100 Index, also called the FTSE 100 Index, FTSE 100, FTSE, or, informally, the ‘Footsie’ /'fɒtsi/, is a share index of the 100 companies listed on the London Stock Exchange with the highest market capitalisation.

4.6.4 Sticky floor effect

The ‘sticky floor effect’ theorizes there exist obstacles for women preventing them from advancing to first level management positions. According to Levitan Spaid (1993) the sticky floor effect derived from Catherine White Berheide’s 1992 study of women in low-paying government positions, in which it was found that women in entry level management positions was disproportionate to their male counterparts. Reichman and Sterling (2004) further found that women experienced great difficulty in entering management positions in other industries than government, especially those considered to be male-dominated.

‘Sticky floor’ is an expression used as a metaphor to point to a discriminatory employment pattern that keeps workers, mainly women, in the lower ranks of the job scale, with low mobility and invisible barriers to career advancement (European Institute for Gender Equality, 2019).

4.6.5 Leaky pipeline

The metaphor of the ‘leaky pipeline’ (Lauer et al., 2012) is that if you pour water (young girls) into a pipe, and it leaks along its length (girls and women exit at various times), very little water (professional women leaders) will emerge at the end of the pipeline. The leaky pipeline, usually refers to girls and women in STEM careers and jobs, is both progressive, the further along the pipeline, the fewer the women, and persistent in time (Berryman, 1983; Camp, 1997; Gras-Velazquez et al., 2009). The effect creates a gender-based filter that leaves mostly men to arrive at the end of the pipeline

(Blickenstaff, 2005). This concept has been challenged since it was considered not to explain adequately the absence of women from science and ignores the life course and its vital events (Xie y Shauman, 2003; Addis, 2010; Castaño, 2010). Moreover, Frederick Bondestam, Head of Operations of Gender Mainstreaming Academia at Swedish Secretariat for Gender Research, advocated in the 9th Gender Summit in 2016 to retire this old metaphor because of its negative impact and to refer to it as the ‘freaky pipeline’, clarifying that women ‘don’t drop out but rather freak out’.

4.6.6 Rush hour

‘Rush hour’ refers to the moment in life in which women’s family and professional career coincide and decisions related to having children and developing their career must be taken (European Science Foundation, 2009; EC, 2012). The standard career model was based on male needs as a norm, taking into account the role of a wife to take care of personal, family, household and community needs. Mostly applied to the scientific academic career, this model is based on the expectation that the scientist will have unlimited availability and commitment to working life (Currie et al., 2000). This career model is largely unsustainable today, since many women are family providers and family carers, however it remains unchanged (Bittman & Wajcman, 2000). Caregiving conflicts with the ideal unlimited dedication which impacts women workers as they reach decisions related to being mothers on the pick of their careers.

4.6.7 Maternal wall

The ‘maternity wall’ concept refers to ‘the complex of constraints and biases that women encounter when attempting to pursue scientific or engineering careers while also assuming major childcare responsibilities’ (EC, 2012). Women hit the maternal wall when they encounter workplace discrimination because of past, present, or future pregnancies or because they have taken one or more maternity leaves or part-time arrangements (Williams & Westfall, 2006). The maternal wall has several harmful implications for working mothers but also for women searching for a job.

4.6.8 The deficit theory

The deficit theory explains the gender differences in the career outcomes of researchers with the deficits in the scientific environment, where formal and informal structural mechanisms in organisations (for example vertical segregation, networking) can limit the opportunities of female researchers. There are several gender gaps that can occur in several segments of science: participation gap, women’s proportion is lower on average, especially in decision-making positions (EC, 2012), life course gap, personal characteristics and marital status. Moreover, the intersection of these hindering factors is more frequent in female life courses, for example when academic norms interfere with women’s family obligations (Xie & Shauman, 2003).

4.7 Conclusion

My aim with this chapter was to touch ground with women technology creators, their struggles and achievements over time. As I have argued, there is a strong social construction of white men as the solely technology creators of our time. This construction has been created and reinforced by the use of different strategies, explained in this chapter, aiming at relegating women to a secondary role, whereby women take care of men's personal needs and descendants in the private sphere whilst men continue creating technology based solutions in the public sphere. However, despite these efforts, women have always contributed significantly to science and technology. This is not always a given outside the feminist movement or women's studies, in fact, in the earlier stages of my research, one of my starting hypothesis was centred in understanding the relationship between gender and technology, a literature review that later constituted *Chapter 3 GENDER AND TECHNOLOGY*, referring to women's alienation of technology as a plausible explanation to the absence of women from tech multinationals. Understanding feminist theories of STS, the androcentric normalized scientific and technological method, the reinforcement of false dichotomies, its implications and the degree of gender in technological artefacts, is central to creating awareness of the difficulties and hardship of women technology creators over time. The genealogies of female technology creators, rescued from oblivion by feminist scholars cyclically, scratches the surface of public opinion with more or less intensity, but are not introduced formally in the history of technology or science. Is today any different? What are the experiences of women technology creators nowadays? Looking into the chapter review of representation of tech women in Silicon Valley tech companies and Spanish tech corporations, it is clear that

representation of women in tech positions is anecdotic. Surveys reveal that women consider they have to consistently exceed performance expectations, develop a style comfortable for male managers and seek out for difficult or high-visibility assignments. As we have seen in this chapter, these patterns are recognizable repeatedly amongst female tech creators over time. Tech corporations are failing to attract and retain women, although data reveals the demand for tech positions, for example, in Spanish tech corporations is growing steadily and the gap to fulfil this need is consistently growing as well. What are the barriers they face once they join the workforce? This chapter has covered diverse explanatory inequality concepts, terms and phenomena coined by growing academic and management literature, many associated to our reproductive role (e.g. maternity wall, the deficit phenomenon). At this point, it is decisive to go further, leaving aside technology as a topic, and exploring the dynamics of the corporate workplace. Could tech corporations reflect a set of gendered assumptions that construct corporations as a hegemonic masculine political actor? Could the same masculinist assumptions take shape within corporations in the form of a masculine managerialism that constructs women workers as the ‘other’? Are reason/emotion dichotomies translated and installed in the collective imaginary of managers within a firm? It is important to focus on women workers in corporations and the role that masculinist managerial practices play in underpinning this construction to provide an insight into the gendered structures and institutions that support the creation of technology in the global political economy.

5 WOMEN AND CORPORATIONS

5.1 Introduction

This chapter explains women's presence and relationship with corporations over time. It is important to contextualize women's incorporation to the corporate world in order to understand that job conditions have been constructed around men's skills and patterns of work (Webb & Liff, 1988; Wajcman, 1998; Goldin & Katz, 2016). It is heavily based on Rosabeth M. Kanter's (1977) contextualisation of the American corporation culture, settings, roles and images portrayed in her masterpiece 'Men and women of the corporation'. However, many of these cultural elements are the essence of Anglo-Saxon multinationals corporations based in Spain. Since the beginning of the twentieth century, changes have affected corporations -in their values, structure, composition, decision-making procedures- while women's roles have transitioned in the corporate world from clerks, to secretaries, to 'corporate wives', to tokens, to managers, to executives and to CEOs. Multinational corporations are main actors in the economic and political sphere and have a strong impact in employment, in Kanter's (1977) own words 'they are the quintessential contemporary people-producer' (p. 3) and can be of great help to improve equal opportunities and the working conditions of a great part of the population. Still today, 'men and women relate to each other and their work through jobs that are often sex-segregated with idealized images of the capacities of the people in them' (p. 29). The aim of this chapter is not to review the existing gendered theories of organizations - which try to create the conditions for a reorganization of organizational theories to account for the persistence of male advantage in male organizations -, but to understand how and

when women were introduced in the dominantly male workplace. Indeed, gender relations are integral to the structure and practices of the organization and are dominated by a ‘male sexual narrative’ (Hearn & Parkin, 1987).

5.2 [The Rational Corporation](#)

Between 1880 and 1910, corporations emerged as a dominant organizational form in the United States and, with them, white-collar workers, since organizations needed to be administered. The need to coordinate and administer specialized independent occupations and contractors, claimed for the guidance of professional managers. Soon new job titles, roles and functions were invented, as well as a new occupational culture. Management, as an academic field, was introduced by Harvard Business School in 1908 to support the development of the new occupation.

Managers aimed for efficiency that was obtained through a rational way of working (Crozier, 1964). Similarly, to the reinforcement of dichotomies in the techno-scientific fields (see *Chapter 3 GENDER AND TECHNOLOGY*, rationality was the ‘one best way’ to run corporations and was associated to masculinity. For most of the twentieth century, a ‘male ethic’ dominated corporations with the spirit of rationality as opposed to emotion, associated as a genuine female quality. Effective managers were meant to be rational, analytical, cold-minded and have the ability to set-aside work from all personal and emotional issues, employing military language and metaphors military to describe their managerial work. On the contrary, women were seen as emotional beings and therefore the antithesis of the ‘rational manager’. This assumption would in the years ahead, and to this day, involve a growing presence of women in positions related to people and

communication, (Lynch, 1973) seen as the ‘social workers of management’. Precisely, this association of emotion to women has removed women from positions of decision-making towards more functional and administrative positions that have been feminized, while management has been masculinized. Even though new management theories emerged praising the ability to manage human relations in the workplace, they were not related to women.

Along with the manager, modern multinational corporations were evolving with the invention of new roles; such as the role of secretary and wife of manager described in detail by Kanter in ‘Men and Women of the Corporation’ (1977).

5.3 [Never learn to type](#)

‘Never learn to type’ is the advice, and title, of the autobiography of the first woman Under-Secretary-General at the United Nations, Margaret Anstee, a Cambridge University graduate with honours. In her memoirs, she explains the reason for the election of the title of her book:

The title that now adorns this book is a dictum that I invented for myself and have also stuck to throughout my career. I was lucky enough to study at one of the most prestigious universities in the world at a time when places for women were severely limited. Subsequent career openings for women with arts degrees, even those with first-class honours, were sparse indeed, apart from teaching. Many of my peers had to take secretarial courses and became high-powered assistants to men often not as bright or qualified as themselves. I decided very early on that I would never learn to type, in order to avoid a similar fate. Nowadays, in our computer-dominated world, everyone has to learn to type to some degree, including men. But in my day the dictum served me well. (Anstee, 2003, p.xii)

Anstee's dictum makes a lot of sense since the incorporation of women into the corporate world is heavily linked to the typewriter, invented at the end of the 19th century. In 1880, women represented four per cent of the administrative work, that is, the tasks associated with typing, registration, accounting, etc. At the time, these tasks were considered to require a rational mind, away from any type of emotions that could affect planning and record-keeping. Ten years later, in 1890, women's participation amounted to 21 per cent of such administrative tasks. In 1920, women occupied 91.8 per cent of typing positions and 48.8 per cent of accounting, registration and cash positions⁴⁶. The administrative tasks -which had been exercised mainly by men- became feminized. While typing schools were open to women and men, their classes included aspects of personal image, manicure, dress, and expected behaviour (Kanter, 1977).

By 1870, there were seven women stenographers and typists recorded in the census, that grew to half a million⁴⁷ by 1920 (*Figure 47*). The growth of modern administration brought women into domination in the office but left them absent in management:

⁴⁶ The calculations are based on data from Hill, Joseph 'Women in Gainful Occupations 1870-1920' and Margery Davis 'Woman's Place Is at the Typewriter: The Feminization of the Clerical Labor Force', *Radical America*, 8 (July-August 1974) (Kanter, 1977).

⁴⁷ Grace D. Coyle, 'Women in the Clerical Occupations', *Annals of the American Academy of Political and Social Science*, 143. (May, 1929) (Kanter, 1977)

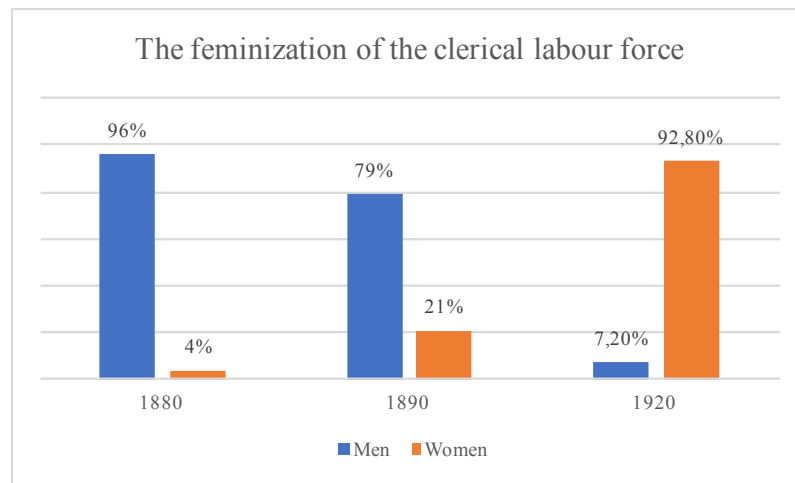


Figure 47: Clerical positions by sex in the US, 1880-1920 (Kanter, 1997).

5.4 The Office Wife

Women's role as clerks in the corporation, meant having the opportunity to develop a career as a private secretary to a male manager or in a typing pool. The first option was the aim of most women clerks due to the privileges and rewards that were associated. Apart from typing, the skills and abilities of their job as secretaries was defined by their relationship with their managers. Private secretaries were seen as office wives. At the time, mass media and entertainment insisted in the romantic idea of finding love in the office. Women magazines changed their narrative from becoming a housewife to being a secretary, in order to find love and marriage. In fact, many working women were expected to leave after marriage, or obliged due to the marriage bar⁴⁸. The implementation of the

⁴⁸ In 1946, an article in The Spectator magazine, gave (and dismissed) a few reasons for the implementation of the marriage bars. Arguments included: women who were married were supported by their husbands, therefore they did not need jobs. Marriage bars provided more opportunity for those whom proponents viewed as 'actually' needing employment, such as single women. The Spectator states unmarried women are more reliable and mobile than married women. As single women did not have a family or other pressing responsibilities, they were more reliable and flexible than married women. The last point made by this magazine involves the turnover rate. The turnover rate for women in these jobs was high

marriage bars was justified, at that time, conveying that women who were married were supported by their husbands, therefore they did not need jobs; it was also argued that single women workers were more reliable and mobile than married women. In Spain, women were not allowed to take paid jobs after marriage before 1961⁴⁹, and until 1976⁵⁰, they had to ask permission to their husbands.

Secretaries were seen as office wives at the mercy of their bosses; there were no job descriptions, appraisals, career development or opportunity structure for growth. Women were stuck in such positions with no possibility of movement, and any advancement or improvement in their professional life was decided by their manager. In fact, they were ranked by the status of the manager not by their skills or expertise, reciprocally, they were perceived as a 'status symbol' of their boss, part of his image. They were liked or disliked, respected or not, because of feelings about their boss and not necessarily because of feelings about them.

Following the patriarchal structure, the incorporation of women in the corporation was linked to the unequal power secretary-boss relationship (supply/demand), where women were subject to the arbitrariness of their boss. Secretaries were a part of the privilege of being a manager and a patrimony. Like corporate wives, they were expected to be loyal and follow their bosses' instructions, and add a personal touch to their offices.

because lots of young single women eventually got married. Since they did not hold their positions very long, it gave them less of an opportunity for advancement and promotions. Marriage bars were connected to social and economic fluctuations, for example, after the end of World War I, returning servicemen who wanted jobs, and afterwards the depression in the 1930s, led to the implementation of marriage bars in many professions during the interwar period.

⁴⁹ On July 22, 1961, the proposed law presented by the Women's Section, the Law on Women's Political, Professional and Labour Rights was approved.

⁵⁰ On April 8, 1976, Law 16/1976 Labour Relations Law.

Amongst other secretarial tasks, they had ‘office hold duties’ and many would make and serve coffee, bring homemade pastry for board meetings, remind special dates or personal things, advice on looks, decorate the office and take care of their manager personal matters such as family vacations, administrative papers, etc. The higher the manager’s rank, the more closely their duties approximated to that of a housewife (Benet, 1973).

Managers demanded more skilled and educated secretaries, whether or not the work demanded it, to increase their status. Discomfort and dissatisfaction grew amongst intelligent and highly educated women who saw no opportunity to increase their responsibilities or promote within the corporation. They claimed an official definition of their jobs and questioned the execution of personal services.

In her work ‘Men and Women of the Corporation’, Kanter gives a detailed description of the characteristic behaviours, attitudes and styles that give rise to the constraints faced by secretaries in her research. She highlights parochialism, timidity and self-effacement, praise-addiction and emotionality. The development of these characteristics over time, and the fact that such jobs were held almost entirely by women reinforced the stereotypical views of the nature of women at work.

5.5 [The Corporate Wife](#)

Other than secretaries and pool of typists, there was an important role of women at the office, outside the office: housewives. Corporations were predisposed to married

managers, 93.19 per cent of male managers were married in 1969⁵¹ (*Figure 47*). In fact, men reported the pressure they felt to acquire a wife at a certain stage in their careers due to the prejudice against single men.

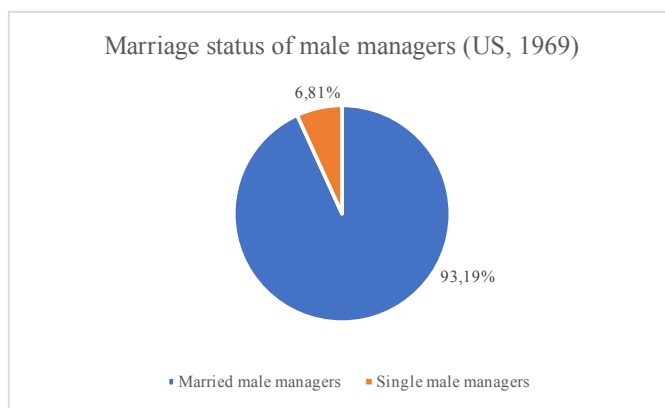


Figure 48: Marriage status of male managers in the US, 1969 (Kanter, 1997).

A fully dedicated housewife taking care of personal life, children and house matters, was crucial to be a successful manager. Managers were expected to be devoted to work and this often meant no dedication for personal life, other than resting on the vacation period. Housewives made this possible, taking care of all domestic and family non-paid work. Women listed and motivated their husbands to work harder and climb the corporate ladder. They understood they were married to the company and were needed to support managers, the woman behind the manager. Wives were invited to professional events and corporate parties and shared their husband's ambition, status and success. Pahl and Pahl (1971) believed that wives were not simply passive participants in the moves in which their husbands' careers might involve them. They were valued for their social skills more than intellectual skills in their hostess role. Since work commitments take priority over

⁵¹ Calculations based on data from U.S. Bureau of the Census, *Occupations of People with Higher Earnings* (Washington DC: US Government Printing Office, 1973) (Kanter, 1977).

social arrangements, wifely skills and co-operation become critical to such men as they attempt to maintain some semblance of being a 'family man' (Mulholland, 2003, p.117). 'The Sexual Contract' by Carole Pateman (1988) explained how women were expected to enter the workforce along with their husbands in the role of 'housewives'. She argues that the construction of woman as 'housewife' and man as 'worker', and the relationship between marriage contract and employment contract as part of the division of labour and subordination that extends from the private to the public sphere. Later on, corporations understood the existence of the 'wife problem' (Whyte, 1956). Were corporate housewives' unpaid workers or independent people on whom the organization had no ties?

In 1963, second wave feminist, Betty Friedan, wrote about the growing sense of emptiness amongst educated housewives. 'The problem with no name' covered the unexplainable unhappiness faced by many women that lived the American 'happy housewife' life. In her work, she tried to understand the reasons behind the 'feminine mystique' that had made women, return to domestic life after World War II.

By the end of 1949, only one out of three heroines in the women's magazines was a career woman-and she was shown in the act of renouncing her career and discovering that what she really wanted to be was a housewife. In 1958, and again in 1959, I went through issue after issue of the three major women's magazines without finding a single heroine who had a career, a commitment to any work, art, profession, or mission in the world, other than 'Occupation: housewife.' Only one in a hundred heroines had a job; even the young unmarried heroines no longer worked except at snaring a husband. (Friedan, 1963, p.22)

The role of the corporate housewife reinforced stereotypes at the office, managers thought of career women as an anomaly and women workers thought their place ought to

be at home in order to be successful. It was also an excuse for not hiring professional female workers, some managers argued that female peers were seen with disgust by their housewives. During the 60's and 70's, there was a push to put equal opportunities in place within the corporation, in order to reach formal equality with the host of new and amended laws⁵². Even though, policies based on conventional criteria, for the assessment of equal opportunities and the suitability of workers for job positions, supposed a disadvantage for women. Gender friendly policies in the workplace have not shown significant changes to organizational positions (Bacchi, 1996; Cockburn, 1991; Dickens, 1994). In the UK, more than 64 per cent of corporation had equal opportunities policies by 1999 (Cully, 1999) (Figure 49).



Figure 49: Gender friendly policies in the workplace, 1973⁵³

⁵² Equal Pay Act (US 1963, UK 1970), Pregnancy Discrimination Act (US 1964), Sex Discrimination Act (UK 1975)

⁵³ Time Magazine (May 21, 1973)

5.6 The Organization Man

During the mid 20th century, a new type of man worker is created: the organization man. Not only does he work for the organization, but he belongs to it as well (Whyte, 1956). Organizations were strictly hierarchical and favoured conformity and life careers, they promoted those who were loyal and followed their example. Success was related to length of service and careers would progress and consolidate at middle age. Ideally the 'organization man' was not able to distinguish between his work life and personal life, and worked more than 50 hours a week. The Organization Man was expected to prioritize his professional career whilst having a family. Long hours, total availability and interiorizing the organization's goals and business objectives, as his own, was an essential part of managers and did not feel like a burden.

The linear view of the organizational career, which dominated during the 50's to 80's, was premised on the exclusion of various groups, primary women (Cohen & Mallon, 1999; Edwards & Wajcman, 2005). Even though, bureaucratic careers had been defined in male terms and interests (Savage & Witz, 1992), the Organization Man was extended to the Organization Woman. It was usual that women had to opt between having a professional career or childbearing. Women that chose professional career as her priority had to either give up having children, postpone having them later on in life or subcontract childcare services. Overqualified women could also opt for part-time jobs, with less opportunities for professional advancement and lower salaries. It seemed, sex discrimination was a myth and it was due to women's personal choices (Hakim, 1995).

5.7 The Contemporary Organization

The end of the century, brought cultural changes to the corporation. A new narrative of career advancement and development, not linked to years of service or loyalty, became key to managers (Wajcman, 2004). Managers saw their careers independently from the organization, partly due to the uncertainty of corporate restructuring and the decline of employment security. Organizational careers were transformed into independent careers. Bureaucratic jobs decreased and managers were challenged to think by themselves, work autonomously and were evaluated on merits and results. Managers were expected to manage the work load of their employees, and also their commitment with motivation and leadership. It was more like an engineering culture with a social vision, promoting within the organization a culture of taking risks, questioning decisions and sharing a feeling of accomplishment (Kunda, 1992).

Personal interests are linked to the organizations interests, in order to be closer to commitment than to compliance. Loyalty was no longer an asset, and employees saw their firms as the right context for the provision of resources and the right opportunities. Professional careers become a more individualistic project designed for oneself. It seems as though employees were consumer of jobs and employers' sellers of jobs (Edwards & Wajcman, 2005). Thus, jobs became more flexible and adaptable to individuals and career advancement shifts to a non-standard lineal process.

Kanter (1993) establishes six important shifts that have taken place in the corporate workplace since the publication of her work 'Men and Women of the Corporation' to the 1990's, that effect corporate jobs and careers with significant consequences for both men and women:

Shifts that have taken place in the corporate workplace (Kanter, 1993)

1. **From fat to lean:** Overstaffing has been replaced by smaller, more flexible organization that aspire to be lean organization with focused efforts. Corporations tend to be more cost-effective but undermine employee's security;
2. **From vertical to horizontal:** The hierarchical emphasis with a clear vertical chain of command is declining. More cross-functional and cross-departmental work is being done, inducing employees to look across the organization;
3. **From homogeneity to diversity:** Women and minorities have gained access to positions in which they were formerly rare and labour markets have gradually globalized;
4. **From status and command to expertise and relationships:** The formal authority derived from hierarchy is less important than professional expertise for capturing the respect required for influence and leadership;
5. **From company to project:** Commitment and loyalty were expected between the employee and company. Attachments are more centred in project team and results and not the particular bond with the company;
6. **From organizational capital to reputational capital:** Careers were conceived as a sequence of steps in the job ladder. From 'organizational capital', experience and contacts within the organization, to 'human capital', skills, assets and reputation that can be applied anywhere.

Figure 50: Corporate shifts in the workplace (Kanter, 1993)

Academic research shows that women workers from the contemporary organization, understand work as central to their self-identification and share ambitious and aspirations along with their male peers (Edwards & Wajcman, 2005). There was a changing notion of corporate culture to one where both men and women are implicated in the project at a full emotional level (Coates, 1998). Many scholars thought of the advantages of a new career, adapted to the individual's interest and special abilities, for professional women. Even more so, contemporary corporations required managers with less hierarchical attitudes and more emphatic and cooperative styles of management, qualities generally attributed to women. Assessing performance evaluations based on individual's merits was thought to reduce the gender gap in decision making roles and therefore would be more suitable for women (Wirth, 2001).

The 80's brought positive actions to the workplace that tried to minimize barriers women faced but, as Wajcman noted, moving numbers of a disadvantaged group up the

ladder while leaving the structure of the ladder unchanged is still a disadvantage for women (Wajcman, 1998). Liff added that it was about resolving differences more than valuing them (Liff, 1996). Both authors, share the need for the redefinition of the workplace incorporating women's terms with their interests and needs (Liff & Wajcman, 1996).

5.8 The Digital Organization

As of today, organizations are being digitally transformed; digital organizations are understood to be both connected and knowledge-driven, and therefore able to adapt rapidly to new opportunities of the digital age. In 'Smart Organizations in the Digital Age' (Filos, 2006), three networking dimensions of organizations are elaborated: ICT-enabled virtuality, organizational teaming and knowledge hyperlinking. This network allows organizations to adapt rapidly to unpredictable contexts where the challenge is to manage people, information, knowledge, and creativity. In general terms, workforce gender composition has changed dramatically in general terms; in 1987, there were 32.4 per cent⁵⁴ of women workers and 67.1 per cent of men workers in Spain, twenty years later, in 2017, women workers equal 46.6 per cent⁵⁵ and men workers 53.4 per cent.

The Internet of Things (IOT), Internet of Everything (IOE), Big Data and Artificial Intelligence (AI) have propelled technology away from corporate silos and into the corporate mainstream. The digital organization is virtually in many locations and

⁵⁴ José Manuel Montero y Ana Regil (2015): *La tasa de actividad en España: resistencia cíclica, determinantes y perspectivas futuras*, Documentos ocasionales nº 1502, Banco de España.

⁵⁵ Instituto Nacional de Estadística (2017): Encuesta de Población Activa (4T/2017).

timeframes, technology is a strategic and transversal area to all the corporation that permits and allows the employees to be connected through the corporation network. The role of CIO (Chief Information Officer) or CTO (Chief Technology Officer) have a place in the company's board meetings and are key to the corporation strategy. Digitalization has influenced business activities and business models by enabling various new forms of corporation relationships, more flexible and accessible, with customers and employees. However, digitalization has put pressure on corporations to reflect on their strategies, new business opportunities and employee's competence (Rachinger et al., 2018). The ongoing transformation involving bots, personal assistants and decision automation could also mean that skilled employees may be replaced (Heavin, 2018) affecting women workers more prone to occupy these positions. Computing machines and robots have and will continue to displace unskilled and semi-skilled workers (Davenport & Kirby, 2016), Frey and Osborne (2013) predicted it could reach 47 per cent of US employment in 10 to 20 years; in a similar approach, Castaño (2016) reviewed Spanish Survey of Active Population (EPA) data related to Spanish employment in order to observe the gender trend in occupations to which these authors referred as high and low risk of automation. Her findings show that among the occupations with a high risk of computerization, those of administrative, legal and financial support are mainly female and represent respectively 14.7 per cent of female employment and 6.1 per cent of male employment (e.g. employees in accounting, administrative and office); also, in sales occupations (e.g. store dependents) that represent 9.5 and 4.2 per cent of female and male employment respectively; on the contrary, those occupations less prone to be automatized are mainly occupied by men, such as installation, operation, maintenance and repair that require precision and represent 12 per cent of male employment versus 2.1 per cent of female;

directors and executives that negotiate agreements and solve problems represent 5.1 per cent of male and 2.1 per cent of female employment; the science technicians and engineering with 2.1 per cent of male employment versus 0.7 per cent of female employment.

In fact, the expansion and improvement of Artificial Intelligence (AI) requires a new type of low-cost blue-collar, or rather pink-collar, that identifies objects in images to help AI make sense of the world. Digital organizations can solve problems and create new problems. Women workers are still segregated in sex stereotyped functions such as human resources, communications and marketing or administration. The structure of a career in the digital organization, reminds at odds with women's life-cycle patterns despite the flexibility and connectivity of digital working tools. There is an awareness discourse that attempts to be inclusive of gender yet reiterates stereotypes in its portrayal of women, furthermore formerly discriminatory elements of gender lose their importance for the sake of an individual ideal discourse were women are constructed as ideal workers of the future missing out on the continued inequalities experienced by women in relation to men (Kelan, 2008a). Careers are designed to fit men's life course with a housewife, therefore a woman manager faces a double disadvantage regarding her male colleagues since, not only does she lack the support of a 'househusband' for domestic and care responsibilities, but can be the housewife herself. Due to structural barriers, women have opted for alternative strategies, from organizational careers to professional occupations, that allow taking breaks and/or part-time formulas.

5.9 Conclusion

In this chapter, I have explored the relationship and presence of women in corporations over time. Corporations were created by men and for men, and have had to transition from all male workplaces to spaces where women are part of the workforce too. Was this transition effective? Was it a transformation or rather an adaptation of women to a male constructed corporation? Corporations and technology share many structural barriers; as an example, the use of dichotomies in its origins, where men are rational and women are emotional. Dichotomies that are useful to segregate women into lower paid occupations and that are applied differently depending of the context (e.g. women can/cannot hold clerical positions because they are ‘too emotional’ to the complete feminization of the clerical positions). In addition, and as I argued, male needs and standards design career paths and tracks, ignoring women workers needs and ‘otherness’ like it was observed in the previous chapter. In sum, corporations reflect a set of gendered assumptions that construct the office as a hegemonic masculine political actor and take shape within organizations in the form of a masculinist managerialism (Elias, 2007). All different sets of organizations reviewed in this chapter, from the origin of corporations in the late 1880’s to our days, share one outmost factor in common: women have been perceived as a different type of worker, different from the origin of corporations in the last decades of the twentieth century to our days. The reasons and consequences of this shared factor are to be explored and discussed in the next chapter, based on feminist grounded theories and analyses along with other academia field research on female talent retention in male-dominated corporations, focusing on the ICT sector.

6 THEORETICAL FRAMEWORK

6.1 Introduction

In this chapter I structure and support the existing theories around my dissertation research question moving from individual-level theories to structural and organizational explanations. Scholars Rosabeth Moss Kanter (1977) and Judy Wajcman (1998) and their influential works ‘Men and Women of the Corporation’ and ‘Managing Like a Man’ respectively, have served to structure the discussion of what it is known about women’s experiences, perceptions and expectations in male dominated organizations; together with other relevant authors in the Science and Technology Studies (STS) field, organizational behavior and management studies, as well as sociological and feminist analysis in order to contextualize underlying barriers into nowadays. Though ‘Men and Women of the Corporation’ and ‘Managing Like a Man’ were written twenty years apart, and another forty and twenty years respectively from my research, both works highlight essential underlying barriers that persist today. Even though, as it is explained later, there has been dramatic changes in the structure, career assumptions and certain aspects of today’s organizations have evolved in different ways (e.g. employee’s loyalty or the importance of seniority in the company), real equal opportunities in ICT corporations remains a critical goal. This chapter includes the analysis of Kanter’s (1977) and Wajcman’s (1998) work and a review of the similarities and differences in their approach to women’s advancement in male dominated corporations. As it is described in this chapter, both works complement each other from their different approach, ‘Men and women of the corporation’ is written from an organizational behavior theoretical perspective and

'Managing like a man' is written from a feminist theoretical perspective drawing from Kanter's initial findings. Kanter's pioneering ethnography work has inspired and influenced generations of scholars studying gender dynamics in the workplace; her key insights and organizational theories have become pillars for understanding what drives gender inequality in the workplace. Kanter argues how the distribution of power and powerlessness within the corporation affects the careers and self-images of women and men in the corporation and their roles as managers, professionals, secretaries and manager spouses. Consistently Wajcman's (1998) feminist approach to women in the corporation is an example of postmodern analysis that challenges established views about gender and management. In her work, Wajcman explores the practices that create and maintain patriarchal management regimes and questions whether corporate senior manager's leadership styles and work experiences differ depending on their sex. Her findings suggest that women are far from being totally accepted in senior manager positions and that have to comply with a 'male standard' that positions women as out of place (Kelemen & Rumens, 2008).

This chapter introduces Kanter's (1977) and Wajcman's (1998) works and, based on their theoretical review, presents the selection of areas of research I have identified through the analysis of recurrent ideas and patterns across literature that are important and associated to my specific research question. There is a total of seven research themes identified that constitute the theoretical framework of this thesis that are described in this chapter: Opportunity and power management, tokenism / critical mass, gender stereotypes, brotherhood, corporate *manstreaming*, sex and work and culture organization. As explained in this chapter, the first research topics, - opportunity and power management, tokenism / critical mass and gender stereotypes - are mainly inspired

in Kanter's initial research and the remaining research topics - brotherhood, *manstreaming*, sex and work and culture organization - in Wajcman's subsequent work.

6.2 [A comparison of the literature: 1977 and 1998](#)

The main pillar of this work is the previous research from academic sociologists Rosabeth Moss Kanter (1977) and Judy Wajcman (1998), the first in the late 1970s in the United States of America and the second, twenty years later, in the late 1990s in the United Kingdom. Both academics focused their studies on female employment and the working environment of Anglo-Saxon multinational corporations. Both authors have a critical look at women's and men's experience in the corporate climate, and share a similar methodological approach: Kanter's through the study of men and women workers in an American corporation, under the fictitious name 'Indsco'⁵⁶ and Wajcman's through the study senior managers experiences in five tech multinational corporations, one of them a computer firm referred to as 'Chip'⁵⁷, with typical equality policies in the United Kingdom.

I felt like an anthropologist; I had learned fieldwork, and I think fieldwork is incredibly important in understanding a context. I would develop insights and understandings and then go ask people questions. I was also aware of the kinds of topics that many scholars were writing about at that time, and I wanted to incorporate that work and maybe improve on it. It was very much going back and

⁵⁶ Indsco is a fiction name given by Kanter to the large corporation she studied; the real name of the corporation still remains anonymous.

⁵⁷ Chip is a fiction name given by Wajcman to a American-owned, multinational, high tech corporation based on London with the latest trends in human resource management, UK.

forth between theory, research findings, and field observations—and the interaction among them all. (Kanter, 2017)

(...) However, this project is not simply an evaluation of sex equality strategies in the workplace. Rather, it is a comparative analysis of men's and women's experience in a changing corporate climate. (Wajcman, 1998, p. 3)

Even though there is a two-decade gap, Wajcman's work is complementary and has a continuum line to Kanter's research methodology and findings, although exposing new gender challenges and perspectives. As explained in this following section, Kanter's perspective is based on organizational behaviour theories, whilst Wajcman focuses on the organizational structure within the framework of feminist theories and with a strong focus in ICT multinational corporations. Both authors have been chosen as the basis of the theoretical framework to this research due to their pioneer work on women in large multinational corporations and elaborating valuable and extensive literature on the topic. Along with the binding constraints of my research, it is important to state that both authors focus on the similarities between male and female workers rather than the possible differences:

The definition of the situation defined how people behaved. When it came to working on a task, there was little that was especially noteworthy about the women did it, nothing that stood out as particularly 'feminine' or seemed different from numerous reports of the behaviour of any set of small groups. (Kanter, 1993, p. 340)

There is no such thing as a 'female' management style and that the similarities between women and men far outweigh the differences between women and men as groups. (Wajcman, 1996)

In fact, Wajcman concentrates on the fact that women workers are disadvantaged. Both authors also seek cultural factors and barriers inherent to the organization, those of a structural and institutional nature, and not those that are part of the individuals in the workplace. Field research has considered both person-centered and situation-centered variables in explaining the underrepresentation of women in decision making positions (see section 1.1.2.1 *Gender differences in management: Person-centered vs situation centered*).

These two aspects are key to this research since it defines a scenario where workers are equal in terms of aptitudes, attitudes, skills, capacity of work and knowledge, and focuses mainly in factors of an organizational nature or situation centered. As sociologist Michael Crozier argued in 'The Bureaucratic Phenomenon':

All the people of the organization are essentially rational, regardless of their manifestations or behaviours which, on the other hand, are usually the result of their particular situation in the organization in order to preserve their dignity, control and recognition (Crozier, 1964).

Both Kanter's and Wajcman's approach avoid the victim trap that places much of the cause of women's failure to achieve occupational equality on women themselves. Much literature that takes this more individualistic approach, focusing on how girls' socialization and educational experiences leave many women unprepared for and uncomfortable in traditionally male jobs (Bourne & Wikler, 1978; Hillsman & Levenson, 1982; Ireson, 1978; Marini & Brinton, 1984; Reskin & Hartmann, 1986; Strober, 1984; Wolf, 1981). Corbett and Hill (2015) in their research 'Solving the Equation: The Variables for Women's Success in Engineering and Computing' found that women who leave the ICT sector are very similar to women who stay in the ICT sector, it seems the

differences are not in the women themselves but in their workplace environments. Women who left were less likely to have opportunities for training and development and support from co-workers or supervisors, than were women who stayed in the profession.

6.2.1 Contextual differences

In comparing both books, it is worth noting that the corporate context has experienced changes though structural factors still influence women's advancement. *Chapter 5 WOMEN AND CORPORATIONS, section 5.7 The Contemporary Organization*, describes the six significant shifts in the corporate workplace identified by Kanter (1993) since the publication of her work 'Men and Women of the Corporation' and its effect on corporate jobs and careers. Summarily, corporations have become more lean, horizontal, diverse and increased the influence of leadership over hierarchies; loyalty and organizational capital within the corporation have given way to human capital that can be applied anywhere. These shifts have brought changes to women's and men's careers, and even though there is an increase in uncertainty and anxiety, there is also an increase in open opportunities and power outside the corporations' traditional hierarchy. Women can achieve power through new routes and create new images of female leadership. Men and women are still learning to work together and, at the same time, family issues have become public issues that belong to public policy and human resource company policies. These major differences in the workplace context translates in different approaches and importance given by the authors, my research will showcase three variations: horizontal segregation, managing diversity and domestic life.

6.2.1.1 *Horizontal segregation*

It is important to clarify that Kanter's research was one of the few at the time in the field of women and management as this issue was barely discussed since there were so few women in managerial positions. The context for working women was different in the late 1970's, women employment rates (full time and part-time) added up to a 40 per cent in the United States and were more segregated in traditionally female jobs (e. g. secretaries, textile, nursing...). In the late 1990's women were a larger part of the workforce adding up to 60 per cent of them, and represented in almost all sectors of the labour force, even traditionally male dominated fields although in lower proportions (Gutek, 2003); as a result of this context, Kanter dedicates a very large part of her research to the description of the roles of the office and corporate wives (see section 5.4 *The Office Wife* and 5.5 *The Corporate Wife*). In the 1970's, secretaries, or in Kanter's own words 'Office wives', made up the majority of women working in the corporation; women were mainly represented by their support function to men in the workplace (e.g. office wives) or in the family hold (e.g. corporate wives). Twenty years later, 'the focus shifted from women's exclusion from certain occupations (horizontal segregation) to how women are incorporated but segmented within occupations (vertical segregation)' (Wajcman, 1998, p.48). Occupational sex segregation was relatively declining in management positions thus Wajcman can relate to a different landscape where women's representation in management positions has increased and where women are starting to occupy a few senior manager positions. Still, Wajcman analyses briefly secretaries in the corporation which remain mostly women and questions whether the boss-secretary relationship as a new kind of patriarchal structure of workplace power relations.

6.2.1.2 *Managing diversity*

Another example of contextual issues that differ between both works, is the affirmation of diversity in the workplace. Due to the gradual globalization that takes place in the labour markets, although diversity is acknowledged by Kanter in her work, Wajcman (1998) explores fully diversity and the implications of ‘managing diversity’ (p. 20). In Wajcman’s view, affirmative action was the policy of the 1980’s that was being replaced by diversity management policies in the 1990’s. The intention of managing diversity is to value positively the differences in people, and ‘to get from a diverse workforce the same productivity we once got from a homogeneous workforce and do it without artificial programs, standards or barriers’ (Thomas, 1990, p. 112). It is understood that diversity can bring new strengths and maintain the corporations competitive advantage. In her work, Wajcman is sceptical about the approach taken by corporations, arguing that managing diversity does not seek to change the nature and order of jobs and occupations, ‘rather encourages a wider range of people to be able to fit into conventionally structured positions’ (p. 23). Wajcman agrees with feminist thinker Liff (1996) who states that managing diversity policies allows for individual differences but there is no strategy for dealing with systematic disadvantages towards women or minorities in the workplace. In fact, diversity policies have not significantly improved equality in the workplace, almost twenty years later. Dobbin and Kalev (2016) analysed three decades’ worth of data from 829 midsized and large U.S. firms and interviewed hundreds of line managers and executives, their findings showed a scarce impact of corporate diversity programs and policies. Companies saw no improvement in the proportion of white women, black men, and Hispanics in management 5 years after

instituting required training for managers; the share of black women actually decreased by 9 per cent, on average, while the ranks of Asian-American men and women shrank by 4 per cent to 5 per cent (*Figure 51*):

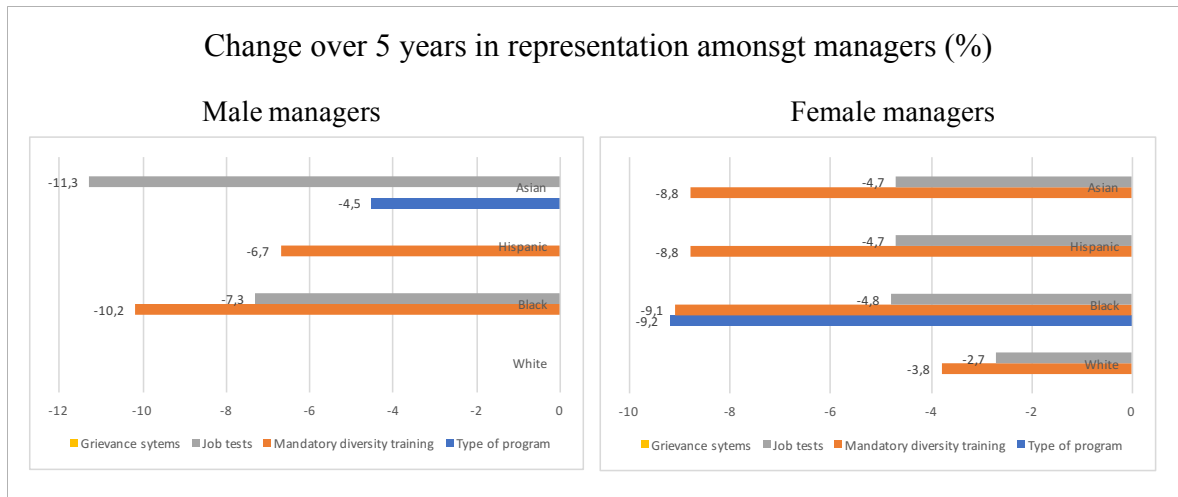


Figure 51: Poor returns on diversity programs analyzed (Dobbin & Kalev, 2016)

In their research ‘Why diversity programs fail’, Dobbin and Kalev (2016) conclude that:

It shouldn’t be surprising that most diversity programs aren’t increasing diversity. Despite a few new bells and whistles, courtesy of big data, companies are basically doubling down on the same approaches they’ve used since the 1960s—which often make things worse, not better. Firms have long relied on diversity training to reduce bias on the job, hiring tests and performance ratings to limit it in recruitment and promotions, and grievance systems to give employees a way to challenge managers. Those tools are designed to pre-empt lawsuits by policing managers’ thoughts and actions. Yet laboratory studies show that this kind of force-feeding can activate bias rather than stamp it out. As social scientists have found, people often rebel against rules to assert their autonomy. Try to coerce me to do X, Y, or Z, and I’ll do the opposite just to prove that I’m my own person. (p. 3)

6.2.1.3 *Domestic life*

Another significant contextual difference between Kanter's and Wajcman's work is the increasing relevance of domestic issues in public and corporate policy. Corporations transit from the acknowledgement of the importance of 'corporate wives' in managerial career to be a successful manager in the 1950's to promoting neutral gender workplaces where policies avoid distinguishing roles according to people's sex or gender, in order to avoid discrimination arising from the impression that there are social roles for which one gender is more suited than another in the 1980's. However, the 1990's brought a rise in equal opportunity programs in human resource company policies which resulted in a great divergence between formal company policies to eliminate sex discrimination and organization informal reality. Unlike Kanter, Wajcman analysis of the nexus between work and home is central to her argument. The analysis explores the public and private facet of women workers and its implications on women's advancement, drawing strongly from Carole Pateman's (1988) 'The Sexual Contract'. Wajcman argues that 'the sexual division of labour is a constitutive feature of organizations, which are in turn founded on the sexual contract sealed in the home' (1998, p. 158). Wajcman understands that 'corporate responses to family needs are constructed as special benefits rather than rights' (p. 97) and goes beyond the unequal domestic division of labour to argue that the 'sexual contract' constitutes women and men fundamentally different kind of workers. She argues that women are not responding to the demands of full-time employment by renegotiating the sexual contract of marriage, instead middle class women are seeking for individual solutions to the social reproduction of the household by contracting domestic work rather than confronting male power at home. Wajcman understands men's refusal to play an

equal part in all forms of domestic labour as a key mechanism through which gender inequalities are maintained in contemporary culture.

6.2.2 Approach differences

Beyond the cited contextual differences, Kanter's and Wajcman's work vary importantly in its theoretical approach. On the one hand, Kanter's approach is based on organizational behaviour theory and structural explanations of gender in work organizations. One central argument to Kanter's work is that structure shapes behaviour, the definition of the situation determines how people behaves in the workplace, their exposure to opportunity and power is determinant for their attitude and performance as workers; there was no noteworthy distinction about the way men or women performed their individual tasks. As argued by Crozier (1963), employee's expectations and motivations are a rational reaction to organizational structure. Individuals occupying disadvantaged positions develop behaviours that reflect and justify their career advancement. Wajcman (1998), amongst other scholars (e.g. Fagenson, 1990; Green & Cassell, 1996; Savage & Witz, 1992), points out that Kanter 'fails to see that the person and the organization structure are not independent factors and thus ignores the social context and organizational cultures in which managerial behaviour takes place' (p. 47). On the other hand, Wajcman's feminist postmodernist approach interrogates the male norm to which women are being compared against and avoids thinking about gender in terms of sameness (placing women as equal or as the same as men). In her work, Wajcman is committed to exposing the masculine assumptions and power relations that coexist in apparently gender-neutral organizational and management literature at that time.

Wajcman exposes how problems facing women in managerial roles are not only 'problems of powerlessness', as Kanter states, are problems of sex as well.

This differential theoretical approach can be observed in one of Kanter's key findings: tokenism and the symbolic consequences of tokenism in women and minorities in the workplace (e.g. visibility, contrast and assimilation). The elaborated debate around tokenism and critical mass is centred in numbers, or as represented by Kanter in X's and O's, adding an optimistic understanding that, when women reach a certain level of representation in the corporation, such effects will minimize. Kanter's approach, based on organizational behaviour theory, focuses in corporations as substantial 'people shapers' and analyses the dynamics between men and women workers and its consequences in the office. However, Wajcman's feminist approach goes beyond the formal structure of organizations into the hidden barriers that inhibit women's achievement (Crompton & Sanderson, 1990; Reskin & Roos, 1990; Witz, 1992), the debate is centred in the inherent masculine culture and male standard in the workplace that prevails despite the increasing numbers of women in the workforce. Women continue to remain isolated, also because many women managers reinforce the masculine culture within the corporation (Faulkner, 1996). Wajcman's central argument is grounded to the way female senior managers are expected to 'manage like a man'. The traditional template defined for corporate managers has not changed and women are expected to fit in, thus ignoring substantial differences that perpetuate inequality in the workplace. Another example of the authors different perspectives can be observed in the analysis of 'gender regimes' (Connell, 1987) and power relations, it is the case of the relationship between secretaries and bosses. While Kanter's analysis highlights the importance of gender and sexuality, the secretary-boss relationship is explained in terms of their job

functions and absent from gendered relations in a gender-neutral organization. Kanter understands inequality will end once women occupy senior positions and fails to address the difference it would make to her analysis if a secretary were a man.

However, these differential approaches provide substantial basis for structuring and identifying a series of underlying barriers for women's advancement in the workplace and specifically in the ICT workplace.

Additional literature has explored the patterns of horizontal segregation, women's exclusion from certain jobs in the corporation, to vertical segregation with women's segmentations within occupations. Scholars continue to examine new patriarchal strategies that arise from new challenging contexts. As a result of this deepening in the literature, the theoretical framework provides the subtle, underlying barriers identified by scholars in the last decades which informed my research rationale. Each barrier has been classified as a research theme and has been extensively explored. Women continue to be intrusive in a male-dominated culture like the tech sector, a corporate world that reflects the power structures of patriarchy, which gives privileges to men - in the form of opportunities, power, salary, recruitment, decision making roles, among others - and gives invisibility to women. The tentacles of patriarchy are many, there are several factors that influence and act as underlying, subtle barriers to the career advancement of ICT women, such as: (a) Opportunity and power management; (b) Gender stereotypes; (c) Tokenism; (d) Brotherhood; (e) Sex and work; (f) Corporate *manstreaming* and (g) Organizational culture and gender identities. These research themes have been identified and analysed in-depth and have been incorporated into the present theoretical framework of the research.

6.3 Opportunities and power management

This research theme is central to Kanter's research, focused heavily on power and opportunity relations. Following Crozier's work during the 1960's; both scholars are committed to the implicit rationality of people, who react to the pressures that exist in the organization in order to survive or adapt to their particular situation. Kanter considers that women's occupational experiences are very much related to the structural constraints inherent in the occupational positions women fill. As the positions women typically fill lack opportunity of advancement; women respond with lowered aspirations and more commitment to non-work activities. Additionally, those positions normally don't hold power; women then exhibit behaviours typical of powerless organizational members: rigidity, authoritarianism and the use of coercion over subordinates. Finally, even when women are filling positions similar to those of men in terms of power and opportunity, they often suffer from the effects of tokenism being part of executive teams composed by mainly by males (Balleraud, 1999) (see section 6.4 *Tokenism*). The understanding of opportunity and power management as an underlying barrier for women's advancement is complemented with Wajcman's feminist approach, whereby the nature of power relations cannot be analysed in a gender-neutral context.

6.3.1 *Opportunity management*

Opportunity management is a central argument of Kanter's research on men and women workers and their relationships with multinational corporations. Opportunity refers to expectations and future prospects; the structure of opportunity is determined by

such matters as promotion rates, the length of career paths, access to challenge, increase in skills and rewards, and individuals prospects relative to others of his or her age and seniority. Her work analyses in detail (a) motivational factors, (b) career aspirations and advancement and (c) recognition.

(a) Kanter relates motivational factors to work commitment and highlights in her research, classic studies of blue-collar men that suggest that work commitment is low under conditions of low opportunity (Chinoy, 1955; Dubin, 1962). The findings of these studies showed that in a work environment where workers perceive there is an absence of opportunities, work is not a central interest and that many of these workers considered opting-out and starting their own business. Experiments carried out at the time showed that people without expectations of promotion or growth, sought interests and motivation outside the organization. Her own findings concluded that salary is not the ultimate motivator, the real reward that an organization controls is the promotion's expectations. Aspirations for career growth, rising status and authority are a very significant part in the culture of multinational corporations. Having a voice in the organization and adding more value also means having more official authority. Organization life is based on career progress and promoting to managerial positions. At 'Indsco', line management jobs were more desirable than staff jobs because they involved more promotion opportunities. Managers would reject promotions to better payed corporate positions if were considered as dead end positions. The underlying message at the corporation was 'be promoted or perish'. Frederick Herzberg (1959), an American clinical psychologist, carried out studies to determine which factors of the employee's work environment caused satisfaction or dissatisfaction. His study 'The Motivation to Work' found that the factors causing job satisfaction were different from those causing job dissatisfaction. To explain these results,

he developed the ‘Motivation-hygiene theory’, also known as ‘Two factor motivation theory’, with satisfiers as ‘motivators’ and dissatisfiers as ‘hygiene factors’, using the term ‘hygiene’ in the sense that they are considered maintenance factors that are necessary to avoid dissatisfaction but that by themselves do not provide satisfaction. ‘Salary’ was identified as a hygiene factor leading to dissatisfaction and ‘growth’ and ‘advancement’ were considered motivation factors leading to workers’ satisfaction (Herzberg et al, 1959). Recent papers show that Herzberg’s two-factor theory still has utility more than 50 years after it was first developed (Rantz et al., 1996; Bassett-Jones & Lloyd, 2005; Sachau, 2007). Nowadays, motivation factors persist in the workplace. According to Gallup’s report ‘How Millennials Want to Work and Live’ published in 2016, based on a survey carried out to 1,700 US workers from co-existing generations in the workplace (e.g. Baby Boomers, Generation X, Millennials), it is clear the relevance of opportunity management for workers in multinational corporations. All generations present in the workplace consider as ‘extremely important’ those factors that are related to opportunity advancement and growth (*Figure 52*):

What Different Generations Look for When Applying for a Job

According to a survey of 1,700 U.S. workers.

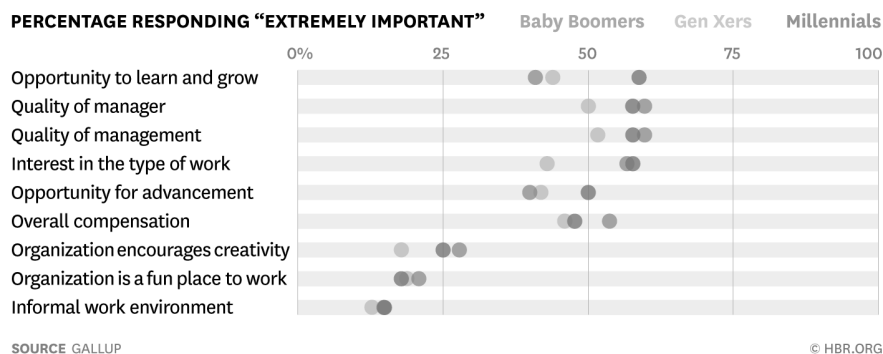


Figure 52: Factors considered extremely important for a job by generation (HBR, 2016.)

Kanter argues that opportunities define people's motivation or lack of it and states that people exposed to opportunities will have a similar behaviour regardless of gender. She establishes a relation between lack of opportunities and the stereotyped gender reactions towards women workers reproducing reactions under the label of 'women in the workplace' (e.g. lack of motivation, interest or ambition).

Every statement that can be made about what women typically do or feel holds true for some men. As we have seen throughout this book, what appear to be 'sex differences' in work behaviour emerge as responses to structural conditions, to one's place in the organization. (Kanter, 1977, p.262)

Kanter's approach can be complemented with Wajcman's feminist approach that analyses the gender bias in opportunities in the workplace and finds it is a point where marked sex differences emerge. Men and women express very different views of women's prospects within the organization, nearly 71 per cent women report they have a glass ceiling that limit their ability to move up the ladder, in fact, the majority of women also feel that regards are largely based upon perceptions and that male peers are adept to playing the 'perception game' (1998, p. 87).

(b) Kanter states that movement along the hierarchy implies personal success or failure with profound psychological implications for workers. Opportunity is tied closely to self-image and those with opportunities ahead will invest themselves heavily in work and will be concerned in learning the things that will be useful on their journey to the top. A relation exists between aspirations, work commitment and organizational responsibility when aroused by an increase in opportunity. For example, while at 'Indsco', Kanter observed how a female worker had negotiated with her husband to share child care and reorganized house chores when she was a candidate for a promotion for assistant

manager. Opportunities for growth had increased her ambition and willingness to commit. On the contrary, Kanter observed how the people stuck or blocked from promotion, had a very different attitude and commitment towards work. Decreasing opportunity meant decreasing involvement. She identified three types of groups within these group of workers, one was made up mostly by women clericals, supervisors of office workers and those in personnel functions. Others had lost out in competition or simply because of «pyramidal squeeze» (Kanter, 1977, p.137), they had social recognition instead of organizational recognition, usually from people junior to them rather than peers or from people outside the corporation. These people were a considerable problem for the organization as they occupied key positions and made high salaries, they had been valued performers in the past and their discontent represented a real cost to the organization. Lastly, those workers that had been promoted to a manager position but were illegible for a higher or different management positions, they were experts in their field but had not the managerial skills required to grow outside their field of expertise. These workers were frustrated because their expectations of opportunity had been created and then snatched; the organization thought it had done enough for them but they had expected to go further. In 1949, Theodore V. Purcell, an assistant professor of industrial relations at Chicago's Loyola University, searched for answers to the question from the workers themselves. He spent many months talking to workers from three different meat-packing plants in Chicago's Packing town and observed that, those that were negative about their chances for advancement, denied they would ever want a promotion (Purcell, 1960). Surveys have also shown a correlation between negative mobility perceptions and low aspirations (Guest, 1954). Aspirations are not naturally low but they may be lowed as workers confront the reality of their job situation. This was the case among the women workers at

‘Indsco’, whose opportunities in objective terms were much limited than those of men. The men reported a greater amount of encouragement from superiors to improve and grow. They also saw themselves acquiring more managerial skills than women (e.g. budget preparation, leading others, setting goals). It seemed like the self-fulfilling prophecy, women did not expect to promote in larger amounts than their male peers so women promoted at lower levels than their male peers. Wajcman goes further to argue that the crucial problem is that the same behaviours are interpreted in different ways depending on the gender, for example, she points out that a ‘high visible image’ with a supervisor is key to promotion, men that cannot achieve it are penalized like women but women that achieve it are penalized for being perceived as ‘pushy’.

(c) Managers primary sense of worth at work come through good job recognition. Kanter links low-opportunity contexts to female low recognition, whereby women are more likely to be less recognized because their work carries less opportunities. Kanter observed that workers with higher opportunities are busy trying to advance their careers and focus in upward work relations, they don’t pay much attention to social relationships. Furthermore, when people are encouraged in an opportunity context, they tend to compare themselves upward and feel they no longer belong to the peer group, it is known as ‘anticipatory socialization’ (Merton, 1961). In a low opportunity context, interpersonal relations at work are a substitute to recognition: it helps meet needs of status, dignity and value. Social recognition provides great satisfaction at work through the connections with other workers. Several empirical studies (Cohen, 1958; Tichy, 1973) have shown a different trend amongst workers who are challenged to grow and those that face dead-ends, laboratory experiments showed that the former were more concerned with the tasks, were less critical with their supervisors and were more attracted to workers with formal

authority in the organization, the later became 'social professionals'. So people opt out choosing low opportunities or they are chosen for them? Cohen results suggest that opportunity does shape behaviour since subjects were placed randomly in the various situations. Some workers interiorize the message that they can't and then they adopt an 'I don't want to' attitude as self-protection. The less advantaged in opportunities may develop a counter system of animosity towards hierarchical leaders that involves gossip, jokes and chronic criticism about them and the organization in solidarity towards their peers and in order to protect themselves from feelings of failure (Burns, 1954). This implies a certain pressure to be loyal to workmates, in fact, getting a promotion could be seen as an act of disloyalty. At Indsco, Kanter perceived a generalized assumption that some women didn't want to get promoted and be forced to leave friends. Due to the unequal representation of women and men in senior management positions, as a woman promoted she was more likely to have less female peers, the social part of getting a promotion is perceived as difficult. Obviously, this has not been a concern for male workers in large corporations.

Wajcman's work shows gender bias in recognition; within the high-tech corporations, amongst her study, that model equal opportunities in the workplace, there was evidence that women weren't being recognized in accordance to their assessed performance. In terms of salary, there was a significant disparity in the rewards received by men and women.

In her research, Kanter aims to go beyond sex differences. As mention earlier, she sustains Crozier vision of rationality portrayed in 'The Bureaucratic Phenomenon' (Crozier, 1969). She argues that the structure of the organization plays a powerful part in creating work behaviour.

Women in low mobility organizational situations develop attitudes and orientations that are sometimes said to be characteristic of those people as individuals 'or women as a group' but that can more profitably be viewed as more universal human responses to blocked opportunities. (Kanter, 1977, p. 159)

Kanter understands that, based on her analysis, there should be a reinterpretation of findings of sex differences in work behaviour: men are more ambitious and task oriented and women are keener in social relationships and less committed. The actual fact is that women are in a lower opportunity context. Sociological experiments in all-female plants have shown that work is a central part of life to many employees in a high opportunity context. Kanter (1976) makes the case for an absence of sex differences in work behaviour, arguing that work attitudes and work behaviour are a function of location in organizational structures. After extensive field work in two corporations, interviews and an extensive review of psychological and sociological literatures on work orientations and leadership behaviour, it is concluded that it is not the nature of women but hierarchical arrangements that must be changed in order to promote equity in the workplace. As it was mentioned previously, laboratory experiments have shown that in an all-male plant, men with lower opportunities did not think of work as a central part of life (Dubin, 1956). If work shows low chances of mobility or opportunity, workers show a weak attachment to work and more satisfactions in family life. A number of classic male blue-collar studies indicate that work commitment and aspirations are both low where advancement opportunities are also low and vice versa. There is some interesting parallelism between the response to their work of men workers in the automobile industry described by Chinoy (1955) and the response of women workers in the telephone industry described by Langer (1970). In his work 'Automobile workers and the American dream',

Employing research methods, Ely Chinoy spent more than a year with male workers from an anonymous plant in mid-Western Autotown, through his interviews he found that many workers lacked hope for any advancement within the factory, they envisioned progress in another way. Real advancement in the plant was unattainable, but having a house and a car of their own was viewed as achievements of the American Dream. Langer's research took place inside the New York Telephone company where she worked from October to December as a Customer's Service Representative in the Commercial Department. In her work 'Inside the New York Telephone company', she describes the behaviour of the 'pink-collar ghetto' workers with no evident differentiation from blue collar workers. In 2017, IESE Business School launched a survey⁵⁸ in order to measure worker's satisfaction regarding personal and professional achievements. The methodology included a quantitative survey to 2.138 participants (50 per cent women and 50 per cent men) with managerial and staff positions, regardless of childcare responsibilities, located in Spain. Findings showed that women and men that perceive an exclusive business environment (86 per cent and 87 per cent), have a more positive perception of their personal life (49 per cent and 59 per cent). This fact helps explain the relation between an inclusive workplace and workers' motivation. Those employees that feel excluded from opportunities in the workplace, will develop a stronger motivation for personal life and interests outside the office.

Similar 'interrupted career' patterns are true for men and women, employees leave organizations to start a small business and then return when it fails (Mayer and Goldstein,

⁵⁸ Work and family International Center, IESE Business School (2017).

1964). On the basis of the differentiation of opportunity in complex organizations, Kanter hypothesizes that men and women workers with low opportunities would tend to:

- Limit their aspirations, not hoping for mobility in general, not valuing more responsibility, more participation;
- Have lower self-esteem, value their competence less than adequately;
- Seek satisfaction in activities outside of work, dream of escape and 'interrupt' their careers;
- Have a horizontal orientation, compare themselves with peers;
- Be critical of high power, of management, or at least, fail to identify with them;
- But be less likely to protest directly or seek change; rather to channel grievances into griping or output restriction rather than direct action;
- Orient peer groups toward protection and reassurance, with strong loyalty demands; and hence, discourage members of the group from seeking mobility;
- Find ways to create a sense of efficacy and worth through personal relationships or doing well socially, rather than in terms of task accomplishment;
- Be more attached to the local unit than to the larger organization, and, hence, be more parochial;
- Resign themselves to staying put;
- Be concerned with basic survival and extrinsic rewards: the economic or social payoff of the job.

Kanter goes on to identify what people with high opportunity tend to do:

- Have high aspirations;
- Have high self-esteem, value or overrate their competence;
- Consider work a more central life interest;
- Be more committed to the organization, willing to sacrifice for it and believe in its goals;
- Be competitive, oriented toward rivalry;
- Have a 'vertical' orientation, compare themselves upward;
- Be more attracted to high power people, seek validation from them, identify with them;
- Create power and action-oriented informal groups;
- When dissatisfied, engage in active change-oriented forms of protest: collective action, formal meetings, suggestions for change;
- Consider themselves members of the larger organization rather than the local unit;
- Become impatient or disaffected if they don't keep moving;
- Be concerned with the job as an instrument for mobility and growth, and hence with intrinsic aspects such as its potential for learning.

More than other organizational aspects, Kanter understood that the opportunity structure in an organization defined the ways people perceived themselves and their jobs.

The fact and possibility of movement affected attitudes toward work and personal feelings of achievement. Movement along the hierarchy implies personal success or failure.

The challenge for contemporary corporations is to open opportunities for the disadvantaged, substituting other rewards and values, and making them real through organizational design.

6.3.2 Power management

Power and power management is a central topic to Kanter's research in 'Men and women of the corporation', she analyses Michel Crozier's work (1964) that takes power in organization as a core issue. Kanter defined the structure of power as 'the capacity for the person to act efficaciously within the constraints of wider organizational system' (Kanter, 1977, p.247). In management and social literature, power is understood as a relational concept used to describe the perceived power or control over the individual or organizational unit has over others (Crozier, 1964; Bacharach & Lawler, 1980; Pfeffer, 1981). 'Power arises when an individual's or organizational unit's performance outcomes are contingent not simply on their own behaviour but what others do and/or in how they respond' (Conger & Kanungo (1988, p.472). At an organizational level, Crozier (1964), defines power as the ability of a person or group to obtain from other persons or groups behaviour that was not previously required. Pfeffer (1981) went further to state that power is the ability to provide some performance or resource that is valued by the organization or the ability to cope with important organization contingencies. At an interpersonal level, French & Raven (1959) argue that power can have different sources depending on the actor's organizational position, personal characteristics, expertise and opportunity to

access knowledge; depending of the source or base of power it will determine if it is legitimate, personal, coercive, reward or knowledge power (Bacharach & Lawler, 1980; Conger & Kanungo, 1988) (*Figure 53*).

Five bases of power (French & Raven, 1959)
1. Legitimate power: In an organisation, a manager gets power because of the individuals' position or post. It gives the individual the power to control resources and to reward and punish others.
2. Personal power: It comes from each leader individually. It is the personality of a person that attracts followers. The followers admire their leaders and may even try to copy their behaviour, dress, etc.
3. Coercive power: It comes from the ability to punish others or to pose a threat to others. It uses fear as a motivator. The leaders or managers with coercive powers can threaten an employee's job security, pay, withdraw certain facilities, suspension, etc.
4. Reward power: It is the opposite to coercive power. The leader tries to motivate the followers to improve their performance. It enables the leader to provide additional facilities, increase in pay, promotion, etc.
5. Knowledge power: It comes from expert knowledge and skills. The expert influences another person's behavior. The expert has knowledge and skill which the other person needs but does not possess.

Figure 53: Five bases of power (French & Raven, 1959).

Implied in these theories is the assumption that organizational actors that withhold power will be more likely, than those who lack power to achieve the expected outcomes. This orientation has led to develop strategies of resource allocation for increasing and reducing individuals' or organizational units' power (Plott & Levine, 1978). Kanter's analysis of organizational power is determined by both formal job characteristics and informal alliances. Factors include visibility and relevance of the function to current organizational problems, approval by high status people, the mobility prospects of subordinates and the existence of sponsors or favourable alliance with peers.

Kanter analyses power with a gender perspective and argues that the problems senior women face in corporations are problems of powerlessness, not sex. Kanter identifies the correlation between disadvantaged positions with lack of power and the attitudes and behaviours developed by the individuals that hold them. She justifies sex differences in attitudes, behaviours and recognitions from disadvantaged positions in the structure of the organization rather than from gender. Kanter's hypothesis is that people with low organizational power tends to:

- Foster lower group morale;
- Behave in more directive, authoritarian ways;
- Try to retain control, restrict opportunities for subordinates' growth or autonomy, supervise too closely;
- Use subordinates as their frame of reference for status assessment and enhancement;
- Try to hold back talented subordinates, thereby reducing the threat of replacement;
- Use more coercive than persuasive power;
- Be more insecure and thus more controlling, critical;
- Be very concerned about controlling a territory, and hang on to that territory, even when inappropriate;
- Be less well liked, less talkative in meetings with high power people.

On the contrary, people with higher organizational power will tend to:

- Foster higher group morale;
- Have subordinates who inhibit their negativity and aggressiveness, behaving in more cooperative and less critical ways, thereby reducing the need to exercise strong controls;
- Behave in less rigid, directive, authoritarian ways, to delegate more control and allow subordinates more latitude and discretion;
- Provide opportunities for subordinates to move along with them, find talented subordinates and groom them for better things;
- Have their actions seen more often as helping than hindering;
- Be better liked, talk more often, and receive more communications in meetings.

Kanter suggests that empowering women, for example - increasing the budget they manage within the company or people reporting directly to them-, would empower them and also modify the attitudes of the people that interact with them. Though it is clear that the success of a few women does not change the nature of managerial power in the

workplace. However, a distinction must be made between the construct of power and the construct of empowerment (Rabindra & Kanungo, 1988).

Kanter's approach to power management is challenged by Wajcman, that focuses on the gendered nature of organizations that give power to men, as explained in her work 'men have the authority to define what constitutes occupational success and men monopolize it' (1998, p. 77), the experience of power management in women and men is not cannot be the same, in fact, Wajcman explains how the exercise of power by women is rarely seen as legitimate. Mary Beard (2018) in 'Women and power' explains how there are significantly more women now in the workplace but 'our mental, cultural template for a powerful person remains resolutely male' (p. 53). Gender is constant and conscious in the workplace, men and women learn scripts of how and what is expected of their gender roles, while for men it is mainly a positive interaction, women often find themselves in permanent self-awareness and conflict.

6.3.3 Conclusion

The connection between gender and organizational power is clear, gender and organizational analysis places patriarchal power relations as central (Acker, 1990; Cockburn, 1991; Green & Cassell, 1997). Kanter (1977) justified sex differences in attitudes, behaviours and recognitions from disadvantaged positions in the structure of the organization rather than from gender but, as I have argued, the few women that hold advantaged positions in the structure of the organization, that hold legitimate power as defined by French & Raven (1959), often find themselves in permanent self-awareness and conflict; on the contrary, for men it is mainly a positive interaction. Powerful women

tend to incur in Catch22 situations, whereby they need to be ‘business like’ but feminine at the same time which works to disempower women. Therefore, we need to think about power differently, we need to reconsider what defines power and how we exercise power in the corporation. In Beards’s own words:

Workplace nurseries, family-friendly hours, mentoring schemes and all those practical things are importantly enabling, but they are only part of what we need to be doing. If what we want to give woman is a gender -and not just in the shape of a few determined individuals- their place inside of the structures of power, we have to think harder about how and why we think as we do. If there is a cultural template, which works to disempower women, what exactly is it and where do we get it from? (2018, p.58)

6.4 [Tokenism](#)

6.4.1 *Token women*

Tokenism is the practice of making a superficial gesture for the inclusion of minorities. The term token has also been used in the sociological literature to refer to persons (usually women or minorities) who are hired, admitted or appointed to a group because of their difference from other members, perhaps to serve as ‘proof’ that the group does not discriminate against such people (Park, 2015).

In 1975, Judith Long Laws used the term ‘tokenism’ to explain the special problems women faced in the male-dominated academic setting. Due to the lack of representation of women in centres of power, women who have managed to place themselves in these

centres, feel the pressure of not to being treated as a person but as the social group they represent (Laws, 1975).

It is a controversial situation for women, since they can be judged whether they behave according to ‘what is expected socially’ by being a woman, or behaving in a way more similar to men in the workplace. Regardless of their behaviour, she will not be seen as a person, but always according to the social group she belongs to, generating a *Catch-22* situation (Castaño, 2010)⁵⁹. Even more so in high-technology corporations where women are under scrutiny in a way that the ‘normal’ hierarchical order is not and where the hidden processes and tensions of gender relations at work are likely to be more visible (Wajcman, 1998). Their visibility as women is contradictory since femininity and ‘being one of them’ seem to be the opposite. These subtle dynamics are taken for granted and have a cumulative effect. Faulkner (2000) proposes a related concept – gender in/authenticity – to capture the apparent congruence or non-congruence of gender and engineering identities for men and women engineers, in terms of the normative pressures of ‘the way things are’ (2009). Drawing on ethnographic evidence, Faulkner (2011) demonstrates that gender (in)authenticity is significant. She studied 71 engineers (41 men and 30 women), combining interviews with observation (of 52 engineers) through job shadowing in three companies: in software development, in building design and in oilfield services. Faulkner found that women workers often face an ‘(in)visibility paradox’ whereby they struggle to be seen as either ‘real’ workers or ‘real’ women. These subtle

⁵⁹ *Catch-22* situations occur when a communication dilemma arises because a first positive response will generate a response that denies the first response.

gender normative dynamics can significantly undermine the retention and advancement of women in male-dominated fields.

The nub of the problem with the technical/social dualism is that, in the symbols that surround us, being technical and being social are so often deemed to be mutually exclusive, for instance, in the stereotype of the a-social techie man. In a culture where sociality is presumed to be a key ingredient of being a woman, and where women and men are presumed to be different, this makes the woman techie something of an oxymoron (Faulkner, 2011, p.280).

Kanter identified the problems associated to tokenism in her research's reference work 'Men and women of the corporation' and its effect on women token.

Tokenism is stressful; the burdens carried by tokens in the management of social relationships take a toll in psychological stress, even if the token succeeds in work performance. Unsatisfactory social relationships, miserable self-imagery, frustrations from contradictory demands, inhibition of self-expression, feelings of inadequacy and self-hatred, all have been suggested as consequences of tokenism (Kanter, 1977, p.230)

Sha also formalized and expanded the concept of tokenism and identified three perceptual tendencies: visibility, contrast and assimilation.

The proportional rarity of tokens is associated with three perceptual tendencies: visibility, contrast and assimilation. These are all derived simply from the ways any set of objects is perceived. If one sees nine X's and one 0: X X x x X X 0 X x X. The 0 will stand out. The 0 may also be overlooked, but if it is at all, it will get more notice than any X. Further, the X's may seem more alike than different because of their contrast with the 0. And it will be easier to assimilate the 0 to generalizations about all 0's than to do the same with the X's, which offer more examples and thus, perhaps, more variety and individualization. The same

perceptual factors operate in social situations, and they generate special pressures for token women. (Kanter, 1977, p.210)

Kanter analyses the three perceptual tendencies of visibility, contrast and assimilation in token women. Firstly, tokens get far more visibility than dominants looked alone. Proportionally they represent a smaller number of the group but capture a larger share of awareness given to that group. A typical response of visibility is to create performances pressures in the token.

Secondly, contrast or exaggeration of the differences increases the self-consciousness of the social characteristics of the dominant group, characteristics that are not evident or observed in uniform groups. There is a tendency to exaggerate the extent of the differences between tokens and dominants. Tokens are prone to generalization as they are too few in numbers. A typical response of contrast is to highlight the dominant culture boundaries, including isolation of the token.

Lastly, the perceptual tendency of assimilation. Kanter points out the use of stereotypes about a person, these usually are distorted to fit generalization. Tokens are highly stereotyped, their differences from the dominant group are visible but not their individual non-stereotypical characteristics. This tendency results in the token's role encapsulation.

In 1975, several laboratory experiments showed the effect of tokens in groups. A group discussion on different subjects was taped and played while observing a picture of a group discussion formed by an all-white male group of people. Then the same tape was played while observing a picture of a group discussion formed by the same group with two black people. The results showed that disproportionate attention was paid to the

token, overemphasized their contributions and their characteristics highly stereotyped (Taylor & Fiske, 1976).

Kanter explains tokenism and its impact in token men. She cited a study in which male nurses were isolated by their female peers. Although they were sometimes treated with deference by the women, they still experienced 'role encapsulation' because, as tokens, they were treated as symbols (Segal, 1962).

On a different perspective, Lynn Zimmer evaluates the concept of tokenism in her paper 'Tokenism and Women in the Workplace: The Limits of Gender-Neutral Theory' and states that it is not clear that small numbers are responsible for the most serious problems women face in non-traditional settings. She goes on to suggest that data from settings in which men are tokens in female-dominated occupations suggest that small numbers have very different consequences for males than for females:

Tokenism is of limited value in explaining the experiences of either men or women in a society where gender remains important but incomplete to explain inequalities in male-dominated organizations. (...) the effect of women's low proportion on their occupational experiences has not been subjected to adequate examination and that, without evidence of a causal link between relative numbers and occupational consequences, there is no reason to assume that increasing the number of women in an organization will necessarily improve their conditions of employment. It may even be the case that increasing the number of women, without addressing the sexist attitudes imbedded in male-dominated organizations, may exacerbate women's occupational problems. (Zimmer, 1988, p.64)

Zimmer argues that literature, within race relations in particular, suggests that issues of power, privilege and prestige are considerably more important than numbers for understanding relations between dominant and subordinate groups (Gittler, 1956; Noel,

1968; Yetman, 1985; Zimmer 1988). Evaluating the impact of changing proportions, a number of researchers have supported the conclusion that as the number of minority members in proportion to majority members increases, tensions and hostilities are likely to increase rather than decrease (Allport, 1954; Blalock, 1967; Frisbie & Neidert, 1977; Giles, 1977; Marden & Meyer, 1973).

Kanter used the inductive approach in her research as she observed how women were treated in the workplace; she observed how women reacted to that treatment; and understood that in all cases where women were in decision making positions, they were an extremely low proportion of the work group. On the basis of this case study, she made a connection between numerical composition and women's experiences.

6.4.2 Critical mass

The critical mass theory proposed by Kanter (1977) argues that the minority gender members are not as productive as they could be when they comprise less than 15-20 per cent of a team; later on, other scholars have suggested 35 per cent as the percentage needed (Gale, 1995). The concept of critical mass implies the idea that when a minority reaches a certain presence is possible to achieve qualitative changes that contribute to improve performance (Rosener, 1995; Shrader et al., 1997; Kramer et al., 2006) and attracting more individuals of the same group (Faulkner, 2009). In the 80's, several researchers (Martin, 1980; Forisha and Goldman, 1981; Rustad, 1982; Stiehm, 1982) agreed with Kanter that number-balancing should be considered in policies for promoting women's progress in traditionally male jobs (Zimmer, 1988).

... a more limited suggestion for dealing with the problems emanating from the token status of policewomen includes a substantial increase in the number of female officers. This would reduce the isolation and effects of tokenism, and probably would improve women's position in the power structure of the department, as well as increase their opportunities. (Martin, 1980, p.212)

Increasing the number of women in managerial positions will help alleviate some of the problems. (Forisha and Goldman, 1981, p.6)

The structure of male domination [in the armed forces] can be changed if the proportion of women is significantly increased. (Rustad, 1982, p.228-29)

... as long as the numbers of elected women are few, they will have a different impact on their peers. The theorems drawn from Kanter do not suggest any reason to expect change simply because the minority performs well. To receive 'regular' treatment, the minority must cease to be a minority. (Stiehm, 1982, p.63)

In recent times, several scholars have challenged the theory of critical mass. As an example, Hillard and colleagues (2014) worked on a gender research in the faculty composition in STEM found that women faculty perceive less departmental advancement of women than do men of women, but that a greater proportion of women in a department is related to increased perceptions that the department advances women. There were no differences in time male or female faculty reported spending on research, teaching, or service; however, as the proportion of women in a department increases, there is a decrease in the amount of time individual male and female faculty spent on research and an increase in time spent on service. Contrary to critical mass theory, it was found a linear rather than quadratic effect of proportion of women on perceptions of department climate and division of work time. Given the findings of incremental effects of proportion of women, a critical mass is not necessary or sufficient for change. As stated by Hillard and

colleagues there is a need to address the underlying problems of discrimination and stereotyping while acknowledging that every woman hired has a positive impact. Along these lines, Powell and colleagues (2006) researched whether a strategy of critical mass could work in of women in science, engineering and technology. Based on semi-structured qualitative interviews and focus groups with female students from a range of engineering disciplines, one of her findings showed that women engineering students (a) accept gender discrimination, (b) viewed the industry positively, (c) value their ‘novelty’ status and (d) are critical of other women. As for the acceptance of gender discrimination, women were reluctant to admit they had been discriminated against, justifying that they did not deserve to be treated equally, women often insist that they work in a gender-neutral territory that has equal opportunities for men and women (French, 2005; Kelan, 2009) and it is becoming increasingly subtle and harder for women to identify discrimination as such. Castaño (2008) observed the differences in speeches regarding inequalities and non-discrimination in Spanish ICT sector women. They were based on the following statements (p. 157) (*Figure 54*):

Discourse differences regarding inequalities and non-discrimination in Spanish ICT sector women (Castaño, 2008)
1. Women are unrepresented in senior positions in ICT companies but there isn't gender discrimination.
2. It could be naïve to differentiate between discrimination and inequalities at work (they refuse any type of discrimination in their organizations).
3. Most of them perceive they are developing their professional careers in an equal context, characterized by diversity.
4. If there is any type of discrimination, it is usually to the women or men that don't have families (children).
5. Finally, they all recognize the existence of discriminatory attitudes (more implicit than explicit) towards women workers.

Figure 54: Discourse differences regarding inequalities and non-discrimination in ICT sector women (Castaño, 2008).

In their work, Benokraitis and Feagin (1986) described this phenomenon as a modern sexism, more blatant, subtle and covert discrimination. They argue that since male adults are promoted as being the dominate sex through cultural cues, males are more likely to dominate a conversation by interrupting females or talking over them. Thus, dominating a conversation becomes an internalized behaviour that adult males unconsciously display leading to covert discrimination towards the women they are conversing with. This phenomenon was observed amongst faculty in academic departments and the impact in children who witnessed conversations between female and male faculty internalized dominance, which cognitively reinforced gender normative language patterns. Furthermore, women in STEM disciplines often experience subtle verbal and non-verbal language use that restrict their ability to fully participate in the academic community of their discipline (Fox, 2001; Ferreira, 2003; Ursula, 2016). This phenomenon has been popularized recently with the neologism ‘mansplaining’ related to male-female communicative dynamics (Bridges, 2017). Kelan (2009) found that ICT workers, instead of denying gender discrimination or gender neutrality, acknowledge it can happen but construct it as singular events that happened in the past and they place the focus on women to overcome such obstacles. In sum to accepting gender discrimination, Powell and colleagues (2006) found women viewed the industry positively. Most women engineers felt that their gender was more likely to receive more help or collaboration from male peers, indistinctively at classroom or workplace. A few women found it patronizing but most perceived this unequal treatment in a positive way.

The operators will help me out if I’ve got a problem ... I don’t suppose if I was a bloke I’d get the same feedback (Sarah, Chemical engineering student).

They think that if you're a girl you're stupid, but that works to your advantage if you're stuck on a piece of coursework, because you just play up to it, and then they help you (Tracey, Aeronautical engineering student).

(Extract from interviews Powell et al., 2006, p.695)

However, this finding may be associated to women in engineering being less capable than their male colleagues, a stereotype which can be counter-productive in the long-term. Research in male-dominated industries, such as construction, has demonstrated that women could be attracted to the sector in greater numbers but if they are to remain in the sector in the long-term, more efforts should be done to have equitable workplaces. This research explored the attitudes of women and men construction towards equality measures to find there was a significant difference between their responses men were opposed to initiatives that threatened the current culture of the industry (Dainty, 2000). As for the novelty status identified by Powell and colleagues (2006), women perceived strategies to include more women in engineering in a negative way, they valued their positions as tokens within male-dominated workplaces. Even though they accept the differences, they do not feel comfortable participating in 'women's' events since it might be perceived as a privilege due to the existing affirmative action stigma (Etzkowitz et al., 2000). This lack of interest to incorporate more women in the field, adds to critical attitudes towards other women. Women interviewed by the authors, held gender bias stereotypes views of women, so even denied their own gender while judging other women. Women with traditional male-dominated careers, might feel different to 'average' women, because the work is associated with masculinity and male power. These women can identify with the dominant masculine discourse in relation to their professional identities and their work (Henwood, 1998). Finally, Powell and colleagues

(2006) argue that the critical mass theory does not stand up, not only because women engineers continue to remain isolated within the sector, despite increasing numbers, but also because they tend to reinforce the masculine culture. Furthermore, to instigate organisational change a critical mass of women needs to be proportionately distributed throughout the hierarchy of an organisation, not just in the lower echelons, indicating that critical mass in itself is not sufficient. As Moore, Griffiths and Richardson (2005) stated 'there is more to the woman and computing problem than getting more women into the IT industry' (p. 4).

Nevertheless, it is important to state that Kanter and other scholars cited do not suggest that a balanced workforce alone will eliminate all of women's problems on the job, but understand balance is a necessary precondition to gender equality and that any movement toward balance will itself lead to some improvement; substantially increase the number of women and other improvements will follow. In fact, more recent studies have found empirical evidence about the positive effect of critical mass in the relationship between gender and board activeness⁶⁰. Findings show that board meetings with at least three directors of each gender are found to be at least 79 per cent more active at board meetings than those without such representation. This occurs more often with women directors, that tend to be more active when a critical mass of at least three women is present (Schwartz-Ziv, 2015).

⁶⁰ The research states that board activeness is measured using two variables: based on the minutes-data, for each of the 2,459 issues discussed, I document whether the board (1) requested to receive further information or an update and (2) whether it took an initiative, such as proposing what steps should be taken. These two actions reflect the intensity of the boards' work, both in monitoring (as measured by the first variable), and in being involved in managing the company (as measured by the second variable) (Schwartz-Ziv, 2015).

6.5 Gender stereotypes

One of the main reasons associated to the scarcity of women in ICT activities (either at school, university or professions) are gender stereotypes. The effect of gender stereotypes has been strongly associated to the lack of women in the ICT sector. A ‘stereotype’ is an association of specific characteristics within a group (Dovidio et al., 2010) that help process new information quickly, assess differences between individuals and groups and allow the use of fewer cognitive resources than when making individual observations (Heilman & Eagly, 2008; Heilman, 2012; Corbett & Hill, 2015). Gender stereotypes can easily dominate ideas about the characteristics of men and women. These stereotypes, and the assumptions they carry about what men and women are like, are the basis of gender bias (Heilman, 2013). Findings show significant effects for viewing of gender stereotypes and sex-type attitudes and behaviours in socialization (Oppliger, 2007).

In her work ‘Gender stereotypes and workplace bias’, Madeline E. Heilman (2013) explains that stereotypes can be descriptive, designating what women and men look like, or prescriptive, designating what women and men should be like. The workplace shows the consequences of both, descriptive gender stereotypes and prescriptive gender stereotypes, and their implications for women's career progress. Heilman states that gender stereotypes give rise to biased judgments and decisions, impeding women's advancement. She goes further to argue that descriptive gender stereotypes promote gender bias because of the negative performance expectations that result from the perception that there is a poor fit between what women are like and the attributes believed necessary for successful performance in male gender-typed positions and roles. On the

other hand, prescriptive gender stereotypes promote gender bias by creating normative standards for behaviour that induce disapproval and social penalties when they are directly violated or when violation is inferred because a woman is successful. Research findings considers specific career consequences likely to result from stereotype-based bias, and identifies conditions that exaggerate or minimize the likelihood of their occurrence (Heilman, 2012).

Since technology tends to appear to be associated with male stereotypes, this seems to act as a demotivation factor for women who, under these circumstances, opt for other careers to a greater extent than they do for STEM careers (e.g. Faulkner & Arnold, 1985; Wacjman 1991; Faulkner, 2001; Castaño & Palmen, 2014).

I believe the continued male dominance of engineering is due in large measure to the enduring symbolic association of masculinity and technology by which cultural images and representations of technology converge with prevailing images of masculinity and power (e.g., Balsamo, 1998; Burfoot, 1997; Caputi, 1988). Yet, consistent with the liberal feminist tradition, the 'women in technology' literature and campaigns view technology as gender neutral and as unequivocally 'a good thing,' which women would enter into if only early socialization (e.g., to play with mechanical toys) and workplace structures (e.g., concerning childcare) were changed (Henwood, 1996) (Faulkner, 2001, p.80).

Cultural beliefs about gender are linked to individuals' perceptions of their own competence, to the extent that individuals act on gendered perceptions when making career decisions. A research by Shelley J. Correll (2001), showed how gender stereotypes about mathematics impact individuals' assessments of their own competence, which can result in gender differences that lead to opting for a STEM career or not. In addition, Warrington and Younger (2000) explored the impact school teachers have on the

student's opinions regarding science through the activities students were asked to complete and how they generally correspond to the expectations of their teachers and fill the roles that is expected of them. They found that girls encountered sexist attitudes and low expectations for their achievement from science teachers and that teachers showed higher expectations for boys' grades and underestimated girls' grades on science exams. Additional findings showed teachers admiration for boys that did not complete their work but managed to pass their exams. Feelings of prejudgments towards girls 'lacking sparkle' and boys presenting more original work, showed girls efforts were consistently devalued. Baker and Leary (1995) interviewed 40 girls in primary and secondary grades to explore their attitudes towards science. They found that, even though girls enjoyed their science experiences, they could not imagine themselves as scientists. Girls were aware of bias in textbooks and television where very few female scientists appeared, they made a distinction between being a 'scientist scientist' (physical science) and a 'scientist' (life science), girls were more interested in the latter and their desire to care for people or animals (Blickenstaff, 2005). Londa Schiebinger (2007) analysed ethnographically probing stereotypes of scientists over time. She found that even though there was an improvement from 92 per cent of students drawing men (Kahle, 1987), in the 1990's this percentage had decreased to 70 per cent -16 per cent clearly women, 14 per cent somewhat ambiguous – (Rahm & Chambonneau, 1997) (*Figure 55*):

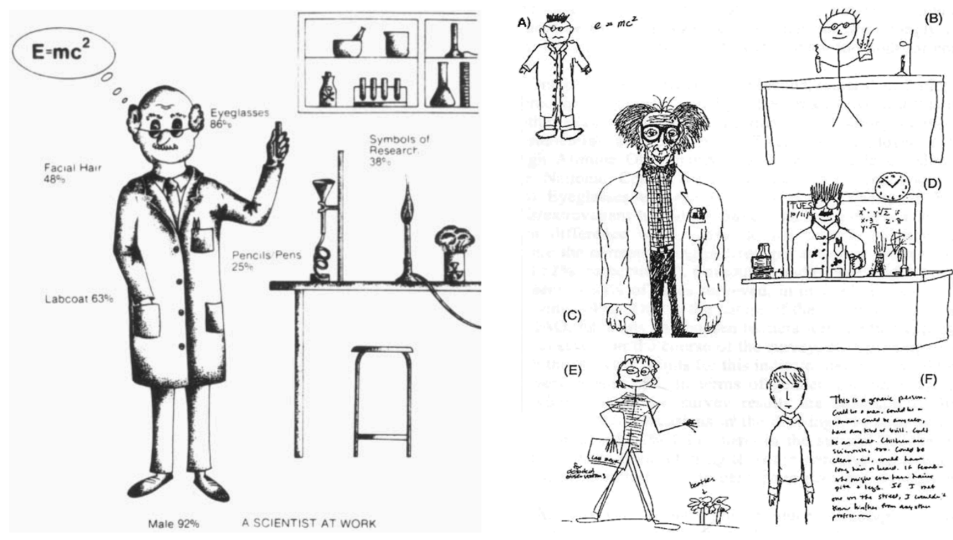


Figure 55 Students drawings of scientist over time (Schiebinger, 2007)⁶¹

In Spain, Sáinz and colleagues (2014) carried out a research on gender stereotypes and attitudes towards ICT professionals in a sample of Spanish secondary students, based on a survey to students from Catalonia⁶². The results showed that students held several stereotypical beliefs about ICT professionals, there was a masculine portrayal and masculine role models of ICT workers. In addition, female students were more likely to offer feminine references about professions where ICT is the tool rather than the object of their work.

Whether gender beliefs are personally endorsed (Steele, 1997; Lovaglia, 1998) or internalized as other people's expectations (Berger, 1977; Foschi, 1994; Foschi, 1996), they often lead to biased self-assessments of ability, males will overestimate and females will underestimate their own ability in techno-scientific fields. Wajcman (1998) is

⁶¹ Kahle, Jane (1987) Images of science: the physicist and the cowboy. In Gender issues in science education, 1. Barry Fraser & Geoff Giddings eds / Rahm, Jrene & Chambonneau, Paul (1997) Probing stereotypes through students' drawings of scientists, 65 AM. J. Physics, pp. 774-776.

⁶² The research was based on a survey with close and open-ended questions to 900 students from Catalonia (51 per cent girls and 49 per cent boys) enrolled in the last course of junior secondary education (mean of age=15 years old).

concerned about gender stereotypes at organizations. She highlights how the feminist theory and organization theory have questioned culture and subjectivity and is particularly critical to management, because managers are expected to have some attributes and personalities, as well as a certain leadership style that are not traditionally associated to women. As described later, Kanter's (1977) female stereotyped roles encapsulated the stereotyped ideas of women in the workplace.

Implicit gender stereotypes are an important and difficult factor to manage. There is considerable empirical evidence showing how gender stereotypes affect our way of judging and relating and how, in particular, they negatively affect women in the ICT sector. Explicit gender bias has been declining and people today are less likely to say that they hold biased beliefs than they were in the past (Banaji & Greenwald, 2013). In contrast, implicit gender biases remain pervasive (Corbett & Hill, 2015). Even individuals who consciously reject gender stereotypes often still hold implicit gender biases. Harvard University's Implicit Association Test is a computer-based assessment⁶³ that highlights the user's unconscious biases, depending on user's response time to specific themes, such as women and technical careers. More than 75 per cent of the more than one million users, who have participated in the test, have been shown to have these gender stereotypes.

Gender stereotypes affect all phases of the professional career of women: at school, when considering her professional future, during university years, when being recruited by a company, in performance evaluations, in project assignments, as well as promotions to positions for greater responsibility and economic compensation. Gender stereotypes

⁶³ Implicit Association Test: <https://implicit.harvard.edu>

can go further to influence their role in a given organization and, overall, reflect the significant disadvantage of women in the technology sector.

6.5.1 Women stereotyped roles

Nowadays it is assumed that the process of stereotyping affects women's experiences at work, yet stereotyping was a relatively neglected concept in the study of women until the 1960's and 1970's. Research brought to the front the idea that social factors were more important than biological factors in gender identity and gender roles. Scholars promoted the notion of 'gender role' as a term referring to the socially defined manifestations of gender, and 'gender identity' as one's personal experienced sense of gender (Maccoby, 1966; Money & Ehrhardt, 1972). Kanter (1977) applied the perspective of stereotypes to the discursive constructions of Western women across different professions, rendered down to familiar stereotypes roles that convey a single, negative message: women are unsuitable for leadership. It is difficult to find a positive image of a powerful women, whichever the stereotype, all disqualify for the job of manager because being feminine often means being submissive and being masculine often means being authoritarian (Eagly & Heilmann, 2016). Traditional leadership is still strongly associated with the view that 'men take charge' whereas 'women take care' (Hoyt, 2010). Even though, intersectionality is a limitation of the research, it is important to state that there is evidence of different stereotypical roles applied to white women that differ from Black, Asian, Latino women (Bell & Nkomo, 2001).

In her research, Kanter described the way stereotypes affect informal roles of women working in male-dominated corporations who are 'perceived to aspire

inappropriately to the privileges of the dominant order' (Kanter 1993, p. 211). She observed how the dominant group can preserve their generalizations by inducting the minority group into stereotypical roles, 'role traps', that preserve the familiar forms of interaction between the different kinds of people represented. Thus, building this into an image of the token's place in the group and forcing her to continue to live up to the image defined. Kanter identified four stereotyped informal roles based on familiar, historical archetypes of women in authority, gender stereotyping that ranges from open demonization of individual women to more subtle types of caricature: (a) the mother or *madonna*; (b) the seductress or whore; (c) the pet and (d) the iron maiden. She goes on to describe each role with descriptive and prescriptive stereotypes:

a) The mother or *Madonna* (*Figure 56*), a woman worker that becomes a mother to men in the office. Her role is socio-emotional, she listens to private troubles and is expected to comfort them. It is a safe role since a mother is not necessarily seen as sexual pursuit or competitor, in fact, she can be perceived as sexless and tends to treat men and women as immature children instead of adults (Baxter, 2010). It has several negative consequences for the woman's task performance: the mother is awarded primary to for service and not for independent action, she must be perceived as non-critical and 'accepting' or might lose her rewards, she becomes an emotional specialist and is associated with emotional matters but will be criticized for being too emotional. She encapsulates a traditional position of authority, usually located either within the private sphere but not seen as a powerful role in the public sphere. The '*madonna*' role is perfectly defined in Freudian theory (Freud, 1912);



Figure 56: The Mother, illustration by Bob

b) The seductress (*Figure 57*), an attractive desirable woman, could be seen in the role of a seductress or sexual object. The role has more tension than the previous role since it introduces competition and jealousy since a mother can have many sons but it is more difficult for the sexuality attractive to have many lovers, then she risks being in the informal role of the whore (the 'whore' role is perfectly defined in Freudian theory). This role can have the 'protection' of a high-status male that mediates between the seductress and the male group thus preserving her as a sex object role. She uses her sexual/feminine appeal to gain influence with other senior men and consequently is a source of threat and suspicion to both male and female colleagues alike, who in turn may avoid and marginalise her (Baxter, 2017). This role is more vulnerable than the other role traps because the seductress is considered to be using her sexual attractiveness to succeed in the organisation rather than her professional expertise.



Figure 57: The Seductress, illustration by Bob

c) The pet (*Figure 58*), a cute amusing little thing and symbolically taken along as a mascot. Humour was often a characteristic of the role, she was expected to admire the male displays but not to enter into them, she cheered from the side-lines. Shows of competence on her part were treated as special and complemented just because they were unexpected. Competent acts performed by a pet had attitudes kind of ‘look what she did’. The pet is expected to be teased by her senior male colleagues, but in compensation, she may be described as ‘cute’, ‘funny’ and even ‘a good sport’ (Baxter 2010). This role leads to girlish responses and prevents them from realizing or demonstrating their own power and competence, it is a limiting discursive role because the senior woman is encouraged to be pleasing and modest.



Figure 58: The Pet, illustration by Bob

d) The iron maiden (*Figure 59*), woman who fails to fall into any of the first three roles might consequently be described as tough or dangerous. If she displayed competence or insisted on full rights or cut off office flirting, she would most likely be stereotyped as tougher than she probably was. This is the most authoritative and stereotypically masculinised of the four stereotypes, she is considered to speak and behave aggressively, and she is routinely represented by peers as ‘tough’, ‘mean’, ‘bullying’, ‘bitchy’ or even ‘just like a man’. Although this stereotype appears to embed the most explicit power of the four, it is potentially limiting for women leaders. They would usually tend to be left alone and could not find peers sympathy when they had problems, she is independent and resilient and does not require support from her colleagues. She may also be subject of jokes from both men and women about her presumed lack of femininity, warmth or sexuality (Baxter 2010).



Figure 59: The Iron Maiden, illustration by Bob

Kanter describes the dynamics of role entrapment that lead women to the awkward situation of correcting mistaken impressions. Kanter claimed that these roles have a

significant effect on how their individual efforts are valued by other and its negative impact on their professional advancement. The message that women are unsuitable for leadership and the constructions by means of gender and sexual stereotyping persist today. In 2017, Judy Baxter, gender and leadership researcher from Aston University, analysed how the news media constructed their discourses of the British Prime Minister, Theresa May. To illustrate this, she applied the perspective of the women leader roles developed by Kanter to the articles written on Theresa May's first day in office by The Daily Mail, The Sunday Times and The Guardian. Baxter concluded that the perspective of women leader stereotypes offers various insights into the ways in which women in power are constructed explicitly and implicitly in newspaper articles crossing the political spectrum.

In these three articles, there is a reasonable body of evidence to suggest that the British Prime Minister, Theresa May (TM), is constructed according to the stereotype of iron maiden and battle-axe, and to a lesser extent as a queen bee. There are slight hints of other stereotypes in her construction, such as associations with the seductress, found in The Sunday Times' use of the leopard to represent TM as feline: charming, sexy yet cruel. There is also a sense that TM is being characterised in direct opposition to the 'mother' stereotype in its use of the headline: 'Forging a new caring society: the steel lady strikes'. There is no appearance of the 'pet' stereotype, which is hardly surprising given that TM is constructed as in charge, beholden to nobody, and with the executive power to hire and fire.

Wajcman (1998) supports Kanter's description of stereotypical roles and states that men tolerate token women only so long as they are able to consign them to traditional roles that men can respond to, understand and control. She understands that whichever way women play it, women will never make the grade as men. Wajcman identifies

parallelisms between Kanter's role traps and the results of her interviews during her research for 'Managing like a man'. She transcribes the statement of a man as 'typical' in her survey:

In general, female managers prefer a participative, consensual style of management but at a senior level in my experience there is a 'Thatcher factor' – a tendency to be more stereotypically male than typical male managers. That is, decisive, even aggressive, and avoiding any interacting except in formal professional contexts often associated with 'I never needed equal opportunities to get where I did so why do they?' approach (Wajcman, 1998, p.98)

Wajcman understands the representation of management as male and that there is a substance to these stereotypes that continue to have an enduring force. In general, women and men tend to conform to these stereotypical roles, women who deviate to a male role pay the price. Some women tended to minimize stranger-contact in the work situation. Sometimes it was easier to accept stereotyped roles than to fight them, even if they meant limiting demonstrations of task competence because they offered a comfortable and certain position. Other women opt to distance themselves from the group stereotype which not only involves perceiving the self as a non-prototypical group member, but may also elicit stereotypical views of other in-group members (Ellemers et al., 2004). A response of women token might result in behaving like men in order to succeed by being 'one of the boys' and dissociate themselves from the minority group which they really belong to (Ely, 2004). Token women experience a number of contradictions and pressures, they are aware of the differences but act as if they don't exist, Kanter referred to this as the Queen Bee syndrome that might result in being too manly and attracting the 'iron maiden' label or by being too feminine, developing 'fans clubs' of senior men and

attracting the ‘seductress’ label, although the Queen Bee stereotype can comprise the other role traps too.

6.5.2 *The Queen Bee phenomenon*

The ‘Queen Bee’ phenomenon (Staines et al., 1974; Kanter, 1977; Dobson & Iredale, 2006) refers to women who have been successful in male-dominated organizations that defend the status quo by emphasizing how they differ from other women, viewing or treating subordinates more critically if they are female. Two characteristics are attributed to women who have achieved success in gender-biased contexts, i) they may deny the existence of sexism and ii) they set themselves apart from other women by emphasizing their traditional masculine characteristics and by stressing that they differ from other women (Derks et al., 2011; Ellemers et al., 2004; Ely, 1994, 1995; Stroebe et al., 2009). Although, Kanter does not identify this as a stereotype but as a contested concept which her own theory displaces, however, Baxter (2017) understands the stereotype is alluded to in representations of women leaders and stands up as a phenomenon in its own right. Although the behaviour of the ‘queen bee’ tends to be seen as contributing to gender disparities in career outcomes, research has proven differently. Queen-bee behaviour is the result of gender bias and social identity threat that produce gender disparities in career outcomes. A study carried out by Derks and colleagues (2011) with senior policewomen⁶⁴, showed that policewomen with high gender identification

⁶⁴ The study was conducted online. Participants were 63 Dutch female police employees with senior positions as defined by their pay scale. The police force is a highly masculine organization with relatively few female employees (32%) and very few female managers (13%).

responded with increased motivation to improve opportunities for other women. To recall the presence or absence of gender bias during their careers, queen-bee responses were measured (masculine self-descriptions, in-group distancing, and denying of discrimination). Gender-bias increased queen-bee responses among policewomen with low gender identification, but policewomen with high gender identification responded with increased motivation to improve opportunities for other women. The results of the study suggest that gender-biased work environments shape women's behaviour by stimulating women with low gender identification to dissociate with other women and to display 'queen bee' responses as a way to achieve individual mobility (Derks et al., 2011). Another study found initial evidence for the validity of this analysis in a correlational study among female executives, participants were 94 women holding senior positions in diverse companies in The Netherlands who participated in an on-line survey. As predicted, indicators of this phenomenon (increased gender stereotyping and masculine self-descriptions) were found mostly among women who indicated they had experienced a high degree of gender discrimination as they advanced in their professional careers. By contrast, the experience of gender discrimination was unrelated to the Queen Bee phenomenon among women who indicated to be highly identified when they started their career (Derks et al., 2011). In that study, low identifiers who also reported that they encountered gender bias during their career described themselves in a more masculine way and thought they were more committed than other women to their job. In fact, the study found that they perceived men to be more committed to their careers than their female reports; concluding that highly gender-identified women will respond to have been group-based devaluation with attempts to improve the entire group's outcomes, whilst women with low gender identification will optimize their individual outcomes

even if this strategy decreases opportunities for other women (Ellemers et al., 1997). The Queen Bee theory has detractors that consider it propagates the stereotypical assumption that women should display solidarity toward each other but that men can compete against each other for the best jobs. It is assumed that senior management women are responsible for solidarity amongst other women and when they do not conform they are labelled as queen bees. The Queen Bee theory signals women for not supporting each other, constructs women as out of place in senior management and maintains a gendered status quo (Mavin, 2006, 2008). In fact, Dezsö and colleagues (2016) analysed the top management of the Standard & Poor's 1,500 companies over 20 years, their findings showed that there was more than a half of possibilities of not making it to the top, if there was already a woman in senior management; usually the barrier was a male executive. Even further, it seemed women had more chances to make it to senior management when it was a female CEO rather than a male CEO. These results show how women face an 'implicit quota', whereby the presence of a woman on a top management team reduces the likelihood that another woman occupies a position on that executive team (Dezsö et al., 2016) (*Figure 60*):



Figure 60: The Queen Bee, illustration by Dave Anderson

6.5.3 Stereotype threat and leadership

The stereotype threat was defined as ‘the resulting sense that one can then be judged or treated in terms of the stereotype or that one might do something that would inadvertently confirm it’ (Steele et al., 2002, p.389). This was the definition given after important laboratory research was carried out with female and male students from the University of Michigan. Steel et al. (2002) found that women seemed to perform lower than their tested skills would predict in difficult math classes yet at their predicted levels in other classes that were examined such as English or entry-level math classes. To test if women were responding to gender stereotypes, they identified a group of talented undergraduate students with an interest in math. The researchers elaborated a very difficult math section test and before giving the test, they explained to 50 per cent of the students that previous research had found that female student’s results were poorer that

male students results. The other 50 per cent of the students were told that female and male had been shown to do equally on tests. The experiment showed that women given the instruction that female and male students performed equally on the test, had better results to those women that were told otherwise; even among the most highly qualified and persistent women in college mathematics, stereotype threat (through the use of stereotypes and counter-stereotypic images) suppressed their test performance (Good et al, 2008). The researchers repeated this type of experiment with minority students, mainly Black and Latino university students, in real-life test-taking. The findings showed that listing their race, before taking a difficult test, significantly undermined the performance of the black participants (Steele & Aronson, 1995; Taylor & Walton, 2011). This does not mean that the stereotype threat always undermines the performance of stereotype-threatened test-takers but proves that this threat can have important impairing effects on real-life testing. Steele (1997) identified several characteristics of the stereotype threat (Figure 61):

Five characteristics of the stereotype threat (Steele, 1997)
1. The threat of the stereotype does not imply a psychological characteristic of its own of a certain group, but it affects the members of any group stigmatized on which negative stereotypes fall.
2. The interpretation of the behavior of a member of a group in function of one or several negative stereotypes will become more relevant in situations where those stereotypes are the most salient as it is, to be a minority within a group.
3. Members of different groups will suffer the threat of stereotyping in different form and degree depending on the content of the stereotypes and situations where they apply.
4. To suffer the consequences of the stereotype threat is not fundamental to believe in it and in its veracity about oneself.
5. Attempts to not confirm the stereotype may be counterproductive due to the anxiety caused by the situation and cognitive mediation derived from the effort to avoid signs that validate those beliefs.

Figure 61: Characteristics of the stereotype threat (Furrer Correa, 2013).

Steele defines it as a situational threat that arises from situational cues signalling a negative stereotype that is now relevant as a possible interpretation for one's behaviour, it is a general threat, that can be experienced at any setting or time by virtually everyone and all people have some group or social identity for which negative stereotypes exist, when they are doing things in situations where those stereotypes might apply, they can experience this threat. For example, the type of stereotype threat experienced by men and women could vary considerably, focusing on sensitivity in the first group and math skills in the second, in those situations to which their group stereotype applies (e.g. math class for women), but not in other situations (e.g. English class for women) (Steele & Aronson, 1995; Steele et al. 2002).

Researchers explored the process and implications of the 'stereotype threat' for women in leadership. Women leaders are often aware that their treatment in leadership situations may be contingent upon their gender, they experience the pressure of being highly communal and being criticized for being deficient leaders or acting contrary and being criticized not being female enough (Eagly et al., 2014; Heilman, 1983). Implicit leadership theories often reflect social identities associated with traditional leaders that include being white and male (Hoyt & Chemers, 2008, Wajcman, 1998). These implicit associations translate in leadership standards that create biased perceptions of who fits into the image of a leader or not in the corporate scene (Eagly & Carli, 2007). The idea that women do not fit in the image of a leader has been described as the 'lack of fit model' by Heilman (1983) and the 'role congruity theory' of prejudice toward female leader by Eagly and Karau (2002) is described in chapter 6.5.4 *Gendered organizational HR practices*. The negative effects of gender stereotype-based threat can result in a lower performance, lack of motivation and less leadership expectations. Chronically

experiencing this threat can result in women leaving professions early in their careers before they reach leadership positions and can be more evident in technology and related fields (Good et al., 2008; Shapiro & Williams, 2012; Lorenzo et al., 2016); it can cause women to dissociate from an entire profession and leave few women in the pipeline to assume leadership roles. In their work, Hoyt and Murphy (2016) analysed the situational cues that can signal threat and the impact and consequences of stereotype-based expectations on women in leadership-relevant contexts (*Figure 62*).

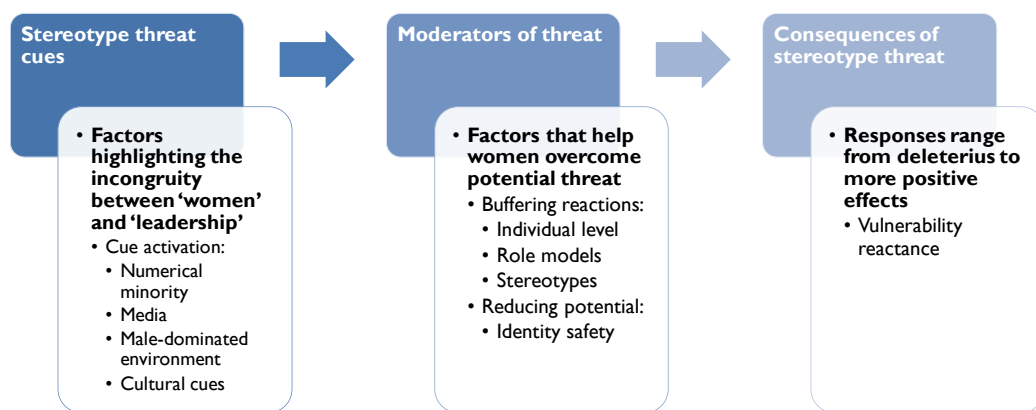


Figure 62: Stereotype threat in leadership contexts model (Hoyt & Murphy, 2016)

As a result of their work, they identified different settings that resulted in the activation of stereotypes, such as being treated in a sexist way (Adams et al., 2006; Logel et al., 2009) or more subtly being reminded of the scarcity of women within a corporation (Hoyt et al., 2010; Kanter, 1977). Logel et al.'s (2009) brought empirical evidence that showed how women, that were already negatively stereotyped, and interacted with sexist men could trigger the social identity threat undermining their overall performance. They reinforced the idea that threat may reside in the environment itself, rather than in how that environment is framed or presented (Steele, 2002). Furthermore, experiments carried out by Adams et al. (2006) found that the mere suggestion of sexism could harm a women's

experience and performance yet had no consequences for men, even if they were the potential targets of that sexism.

Sexist attitudes may be of particular concern during interactions that take place in domains in which members of one gender face an unwelcoming environment, such as in engineering and mathematics—fields in which women are underrepresented and targeted by a negative stereotype that alleges their relative incompetence. We hypothesize that men in these fields who hold sexist attitudes create a threatening environment by displaying their sexism in subtle ways to female colleagues with whom they interact. This behaviour can undermine women's ability to succeed in the field by leading them to underperform in the domain (Logel et al., 2009, p.1089)

Stereotype threat can increase when attempting leadership in industries and organizations where women are scarce and in organizational cultures that praise competition and success. The impact of gender stereotype-based expectations of inferiority can lead to underperformance on important management tasks, such as decision making (Carr & Steele, 2009; 2010), as well as leadership tasks (Bergeron et al., 2006; Hoyt & Blascovich, 2010) and in different arenas such as women on STEM tasks (Bell et al., 2003; Logel, et al., 2009; Lorenzo et al., 2016). The stereotype threat can reduce women's motivation and expectations for development (Cheryan et al., 2009). Hoyt and Murphy went further in their studies on the topic and identified factors and potential responses that could minimize the effect of the threat. Their finding showed that individual factors are crucial, women with high levels of leadership self-efficacy (Murphy, 1992) perform better and identify more with the leadership role (Hoyt & Blascovich, 2007, 2010). Other scholars demonstrated that only women who were led to believe that negotiating skills could be developed, were able to successfully react to the stereotype that women are inferior negotiators (Kray et al., 2010). Other important factors

are role models as they play an important role in protecting female leaders from stereotype threat, having a successful woman leader helps minimize the threat understanding success as attainable (Dasgupta, 2011; Marx et al., 2009⁶⁵). Other laboratory research has found that reading about successful female mathematicians and viewing images of female scientists has reduced negative stereotype threat effects in science and math (Good et al., 2010; McIntyre, et al., 2005; McIntyre et al., 2003). Role models have also been found to have a negative effect by comparison, for example, exposure to highly successful female business leaders has been shown to decrease women's self-ratings of competence (Parks-Stamm et al., 2008). In addition to individual factors and role models, the manner in which stereotypes are activated is another important factor described. Researchers have shown that when women experienced individual stereotype threats in the leadership domain they demonstrated reactance responses; however, when the threats were combined they resulted in negative vulnerability responses (Hoyt et al., 2010). The authors understand organizations can help create positive 'identity-safe' environments to minimize threat effects. Organizations can emphasize positive stereotypes (e.g. education, career aspirations and work experience in the negotiation context) in order to protect women from stereotype threat effects (Kray et al., 2001; Kray et al., 2002; Hoyt, 2016). Finally, the authors conclude that a greater understanding of how social identities can be

⁶⁵ It applies to in-groups: Barack Obama, the first Black-American president, has been widely heralded as a role model for Black-Americans because he inspires hope. The current study was conducted to assess whether, beyond simply inspiring hope, this 'Obama Effect' has a concrete positive influence on Black-Americans' academic performance. Over a three-month period we administered a verbal exam to four separate groups of Black- and White-American participants at four predetermined times. When Obama's stereotype-defying accomplishments garnered national attention – just after his convention speech, and election to the presidency – they had a profound beneficial effect on Black-Americans' exam performance, such that the negative effects of stereotype threat were dramatically reduced. This effect occurred even when concerns about racial stereotypes continued to exist. The fact that we found performance effects with a random sample of American participants, far removed from any direct contact with Obama, attests to the powerful impact of in-group role models (Marx et al., 2009).

threatening in the domain of leadership can help encourage and enable women and other underrepresented individuals to participate fully in society.

6.5.4 Gendered organizational HR practices

Gender stereotypes are embedded in organizational Human Resources practices, in the way jobs and careers are constituted, both in the symbolic order and in the organizational practices, and these power relations are embedded in the subjective gender identity of managers (Wajcman, 1998). Gender stereotypes remain key factors in hiring and promotion (Lindsey, 2015). Gender stereotypes in the workplace lead to gendered business processes. Gendered processes operate in the workplace openly and explicitly, as well as discreetly and implicitly. Men's influence is embedded in policies and procedures, in formal and informal processes. Twenty-first century corporations enjoy a 'healthy' gendered structure of work and opportunities.

A major study⁶⁶ carried out in the United States by Reskin and McBrier (2000) analysed the correlation between personnel practices and the sexual division of managerial labour; they found that formalizing specific personnel practices could reduce men's share of management jobs, more so in large establishments, due to its impact in job assignments, evaluation, and overall attrition. Several key business processes are impacted by gender stereotypes, more so, those that relate to people management and are executed from the Human Resources area: recruiting, evaluation and promotion.

⁶⁶ Based on data from a national probability sample of 516 work organizations from United States.

6.5.4.1 Recruiting processes

Selectors in recruiting continue to hold stereotypes of women which affect their decision making (Collinson, 1990; Curran, 1988). The template for employment is shaped around circumstances of white, abled-bodied men, it is not to fit the template is to abandon the template (Dickens, 1994).

The limited number of women candidates in STEM recruitment process could be linked to the description of the offered job. The language used, highlighted work conditions and other symbols can jeopardize equal opportunities before the recruitment process has even started. Job ads can use more words that are stereotypically masculine than words that are stereotypically feminine for certain jobs and vice versa. It risks putting men or women off applying certain jobs, but will probably encourage them to apply for other job listings. Gaucher (2011) research work found empirical evidence that gendered wording (masculine and feminine themed words, such as those associated with gender stereotypes) in job advertisements exists and sustains gender inequality. The research showed that gendered wording commonly employed in job recruitment advertisements had strong gender bias through the use of systematic subtle wording differences within a sample of job ads; job positions that were described in stereotyped masculine wording terms were perceived by women participants as less attractive. Results showed that perceptions of belongingness (but not perceived skills) mediated the effect of gendered wording on job appeal. In order to avoid gendered risks, there are specific tools that can

help Human Resources departments detect the use of gendered wording and decoding language⁶⁷.

As for the hiring decisions of candidates, an experiment by Reuben and colleagues (2014) showed that lower-performing men are frequently selected over higher-performing women for mathematical work, concluding that men are twice more likely to be hired for a mathematical task than women:

If ability is self-reported, women still are discriminated against, because employers do not fully account for men's tendency to boast about performance. Providing full information about candidates' past performance reduces discrimination but does not eliminate it. We show that implicit stereotypes (as measured by the Implicit Association Test) predict not only the initial bias in beliefs but also the suboptimal updating of gender-related expectations when performance-related information comes from the subjects themselves (Reuben et al., 2014, p. 4403)

There is empirical evidence that addresses directly the issue of bias in hiring practices. Research paper by Claudia Goldin and Cecilia Rouse (2000), explored the way symphony orchestras recruit musicians to test for sex-biased hiring:

Until recently, the great symphony orchestras in the United States consisted of members who were largely handpicked by the music director. Although virtually all had auditioned for the position, most of the contenders would have been the (male) students of a select group of teachers. In an attempt to overcome this seeming bias in the hiring of musicians, most major U.S. orchestras changed their audition policies in the 1970's and 1980's making them more open and routinized. Openings became widely advertised in the union papers, and many positions attracted more

⁶⁷ This tool was developed by Kat Matfield and uses the original list of gender-coded words from the research paper written by Danielle Gaucher (<http://gender-decoder.katmatfield.com>).

than 100 applicants where fewer than 20 would have been considered before. Audition committees were restructured to consist of members of the orchestra, not just the conductor and section principal. The audition procedure became democratized at a time when many other institutions in America did as well (Goldin & Rouse, 2000, p. 716)

As for the lack of women in orchestras, a popular argument was that ‘women lacked the stamina to play certain instruments or to conduct an orchestra’ (Lindsey, 2015, p. 342). Further on, recruitment procedures became ‘blind’ auditions with a ‘screen’ to conceal the candidate’s identity from the jury. Goldin & Rouse (2000) found that the ‘screen’ increased the probability that a woman would be selected, evidence suggested that blind auditions could help minimize the effects of gender bias in hiring musicians for symphony orchestras, estimates based on their roster sample indicated that blind auditions accounted for 25 per cent of the increase in the percentage of orchestra musicians who are female.

Furthermore, Heilman et al. (2015) describes the process by which gender stereotypes produce gender bias in hiring decisions, and how women can be judged as unrightfully of the jobs typically held by men. The ‘lack of fit’ model is used as a framework for understanding the causes and consequences of gender bias in the recruitment and selection of women in organizations. Lack of fit perceptions are triggered by the perceived mismatch between what women are thought to be like and what people believe it takes to succeed in male gender-typed occupations (Heilman, 1983, 2001, 2013, 2015).

Heilman states that this incongruity has important consequences for women’s entry into organizations. Specifically, as it creates the expectation that a female applicant is ill

equipped to perform the job and will not be competent if selected. These negative performance expectations form the basis of gender bias in employment decision-making.

Gender stereotypes have important implications for perceptions of how well women fit with different workplace positions. This is particularly the case when these positions are perceived to be male gender-typed (Heilman, 2015, p.92).

Negative performance expectations can affect information processing in several ways. Heilman identifies three of them: attention, information interpretation and recall information.

a) Attention, research shows that information consistent with expectations is readily attended to, but inconsistent information may not even be noticed (Plaks et al., 2001);

b) Information interpretation, evidence shows that the meaning attached to an action can be influenced by expectations (Kunda et al., 1997);

c) Recall of information, research has shown that people remember expectation-consistent information at a higher rate than expectation inconsistent (Fyock & Stangor, 1994; Pittinsky et al., 2000).

Finally, research concludes that men are hired more often than women largely because they are men.

6.5.4.2 Evaluation and promotion processes

As explained previously (5.7 *The Contemporary Organization*), contemporary organizations prefer meritocracy and performance over loyalty and years of service.

Evaluation processes therefore involve the evaluation of employee's merits and outcomes.

Oxford English Dictionary defines meritocracy (merit, from Latin mereō 'earn' and -cracy, from Ancient Greek κράτος kratos 'strength, power') as 'a political philosophy which holds that power should be vested in individuals almost exclusively according to merit'. According to this definition, –the so called- meritocracy organizations should promote their employees because of their merits and discard any other contextual data that might limit decision effectiveness.

Promoting meritocracy in an organization should go together with formalizing the performance management process. Decisions are usually based on objective facts - productivity, chargeable time, revenues, etc.- and subjective perceptions, usually done by the immediate supervisor and/or peers. Interestingly, subjective perceptions, or 'impression management', may count for more than actual performance and achieving success within organizational hierarchies (Bowles & Coates, 1993).

Differences in the ability for successful 'impression management' is likely to be affected by gender; for some managers, gender becomes part of their assessment of suitability criteria (Liff, 2003). Studies have shown that managers find hard to separate the concept of leadership from masculinity (Curlan, 1988) so that gender becomes part of the criteria.

In fact, several experimental studies have shown that gender bias is obvious in the performance management systems, since:

(a) the evaluators idiosyncratic rating tendencies effects accounted for over half of the rating variance amongst analysed subordinate's performance ratings (Scullen, Mount and Goff, 2000);

(b) evaluators tend to redefine the criteria for success at the job towards the specific credentials that a candidate of the desired gender happens to have (Uhlmann and Cohen, 2005);

(c) ambiguous successful joint performance outcome damages women, evaluators are likely to evaluated female as less competent, less hireable and less valuable than identically qualified male counterparts (Heilman & Haynes, 2005).

In addition, Blair-Loy and colleagues (2017) empirical evidence showed how women candidates face more interruptions and often have less time to bring their talk to a compelling conclusion, which is connected to, in their words, the phenomenon of 'stricter standards' of competence demanded by evaluators of short-listed women applying for a masculine-typed job.

In terms of cognitive skills and abilities, women and men tend to be more similar than different (Biernat & Deaux, 2012). Women's participation in the workplace is hindered by gender bias in evaluation, and this bias has its origin in gender stereotypes. Evaluations can be a breeding ground for unconscious bias and stereotypes at organizations and that merit isolation is practical impossible. In fact, objective facts based on performance, seem to be a very reasonable way to evaluate safely candidates. In Wajcman's (1998) own words, 'research shows that adopting procedures that are apparently fair, does not guarantee fair outcomes'.

Subordinates evaluate in a similar manner female and male managers unless the subject is authoritative that they will evaluate worse women (Edwards & Wajcman, 2005).

A recent study by the Pew Research Center⁶⁸ (2017), a Boston-based firm that studies workplace issues, analysed data, using the power of artificial intelligence, on employee feedback and surveys, gender and one-on-one check-ins between managers and employees. There was a very limited amount of data about causes behind why career prospects are worse for women in the five companies analysed. The C-level suite was on average heavily dominated by men, while entry-level positions had a 45 per cent female and 55 per cent male breakdown. In all the participant companies, performance review and 360-degree feedback results were linked to promotion and compensation. In order to understand the reason why women received fewer salary increases and promotions, the firm had to figure out whether performance reviews were biased against women. The study found that men and women were equally as likely to meet goals but men were getting 25 per cent more positive evaluations compared to women in the same role. Looking deeper at the data, they discovered that women were giving almost identical performance review scores to men and women while 70 per cent of men provided higher evaluations to men than to women. This disparity was more pronounced in senior positions, where approximately 75 per cent of men provided higher reviews to men than to women.

⁶⁸ Pew Research Center. The survey, which was conducted July 11-Aug. 10, 2017, with a United States of America nationally representative sample of 4,914 adults (including 4,702 who are employed at least part time).

Unconscious bias transform our perception of identical performances. A recent study published in *Harvard Business Review*⁶⁹, showed the discrepancies based on evaluations towards men and women. The experiment aimed to identify attributes and specific qualities sought in venture capital funding and analysed the way the Swedish Government selected and distributed venture capital to entrepreneurs focused in innovation and growth. Panel interviews were recorded and transcribed later. Final funding decisions opted for a 79 per cent male entrepreneurs and 21 per cent for female entrepreneurs. During the analysis of the recordings, researchers identified a notorious gender related issue: the language used to describe male and female entrepreneurs was radically different. For example, the attribute ‘young’ meant ‘promising’ in a man and ‘inexperienced’ in a woman; the attribute ‘cautious’ meant ‘sensible’ in a man and ‘does not dare’ in a woman. These stereotypes played a role in who got funding and who didn’t. Aside from a few exceptions, the financiers rhetorically produce stereotypical images of women as having qualities opposite to those considered important to being an entrepreneur, questioning their credibility, trustworthiness, experience, and knowledge.

In Sweden, about one-third of businesses are owned and run by women, although they are not granted a corresponding proportion of government funding. In fact, women-owned businesses receive much less — only 13 per cent–18 per cent, the rest going to male-owned companies.

⁶⁹ Malmstrom et al (2017) We Recorded VCs’ Conversations and Analyzed How Differently They Talk About Female Entrepreneurs. *Harvard Business Review*.

6.5.5 *Conclusion*

Gender stereotypes are embedded, contradictions between the myth of individual merit and the reality of a patriarchal support system, and evidence of gender discrimination questions ‘meritocracy’ as it is seen through the lens of patriarchy (Bagilhole & Goode, 2001). Meritocracy has become the ‘black box’ of the equal opportunities process (Burton, 1991); so, who defines meritocracy in an organization? The next research theme will explore the centres of power of corporations and its dynamics in order to retain power and reinforce inequalities amongst men and women.

6.6 Brotherhood

The effect of formal and informal social networks within the organization, and derivations such as mentoring, is a familiar point of reference for those seeking to explain women’s marginalisation from the centres of power (McDonald 2011; Barnard et al. 2010). Social networks are central in terms of career advancement and career mobility and bring positive elements to the individuals that conform them (Gersick et al., 2000; Fernández-Pérez, 2015; Paksi & Tardos, 2018). However, access to these networks is not equal and women experience exclusionary practices that retain them from centers of power in a structural way. ‘Brotherhood’ is seen by women workers, more so in female senior managers, as one of the main barriers to the corporate ladder. In this section, I explore the origin and dynamics of all-male social networks in corporations, the relevance of social networks for career advancement, how they operate for the preservation of power and the many ways in which women have been systematically excluded.

6.6.1 From the 'Old Boys' Club' to brotherhood

'Old Boys' Club' or 'clubbiness' is an Anglo-Saxon term used to denote specific jargon, interests and hobbies shared by men who are part of the centres of power. It was first coined in the mid-nineteenth century, referring to the alumni of elite educational institutions with an informal system of favours and mutual support that would last throughout their lifetime. That common affiliation to a specific school or university, created a shared view of the world, an ensured that power remained concentrated in the hands of a small white male elite forming the ruling class of that time (McCarthy, 2004).

Since the beginning of the twenty-first century, studies of homophily in informal networks have concentrated on the organizational contexts of networks, associating the effects of networks on both individual careers, organization success (Ibarra, 1997) and the workforce (Ibarra & Smith-Lovin 1997). Paksi and Tardos (2018) identified two fundamental roles that these networks fulfil in their research on boys' networks in science: on the one hand, they have a relevant role in career advancement through information sharing, increasing visibility, knowledge exchange, diffusion of achievements, sharing resources (Haeussler, 2011). Brass (1985) argued that information sharing can flow through formal and informal networks, across and within organisations, between individual actors and in groups of individual. Several studies have demonstrated the positive effects of networking for career advancement, as an example, Fernández-Pérez and colleagues (2015) showed, using regression analysis in a sample population of 630 Spanish participants, the positive roles played by perceived support of mentors and personal networks. On the other hand, networks increase strategically career mobility (Gersick et al., 2000). Thus, concluding that using social networks has become central in

terms of career advancement (Paksi & Tardos, 2018) and ‘has powerful implications in their members for the information they receive, the attitudes they form, and the interactions they experience’ (McPherson et al., 2001, p.414).

Individuals socialize in the workplace, it is core element of organisational life (Waldstrøm 2001) and as a result formal networks coexist with informal networks. Both networks are connected and can be difficult to distinguish. Informal networks can be expressive based on the individuals’ unconscious reasons, reducing uncertainty, trust, friendship, or they can be instrumental based on conscious reasons, job-related, gaining information and influence, advice, recognition (Baker 1981; Han 1983; Ibarra, 1993; Paksi & Tardos, 2018). Within social networks, mentoring is also an effective collaboration strategy since it positively influences personal development, career choice, as well as promotion and incomes (Bozeman & Corley 2004).

6.6.2 Is the corporate ladder held by the Boys?

However, access to formal and informal networks is not equal and high gender inequality prevails in several segments of networking, indeed, in McCarthy’s (2004) own words ‘despite over a century and a half of social change, homophily and reciprocity among men still see to it that women remain disadvantaged at work, although these affiliations tend no longer to require the possession of an Eton or Rugby school tie’ (p. 27). Evidence shows that women workers usually have more restricted collaboration networks (Larivière et al. 2011) and are more prone to using mentoring as a form of networking, even though they find more obstacles than men to have mentors (Sambunjak

et al., 2006), a study revealed that men are three times more likely to evaluate positively mentorship in terms of their career advancement (Osborn et al., 1992).

These men's networks have the power to exclude women, through exclusionary practices that act as an informal barrier to career progression that this impacts women career advancement in a critical way (Etzkowitz et al., 2000). Along these lines, the British Institute of Management confirmed that all-male social networks or brotherhood are found to be one of the most significant barrier for women in the workplace (Charlesworth, 1997) and the greatest barrier encountered by senior women managers in their careers (Coe, 1992; Kelan, 2012). Judy Wajcman (1998) corroborated that women, especially those in middle management, perceive men's networks as one of the most important barriers in their career progression. Other research has identified social networks of powerful men, from which women are excluded, as barriers for women in engineering workplaces (Faulkner, 2009; Corbett & Hill, 2015). As for research workplaces, women's exclusion from the exchange of knowledge, from resources and power (Durbin, 2011) have negative effects on women's research productivity, promotions and career outcomes (Bencert & Staberg, 2000).

In their work, McPherson and colleagues (2001) point out that most sex homophily in the workforce 'is created by inbreeding rather than baseline phenomena' (pp.424) and make an assumption regarding social networks and gender based on highly sex segregated workplaces, claiming that it is not surprising that the networks formed in these settings display a significant amount of baseline homophily on gender. The sex composition of the occupational level creates powerful sex differences in homophily of networks, 'with the minority sex having much more heterophilous networks than the majority category members' (p. 424).

6.6.3 *Organizational gatekeepers*

On top of most organization pyramids lies a group of senior people that decide on the company's strategy direction and organizational values, they are the gatekeepers that control the definition of merit and the means of exercising power (Merton, 1973). In Western societies, gatekeepers are portrayed as white, middle-aged, heterosexual men that conform to this profile and limit the opportunities of those that are not alike (Osborn et al., 2000), people 'love those who are like themselves' as Aristotle's Rhetoric noted (1934, p. 1371). In addition, Derek Higgs (2003) research reported the frequent use of personal contacts as a source of candidates for new appointments to boards. Higgs identified a trend to favour those with similar backgrounds to incumbent directors. As Sagebiel (2016) describes 'homo-social networks demonstrate their exclusiveness through selective processes for new members, restriction of information, secrets and strict separation of members and non-members' (p. 45). They function with their own norms of informal structural information channels, complete availability of individuals and mechanisms of exclusion (Doppler, 2005; Rastetter, 1998; Sagebiel, 2016).

Breaking into male networks is a challenge for women for all sorts of reasons. The scarcity of women at senior levels in large corporations is perhaps the most serious for its natural consequence that men get to dictate the terms on which informal networking activities take place (McCarthy, 2004, p.28)

Another argument is centred in the legacy of unstated practices and policies in the workplace established by all-male networks which women struggle to learn (Rhode, 2002). Thus, informal networks are based on unwritten rules and, in male-dominated organisations, all-male rules (Singh et al., 2002) that are inaccessible to women and

permit the maintenance of power to the exclusion of women (Ibarra 1992). In addition, structural positions can constrain how people form their network ties (McGuire 2000), it is 'structural exclusion from high-ranking and resourceful positions, not a lack of networking knowledge or skills' (p. 519). Women's exclusion from these networks goes beyond their power, credentials or organisational positions (Kanter, 1977; Brass, 1985) and even if they could enter, they would receive fewer network benefits (Ibarra, 1992). Professor Sally Ann Davies-Netzley (1998) focused on women in corporate positions and explored their perceptions on strategies for success in elite positions. Through interviews with 16 men and women corporate presidents and chief executive officers (CEOs) in Southern California, it is found that while white men promote the dominant ideology of individualism and patriarchal gender ideology as factors explaining of corporate mobility and success, white women emphasize alternative perspectives by confirming the importance of social networks and peer similarities for succeeding in elite positions. These women report being excluded from informal networks as a barrier to their advancement and attempt to maintain their high-status positions through obtaining advanced educational degrees or modifying speech and behaviour.

Male-dominant tech corporations have further implications in social networks. Sagebiel (2003) argues that various studies have shown that what drives women away from technology are not women's deficits in abstract thinking, but the content and climate prevalent, which construct an atmosphere of dominant masculinity. In her work 'Engineering Studies', Faulkner (2009) analyses social networks in three different male-dominated corporations, she describes day to day practices amongst men depending on their age and/or position in the workplace (their clothes, their hobbies, their interests, etc.). Faulkner concludes that workplace cultures in engineering accommodate a range of

masculinities, even marginal ones (such as nerdy or shy men) to the degree that there is space for many diverse masculinities, generating a workplace culture likely to feel comfortable to the great majority of men. She states that social networks of men are organisationally powerful, and hegemonic in terms of the performing of gender, women and marginal men are indeed likely to find it harder to ‘break in’ to the inner circles. They are also likely to find it harder to shape or challenge the workplace culture (Faulkner, 2009) as she explains:

The critical question here is not whether men socialise with other men, but the extent to which any men-only social groups are powerful. Studies of women in engineering often report that women engineers are excluded from the informal ‘boys’ networks’ that carry organisational power and influence; for example, over how the job gets done and who gets promoted (Faulkner, 2009, p.13)

6.6.4 *Emulating homo-social networks*

Nevertheless, women have tried to reproduce influential homo-social networks over time. Jeannine Dobbs describes, in her article ‘The Blue-Stockings: getting it together’, the surge, in the middle of the eighteenth century in England, of the Blue-Stockings⁷⁰ to preserve and advance feminism. Women that were tired of being excluded from the traditional male dominated fields and wanted to debate on an equal basis with men⁷¹. To the authors best knowledge, they were the first women in modern history that talked,

⁷⁰ Blue stockings, at the time, were used at informal events. On the contrary, black stockings were required for more formal and rigid events at male knowledge institutions (Rubio, 2006).

⁷¹ The Society was founded in the early 1750, amongst other Blue-Stockings members was Elizabeth Montagu, Elizabeth Versey, Elizabeth Carter and Hannah More.

wrote and acted upon social change. Not as individuals but as a group with a common goal (Dobbs, 1976). Even though they were largely ridiculed by society and the press, they had great importance as a network⁷². More than a century later, in 1886, the University Women's Club was established by a group of upper-middle class educational reformers for the small but steadily growing number of women graduates from universities in the UK. Unfortunately, these women's clubs never played a central role in the lives of their members, mainly because women remained marginalised in the workplace and had little access to opportunities for promotion. Instead these female social networks in the office, were seen as 'pink ghettos'. Shere Hite had the opportunity to study in-depth, the psyche of some of the main leaders of corporations in the late twentieth century. Through her interview-based report, she describes female ghettos within companies in juxtaposition to the phenomenon of men's clubs. As she describes 'the current situation of the integration of women in management positions is full of ghettos for women. Maybe it's a normal stage, but it seems dangerous to me and I'm afraid it's a dead end.' (Hite, 2000, p.72). Other scholar's argument that women are prone to have less time for informal networking at the office, key to advance, due to focus on tasks and family (Etzkowitz et al., 2000); men join outdoors activities, such as golf or football, and leisure time in search of potential informal networks for sharing job-relevant information (Durbin 2011) to the disadvantage of women. Along these lines, Gupta (2004) identifies three different burden women face in this field: disproportionate domestic work, social capital deficit and unfavourable work environment. In academic research, the effect of

⁷² Just to stress the importance of these type of clubs, it was the meeting point of Ada Lovelace with Charles Babbage that had as a result the calculating machine and its implementation.

marital status has also been identified as a significant consequence in the case of both genders: childless men with an academic partner have the highest chance of international collaborations, while women with full-time employed non-academic partners have the lowest chance (Uhly & Zippel 2015). On the contrary,

6.6.5 The role of structural exclusion

Although exclusion from informal networks is less measurable than formal networks, since there is not a formal criterion to joining into these networks other than ‘maleness’ (Durbin, 2007), a survey carried out in a financial services corporation in the US (McGuire, 2000) provided more evidence that gender differences in the status of network members depend more on structural factors than on personal factors. It also pointed out that the phenomenon of women having members with both lower or higher status in their networks derives from the weaker position of women in the organisation. If women occupy less powerful positions it attracts less powerful members, and, by contrast, if they occupy a powerful position it attracts more powerful members into their networks. Women generally perceive these networks as ‘competitive, aggressive, less than honest, discouraging and discriminatory’ (Davis 2001, pp. 377-378). Men’s common conversations in these networks often include discussing women in a pejorative way or ‘just joking’ making sexual comments (Powell et al., 2006). Finally, there are reasons related to the conventional sexual politics of the workplace and the gossip involved in ‘a younger woman approaching a senior male to ask for mentoring or career advice risks’ (Vinnicombe & Bank, 2003, p.239). These everyday social encounters not

only inhibit women from coming forward; they also create barriers to senior men seeking out female talent to bring on.

For all these reasons, studies analyzing social networks and gender within organizations reveal that men and women develop different types of workplace relationships, with men's networks tending to have higher levels of both centrality and homophily (Ibarra, 1992).

Catalyst, a non-profit organization focused on expanding opportunities for women and business, has advised companies for decades on how to create women's networks, mentorship programs, and other initiatives that improve women's career advancement. These efforts have not dramatically changed the landscape for women in business leadership. Catalyst (Lang, 2011) has found that women are mentored more than men, but men's mentors are more senior and more likely to advocate visibly for those that remind them of their younger selves.

6.6.6 Conclusion

In this section, we have seen how all-male social networks persist in modern times. It seems as if the Old Boys' Club, although far away from its elitist origin and transformed into the likes of brotherhood, isn't going away. Patriarchal systems adapt to new contexts and provides adapted mechanisms of exclusion to maintain existing gender hierarchies. Brotherhood strengthens the tradition of excluding systematically women from circles of power and it is frequently pointed out by female senior managers as a key barrier to career advancement in the corporation. Along the chapter, I have explained how women of all

times have reacted to all-male networks (e.g. trying to join these clubs, emulating all-female networks) and the backlash of their actions.

6.7 [Sexuality](#)

The control of female sexuality in the workplace has been and still is a constant topic of management discussion. Gender-power relations are crucial in a patriarchal culture where women are positioned as objects of male desire. Women in male dominated fields, such as the ICT sector, have been challenged to adjust to the male culture of corporations.

Even though women try to manage their ‘otherness’, it is obvious they remain female and their bodies are sexualized in a way men’s bodies are not (Wajcman, 1998). Kanter’s stereotypical roles analysed previously in the gender stereotypes topic (see section 6.5.1 *Women stereotyped roles*) – the mother/Madonna, the seductress/whore, the pet and the Iron Maiden – are categorized mainly by their sexual behaviour and their sexual desire or lack of it.

Bodies and sexuality need attention and control. The characteristics associated with women arise from the symbolism and cultural meanings ascribed to women’s body and biology. Many of these differences are in conflict with organizational values and, thus, undervalued in the workplace. Bilimoria (2007) associates this devalued status with stigma since women are aware of their differences and try to manage their identity to convey. Women try to ‘blend in’ in a male organizational culture not only in the way they present themselves but also in their behaviour. Women try to manage their sexual and biological differences in a corporation culture where men are the standard (see section 6.8

Corporate manstreaming). Traditionally men have occupied public life with rationality, rules and procedures; private life has been occupied by women with emotions, family and sex (Martin, 1989). Thus, their presence in the workplace challenges three assumptions that organizations are designed genderless, bodyless and sexless (Bilimoria, 2007).

6.7.1 Sexual harassment and/or hostile work environment harassment?

The term ‘sexual harassment’ was first coined by feminist journalist Lin Farley (1980) to describe patterns of workplace behaviour described by her students at Cornell University and collected in her work ‘Sexual shakedown: the sexual harassment of women on the job’. The term rapidly expanded and today feminist scholarship situates sexual harassment in a broader context of gender inequalities (Martin, 2003) and other forms of workplace discrimination such as power and privilege (Lopez et al., 2009); it is most broadly defined as ‘the unwanted imposition of sexual requirements in the context of an unequal power’ (MacKinnon, 1979). Yet, sexual harassment issues are not exclusive of the workplace, it prevails during school years too. A major study by the American Association of University Women (AAUW) ‘Crossing the Line: Sexual Harassment at School’ (2011), based on a survey of a representative sample of 1,965 US national students in grades 7-12, reveals statistics about the prevalence of sexual harassment, not less, but more, than two decades ago, and its negative impact on students’ education. In her work, Farley (1980) clarifies that,

The sexual harassment of working women has been practiced by men since women first went to work for wages. It is a practice that until now has gone virtually unchallenged, largely as the result of a wide social acceptance of such behaviour.

For evidence of this we have only to refer to the countless jokes and cartoons about women and work that characterize much of our popular culture (Farley, 1980, p.30)

Regarding the cartoons cited by Farley, Berebitsky (2012) collected several postcards portraying images of women in the workplace in her work 'Sex and the Office: A History of Gender, Power, and Desire' (Figure 63):



Figure 63: Undated postcard from the Berebitsky collection.

Academic literature has analysed the confluence of power and sexual harassment at the workplace and in society, (Hearn & Parkin, 1987; Berdahl, 2007; Rospenda et al., 1998; McLaughlin et al., 2012). In 2012, the *American Sociological Review* published McLaughlin et al.'s 'Sexual Harassment, workplace authority, and the paradox of power' research that used quantitative and qualitative data to consider that, from an integrated feminist model of sexual harassment, supervisory authority, gender identity and workplace sex composition mattered to experiences of harassment. Research showed that sexual harassment can serve as an equalizer against women in power, motivated more by control and domination than by sexual desire; the interviews pointed to social isolation as a mechanism linking harassment to gender nonconformity and women's authority,

particularly in male-dominated work settings. ‘Social isolation and ‘macho and misogynistic’ workplace culture serve as key mechanisms connecting gender performance and harassment’ (p. 638). Researchers were precautions in their methods in order to discard this finding a product of supervisors’ greater sensitivity or legal consciousness. The findings reflected the different nature of harassing behaviours in male-dominated workplaces, such as inappropriate or degrading comments about women’s bodies, that reinforce social isolation; another finding reflects that women in a male-dominated workplace may interpret behaviours differently than in a more gender balanced organization (*Figure 64*):

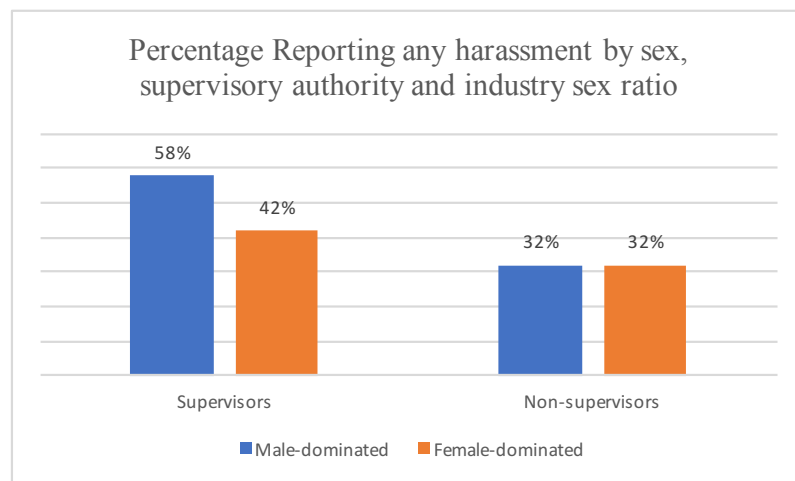


Figure 64: Gender, power and beyond (McLaughlin et al, 2012).

In non-traditional areas of female employment, the sexual harassment of women by their male colleagues has been used to exclude women from this type of work (Tallichet, 1995; Collinson & Collinson, 1996) and the use of sexuality, joking and abuse as a means of maintaining authority (Hearn & Parkin, 1987). In fact, women supervisors or women identifying as feminists pay the penalty for threatening the gender hierarchy and are denigrated for it (Maass et. al, 2003; Das, 2009). West and Zimmerman (1987) explained how sexual harassment could reinforce appropriate ways of ‘doing gender’ in the

workplace and penalize gender nonconformity. Other studies have linked other men as the intended audience of sexual harassment towards women in order to comment and reinforce patriarchal structures in the workplace (Quinn, 2002). Another research demonstrated that single women workers tend to be targeted more than married women, De Coster et al. (1999) theorize that single women are perceived as challenging traditional family structures, less protected and more sexually available. Wajcman (1998) understands this form of harassment as an expression of sexual politics at the interpersonal level and as an indicator of male domination of women. The characteristics of sexual harassment, even though men seem surprised when women take offense, demonstrate men's power and privilege to consistently question and evaluate sexually women.

Today's '#MeToo' social movements have put the focus on gender-power relationships in different industries, such as the entertainment and ICT sector, not only in the United States but in other geographical locations too. Silicon Valley high tech companies' sexual harassment crisis has made headlines these last years. Described as toxic culture of sexism and harassment, women have come forward with accounts of gender discrimination and resignations throughout the tech industry. In 2016, Hillary Mickell and Michele Madansky started a dialogue on sexism in tech thanks to their 'Elephant in the Valley' study⁷³. A survey of 200 senior-level women in Silicon Valley,

⁷³ The Elephant in the Valley was a collaborative effort between seven women in Silicon Valley with backgrounds including Venture Capital, Academia, Entrepreneurship, Product Marketing and Marketing Research. They compiled a list of several hundred senior level women from their collective contact lists and invited them to participate in a survey about gender in Silicon Valley. 210 complete an online survey between April and May 2015. Profile of the respondents: 100% female, 91% living in Silicon Valley, 25% CXOs (CEO, CMO, CTO, etc.), 11% VCs, 11% founder/entrepreneur, 11% marketing, 22% under 40, 42% 40-49 and 36% 50+ <https://www.elephantinthevalley.com>

found that 66 percent of participants reported they were excluded from important meetings because of their gender, and 60 percent reported unwanted sexual advantages from their superior in the workplace. It seems as if the twenty-first century workplace with its technological innovations, outcomes and flat structures, was different from the old workplace except for the prevalence of sexual discrimination.

Feminist theorist, Ellen Mayock (2016), has defined and analysed the cycle of harassment in the workplace where she distinguishes between sexual harassment and hostile work environment (HWE) harassment, she focuses in the later and examines the cultural norms that help sustain HWEs. Mayock defines the ‘gender shrapnel’ metaphor that takes place in the academic workplace when female students and faculty members experience awkwardness towards their institutions and its members when gender-based discrimination enters the workplace with replicated patriarchal gender norms, ‘It feels like you are hit by shrapnel and you don’t know where it came from (...) How do you describe a phenomenon that you have to experience to understand?’ (2016, p.6). She recalls Betty Friedan’s ‘problem with no name’ or a ‘professional mystique’ that is unresolved in both the home and the workplace. Mayock understands HWE harassment is more common but far more difficult to detect and to eliminate than sexual harassment and affects female retention in a way that it is urgent to define and implement specific institutional remedies. Along these same conclusions but specifically in the tech sector, Hewlett et al. (2008) concluded that when women drop out of tech, a major factor is ‘undermining behaviour from managers’. ‘Professional mystique’ is difficult to understand and is embedded in oneself and mind, the following quote portrays some of Mayock’s gender shrapnel:

As an employee in her 15th year at her institution, a professor goes to her annual performance evaluation meeting with a supervisor. He looks over the paperwork in front of him and remarks, ‘You have been really busy – new publications, plenty of students, long hours of service.’ The employee is thinking, ‘Yep, you got that right. It has been busy and productive year,’ but then she is completely taken off guard when the very next thing out of her supervisor’s mouth is, ‘How does your husband deal with this?’ ‘Ouch,’ she thinks extremely loud inside her head, ‘did he really just said that? What is my husband doing at my performance evaluation meeting?’ She wonders what her face must look like at that moment, because it feels as if the skin is peeling off to chunks (Mayock, 2016, p.3).

As young women grow into professionals, sexuality affects them in broader aspects of their professional life; on the one hand, it affects the way they present themselves, the way they dress and behave in the workplace; on the other hand, the way women and men manage their sexuality in their workplace relationships and finally corporate concerns on their reproductive rights.

6.7.2 Cover for success

Public life and paid work has been traditionally associated to men and men’s bodies, the way men dress up for work sets the workplace standard. During the 1970’s and the 1980’s dressing for success in business and being sexually attractive was incompatible. A main strategy for surviving in the workplace was to ‘blend in’. As an example, the book ‘The woman’s dress for success’ advised women workers to wear dark suits and big shoulder pads to mimic a man’s body shape and how to avoid female differences as much as possible (Molloy, 1977). There is plenty of self-help literature referring to the smallest detail that can be interpreted as sexual: the length of the hair, the use of make-up and

jewellery, even recommendations on the type of bra that was more suitable for the workplace.

Whether or not you have a big bust, never, never, never go to work without a bra. Jiggly breasts and protuberant nipples embarrass most men... (Macdonald, 1986).

Almost two decades later, Molloy published a sequel to his book 'New Women's Dress for Success' to show 'which clothes can have power in today's work place, a business world where casual clothes are becoming the new uniform, and women in management positions have no clear ideas of what to wear' (Molloy, 1996). Twenty years later, the pressure on women to cover their bodies in a specific manner remains untouched. Below a revelling review of the book by an anonymous woman reader:

I am a young (under 30), short girl. Do you know how hard it is to be taken seriously in an all-male manufacturing environment? These are classy ways to still be a woman and taken like the professional I am. I notice the difference in obeying the rules and then sometimes just wearing whatever I want. This book is valid to my career. I am a Finance Manager, the financial consultant to the business (Amazon's reader review, 2009).

As a result of her two-year study of men's responses to positive action for sex equality at work, Cockburn states that the female body is frequently perceived as weaker, smaller and less authoritative (Cockburn, 1991, Jeanes et al., 2012).

In addition, Tretheway notes that 'woman's bodies are excessively sexual because the female body has a tendency to overflow and to display messages that were not intended' (p. 436) and goes on to describe the metaphor of overflowing:

The metaphor of overflowing can describe pregnancy, menstruation emotional displays or wardrobe malfunctions. Being aware of their otherness in organizations and the difficulties it presents, working woman walk a fine line presenting themselves as both competent and feminine. The female body is a liability for their professional identity and their ability to participate fully in the organization systems depends on careful self-presentation. Woman managers must maintain credibility as a serious manager while, at the same time, meeting feminine stereotypes (Tretheway, 1999).

Thus, bodily processes such as menstruation and pregnancy are to be concealed and/or ignored with the challenges it implies (Martin, 1989). Women's biology and conditions associated with reproduction make women unreliable employees (Lorber, 1997). Other body functions such as women's voice is also to be adapted elevating their pitch and paying attention to their voice tone at all times. Historian Mary Beard (2018) labels it as the 'androgynous' route and describes how former UK's Prime Minister, Margaret Thatcher, 'took voice training specifically to lower her voice pitch and to add a tone of authority that her advisors thought her high pitch lacked' (p. 39).

Nowadays women's business attire is still a topic of discussion for management literature, specialized magazines and social media. It seems as though women's self-presentation in the workplace still requires the balance between displaying competence and being feminine. Acker analyses the hierarchies of bodies and finds that the otherness of female bodies is used as 'grounds of control' through such injunctions (Acker, 1990), seeing the body as a social object that can be moulded, manipulated and adapted to androgynous norms.

Consequently, the body is not completely one's own, but rather is subject to the particular meanings that organizational discourses inscribe upon it (Jeanes et al, 2012, p.168).

6.7.3 Expected societal gender behaviour

Traditional female associated characteristics - such as being expressive, emotional, caring and willing to self-sacrifice for others - are set against the instrumental, competitive and assertive traditional male associated characteristics needed for success in business (Bender, 1997). Thus, the expression of emotion is a gendered concept that is out of place in a corporation. As an example, an empirical study of women crying at the workplace, showed how exclusionary patriarchal discourses can persist in workplaces in ways that are often invisible. The study showed how crying was a result of stress from pressure and excessive working hours, yet it was perceived as an irrational behaviour and a sign of weakness (Collinson & Knights, 1986). Emotional displays in a business setting are offensive to men because of the high value they place on control (Frankel, 2004; Jeanes et al., 2012), self-help literature regards crying as the ultimate transgression and a common problem that implies that women managers are not in control, not competent and weak (Williams, 1977; Stechert, 1986).

An extract of 'The Handbook of Women in Business and Management' describes the pressure management literature put on women to 'blend in to be managerial material' (Bilimoria, 2007):

At its core, the concept of blending in requires that woman exercise control and self-discipline. The specific differences of women's bodies and ways of being make this challenging (p.47)

Consistent with social gender stereotypes, female modesty evokes more favourable reactions than assertiveness. Wosinska and colleagues (1996) research found that highly modest self-presenters were favoured over moderate ones when the self-presenter was female, and when the evaluators were co-workers. Alternatively, moderate modesty was favoured over high modesty when the self-presenter was male, or when the evaluator was a manager. Another research by Bowles and colleagues (2007) focused on gender differences in the propensity to initiate negotiations, their findings showed a differential treatment of men and women when they attempt to negotiate. In one experiment participants evaluated written accounts of candidates who did or did not initiate negotiations for higher compensation. Evaluators penalized female candidates more than male candidates for initiating negotiations. In another experiment, participants evaluated videotapes of candidates who accepted compensation offers or initiated negotiations. Male evaluators penalized female candidates more than male candidates for initiating negotiations (Bowles et al., 2007).

Similarly, a study of the life insurance field showed that a range of skills required, some associated to masculinity such as ambition and competitiveness, while others associated with femininity such as caring and communication. It was found that masculine attributes were overvalued by management during recruitment and promotion, whereas feminine ones were not even included in the job descriptions, to the advantage of men in detriment of women (Collinson & Knight, 1986).

6.7.4 Sexual relationships

Even though, desexualisation is seen as a necessary protective strategy, women are expected to look attractive and manage and control their sexuality.

To be effective on the job, a woman has to know a great deal about her sexual attractiveness affects her work and the men she works with. She must take care regarding the sexual signs she sends to men... (Stechert, 1986).

Bilimoria (2007) explores sexual relationships in corporations. She explains how corporations establish mechanisms and norms in order to avoid sexuality in the workplace and discourage employees to engage in sexual or romantic relationships, even explicitly banned. The organizational rationale is to avoid work-related problems, any negative effect in productivity (Powell, 2001), potential sexual harassment lawsuits, amongst others. Sexuality in the workplace is seen as a taboo, prohibited and something that is not to take place but it is unavoidable, it occurs and not in an isolated way. When sexual relationships are made public, women are evaluated more negatively than men (especially if she is in a lower position than her partner). Women also have negative reactions to other women having romances in the office as they think it will affect their reputation in the workplace perpetuating the perception of seduction and not competency is key for women rise in organizations (Crary, 1987). In fact, 66 percent of women executives suggested negative outcomes from an office romance (Mainiero, 1989).

As Judy Wajcman (1998) reiterates women bodies and behaviour is sexualized in a way men bodies are not, it is difficult to escape their sexuality and often their actions are misinterpreted. Researcher Antonia Abbey (1982) conducted an experiment in which a male and female participated in a short conversation while a hidden male and female

observed this interaction. Men actors and observers rated the women actors as being more promiscuous and seductive than did female actors and observers. Men were also more sexually attracted to the opposite-sex actor than were the women, and rated the male actor in a more sexualized fashion. Results suggested that men are more likely to perceive interactions in sexual terms and to make sexual judgments than women. This sexual association is similar what gays and lesbians experience, they are seen almost entirely through the lens of sex (Herek, 1996). The lesbian corporate experience is described in Burrell & Hearn's (1989) qualitative research as a burden between the dangers of disclosure and the dangers of non-disclosure. Any deviation from heterosexual norms may result in less opportunity, less status, harassment and/or losing the job, amongst others. In a male-dominant corporation, women who are perceived as masculine can incorporate positive qualities attributed to males, some lesbian informants identified advantages occasioned by such perceptions and others could identify the disadvantages of being seen as 'unfeminine'.

The rare lesbian who reveals her orientation, and who survives the consequences of violating the gendered expectations which structure the organizations succumbs, then, to the organization in another way. Stylized out of existence, she forfeits her private mutinies, cannot mobilize the resistance necessary to shield her individuality from engulfment by the collective purpose of the organization. Homogenized, the token corporate lesbian becomes the consummate 'organization (wo) man' (Burrell & Hearn, 1989, p.138)

Sexuality as a way of exclusion was analysed previously in the 'Brotherhood' theme of analysis (see section 6.6 *Brotherhood*): As argued by McLaughlin and colleagues (2012) it can serve as an equalizer against women in power, motivated more by control and domination than by sexual desire. Qualitative work has led to link social

isolation as a mechanism to gender nonconformity, particularly in male-dominated work settings (McLaughlin et al, 2012).

6.7.5 *Conclusion*

Even though sexuality has been largely ignored by corporations, it is difficult to escape sexuality and its implications in the workplace. Women's 'otherness' has been neglected by tech corporations expecting women workers to adapt to the male norm, a complicated task to perform in a woman's body. Female workers are sexualized in a way that men are not, thus increasing women's self-awareness and its effects on performance. This section has analysed different female strategies in order to 'cover up' and to 'blend in' the corporate world, receiving instructions as how to dress up, the ideal corporate hairstyle and their expected behaviour. In addition, sexual harassment against women has operated unimpeded in corporations perpetuating gender hierarchies. However, there are signals of change with the #metoo movement and specific reports on sexual harassment in tech companies (e.g. 'Elephant in the Valley') that could mean the beginning of a sexual revolution that stops women's sexualisation and claims equal rights in all industries in the workplace.

6.8 Corporate *manstreaming*

I have used the term '*manstreaming*' to refer to those organizations that have mainstreamed male needs and priorities in all the institutional and organizational processes such as the linear success career model (Goldin & Katz, 2016). Therefore,

corporate ‘*manstreaming*’ will take men and their behaviour as the standard leadership model and it will affect career processes such as promotion to senior management level (Webster 2005). In addition, research results show that men are usually not aware of gender barriers, whilst women identify many of them; Castaño (2013) findings show that the perception of women's problems is still a taboo among men because when they are asked about barriers to female leadership in research groups, the answer is totally different depending on the composition of the groups: a group of at least three women consider in hundred per cent of cases the importance of barriers in institutions and in a 90 per cent in a ICT male culture; another group composed only by men, attribute barriers in a 67 per cent to the lack of women's interest in leadership and 64 per cent to the lack of candidates. As another example, Judy Wajcman (1998) surveyed middle management workers to find that 76 per cent of women placed brotherhood as one of the main barrier for career advancement, while only 43 per cent of their male colleagues believed that it can be a barrier to the progress of their female peers.

A key argument of Wajcman’s reference book ‘*Manging like a man*’ is that management incorporates a male standard that positions women as different from men. This is a mechanism whereby male power is maintained in the workplace. In Wajcman’s words «even though there is an extensive literature on women and management, most of the writing is exclusively about women managers, treated in isolation from men» (Wajcman, 1998, p.2). She explains how ‘quarantining women’ has the effect of locating women as the problem and reinforces assumptions that men are management-manner born.

As presented previously in *chapter 5 WOMEN AND CORPORATIONS*, management is an occupation historically and culturally associated with men, even

management language is intrinsically masculine. Organizations are patriarchal spaces for the establishment and preservation of male power. In Pateman's own words 'patriarchy is seen as a private familial problem that can be overcome if public laws and policies treat women as if they were exactly the same as men' (Pateman, 1988, p. 21).

A conception of equal opportunity in which women are treated the same as men, cannot address inequalities since women are situated differently. Ignoring women's relation with the private sphere conceals one way in which they are penalized for their difference. The answer to equal opportunities is not based on the adaptation of pre-existing policies, it requires a more radical approach in which to confront the difference and take positive action or special treatment towards women (Wajcman, 1998).

Women are always marked as 'gendered' and men as the 'unmarked standard' that represents humanity. In Stechert words:

Because men dominate the workplace, the status quo suits them well. They got there first and set the patterns and rules according to what pleases them. It's up to women to take the initiative in learning to understand men's ways (Stechert, 1986).

Definitions of 'women' have a political nature; politics understood in the same way Kate Millett stated in *Sexual Politics*: 'by politics I mean power structured relationships, the entire arrangement whereby one group of people is governed by another, one group is dominant and the other subordinate' (Millett, 1968). One way to highlight men's privilege is to imagine a form of equality were women's needs and interests are redefined as the standard (Liff & Wajcman, 1996). Wajcman states that a social model which includes women in the human standard would make possible to speak of women as women and not as 'not men'.

The male standard understands full-time jobs and continuous work until retirement. Goldin and Katz (2016) analysed what the linear unbroken success career model looked like, when and how it was achieved (*Figure 65*):

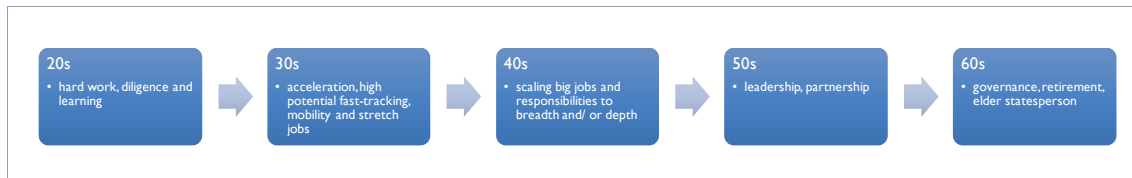


Figure 65: Linear success corporate career model (Goldin & Katz, 2016)

As it was presented in the literature review (see *Chapter 5 WOMEN AND CORPORATIONS*), this career pattern was designed by men in the 20th century for a male-dominated, single-earner workforce. This full availability career model excluded different populations along the journey, most evidently, women. Goldin and Katz (2016) revealed how this trend is slowly changing as the size and significance of these groups grow. Their empirical research concludes that women have become significantly more likely to work into their 60s and even 70s, often full time, as nearly 30 per cent of American women 65 to 69, the first big wave of professionals, are working (15 per cent in the late '80s) and 18 per cent of 70 - 74-year-olds (from 8 per cent); male employment after age 60 has also risen but not as deeply as women's. The analysis found children had no effect on working later in life. A similar trend is observed in women across developed countries (OECD, 2014).

The fact that men can be fathers is frequently ignored in the workplace, thus family friendly policies are often designed for women and allowing more flexible arrangements to keep up with domestic responsibilities. A gender-neutral language cannot surface the benefit that men have with the existing present social arrangements for care, which are far away from neutral. As previously mentioned, and as Dickens (1994) describes it, there

is a template for employment shaped around the typical circumstances of a white male. Wajcman insists that 'rather than changing individuals to fit the template, the template should be abandoned' (1998, p.28) (*Figure 66*).

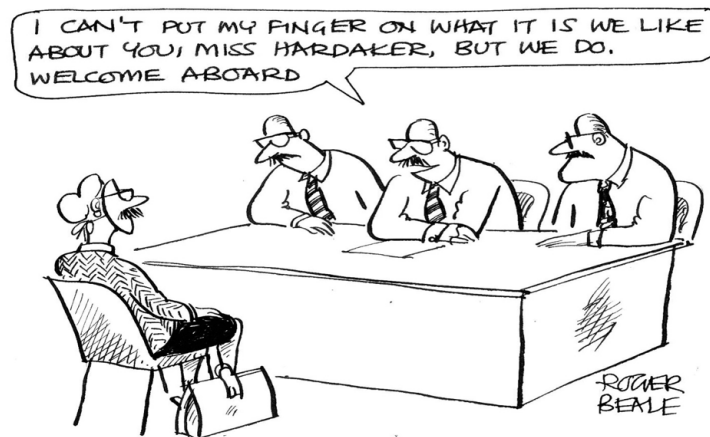


Figure 66: The 'male standard' in a cartoon by Roger Beale

Furthermore, the trend men are more likely to follow, such as full-time jobs or geographical availability, are structured with more opportunities and more prone to a successful career than those that are established as part-time. The corporate ideal of a worker's complete availability is very strong in management positions and often resides in the availability of a wife's domestic services at home. The figure of 'corporate wife', analysed in *chapter 5 WOMEN AND CORPORATIONS, 5.5 The Corporate Wife*, although not in presence as it was in the middle of the 20th century, is still a key element to guarantee career success in the more senior levels of management.

In her research, Faulkner (2009) found that in workplaces alpha men were easy to identify; alpha men in two senses: they were all rather successful at a corporate level and perceived as being good engineers. Their masculinities set the tone of the workplace culture and act as models of masculinity for men colleagues, the alpha men reveal which

masculinities are hegemonic in these workplaces: they set a standard by which others are judged (Connell, 1987).

Successful senior management women workers have denied certain aspects of their lives in order to be more like men, even though their experience cannot be the same. Coping strategies of women are ‘acting like one of the boys, accepting gender discrimination, achieving a reputation, and seeing more advantages than disadvantages’ (Powell et al., 2009, p. 425). In a survey conducted by Moore, Griffiths, & Richardson (2005) in the United Kingdom, women perceived as necessary characteristics for career advancement: ‘to be a man’, ‘being one of the guys’, ‘wear a tie and pants’ ‘to have the ability to resist intellectually soporific meetings in which you will most likely be ignored’ (p. 18).

6.9 Organizational culture and gendered identities

Organizational culture incorporates all the elements that are beyond written norms: rational and irrational factors, explicit and implicit. They contribute to the creation of identities and influence the individual and collective behaviours (Aaltio & Mills, 2002; Ashkanasy et al., 2000; Wajcman & Mackenzie, 2005; Castaño & Caprile, 2014).

As individuals come into contact with organizations, they come into contact with dress norms, stories people tell about what goes on, the organizations formal rules and procedures, it’s informal codes of behaviour, rituals, tasks, pay systems, jargon and jokes only understood by insiders, and so on. These elements are some of the manifestations of organizational culture (Martin, 1992, p.3).

Institutional structures and practices and more general cultural factors may contribute to the underrepresentation of women working in engineering and computing fields (Corbett & Hill, 2015).

Organizational cultures, together with gender stereotypes and excluding networks determine the career of women even when being in top management positions. Gendered organizations (Acker, 1990) with gendered norms and values are even more deterrent in male domains (Kanter, 1977). In these organizations women as minority are discriminated structurally and gender stereotypes hinder their career even if they perform excellent. In engineering gender stereotypes come together with dualistic gendered technique stereotypes (Wajcman, 1996) and help to define women as 'somebody else' who does not fit. These barriers will be even more effective in informal organizational cultures (Sagebiel, 2016, p.42)

Until the late 1980's, debates on organizational culture had scarcely analysed gendered power relations. In 2002, Aaltio and Mills collect in 'Gender, Identity and the Culture of Organizations' an organizational analysis over the past two decades where the complex interrelationships between gender, identity and the culture of organizations are analysed. It explores how organizations operate as spaces in which minds are gendered and men and women constructed. Business cultures maintain specific guidelines for behaviour and discrimination that are built around the male-female dichotomy (Oakley, 1972; Aaltio & Mills, 2002).

Corporate cultures take men and their behaviours as the ICT worker standard. Gender bias permeates the organizational culture, management and work. It also impregnates the conception of talent and the selection process, career design and promotions (Webster, 2005; Wajcman, 1998; Edwards & Wajcman, 2005); and also impacts the daily lives of women and men and their professional and family decisions

(Aaltio & Mills, 2002; Castaño & Caprile, 2014). Kanter (1977) highlights the difficulty of finding a positive image of powerful women in the corporate culture.

Gender inequality and discrimination in ICT work environments is not only related to the scarce participation and presence of women, but also with technological and organizational cultures. Men, their life cycle and professional habits, are the standard and women, under these conditions, are out of place (Wacjman, 2008; Castaño & Palmen, 2014). The relatively new sphere of technology is no different from scientific or technical areas and has been organized in terms of the same basic cultural system (Woodfield, 2000). In terms of its cultural image, it is perceived as a masculine, not only because the workforce is male, but also because the prevailing culture and ethos of the industry appears to be extremely male (Gale, 1994). Furthermore, women find more difficult to cope with the masculine culture than with the actual masculine work (Evetts, 1998). Awkward feelings of displacement, associated to a 'blich climate', are observed before joining the tech corporate world in female undergraduates attending technology related studies. Brainard and Carlin (1998) found that women cited barriers such as feeling isolated and intimidated blocking the route to their degrees, as well as a loss in self-confidence as they progressed through their major programs.

6.9.1 ICT gendered culture system

As Sagebiel (2016) suggests 'engineering as part of the scientific-cultural system is not gender neutral. Career criteria and measures to make a successful career are supported by male networks and formal and as well as informal networking. In these non-transparent processes, gatekeepers play a very important role (p.42). Cohoon and Aspray (2006) refer

to ICT culture with a specific jargon (incomprehensible for the rest of society) and based on values such as immediate response, conciseness, power and limited social skills (Castaño & Müller, 2010). The ICT culture system with its social norms and values regarding gender, begin long before people actually enter the labour market. STEM schools, specially technology and engineering schools, have a series of differential elements that least attract women analysed by Margolis & Fisher (2003) in their work ‘Geek Mythology’. Amongst other elements that discourage young girls would be its geek culture, hostility towards women, masculine and competitive and far away from everyday practical issues (Burger, Ceramer y Meszaros, 2007; Vázquez-Cupeiro, 2013).

In addition, tech and engineering schools are predominantly masculine which accentuates gender stereotypes, thus stablishing a virtuous circle as described by Castaño and Müller (2010) and illustrated below (*Figure 67*):

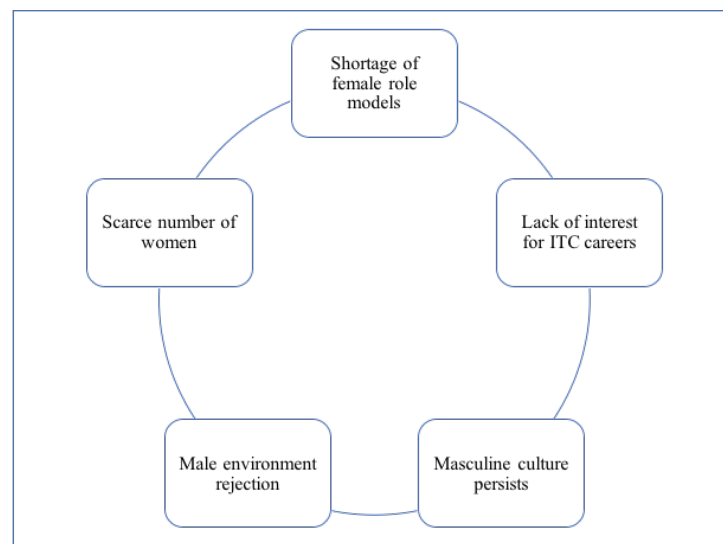


Figure 67: ICT women low presences' negative feedback model (Castaño & Müller, 2010).

Since there is a small number of women in tech and engineering schools, promotions are more complicated and fewer than their male peers (Roberts & Ayre, 2002;

Sagebiel, 2007); since there is a small number of women, they are immersed in a masculine culture with a constant scrutiny that can act as a turn off for other women (Morley, 1999; Bagilhole & Goode, 2001; Husu, 2005; Balgihole, 2005); since there is a small number of women, culture does not change and younger girls perceive these problems and do not feel attracted to STEM careers (Margolis, 2003; Anderson, 2007; Meelisen, 2008; Van Nelsum, 2007).

Sagebiel (2010) findings show that in academia, female staff and students see the image of engineering mostly as masculine and websites reflect this overall impression. Engineering in universities is a male domain with both open and more subtle kinds of discrimination, combined with traditional or changing masculinities of organisational cultures which determine coping strategies by female students demonstrating more or less self-assurance.

Hewlett and colleagues (2008) in their work ‘The Athena Factor: Reversing the Brain Drain in Science, Engineering, and Technology’, confirmed the overall tendency among women in the corporate world to ‘opt out’ of full-time work at a higher rate than men of highly qualified scientists, engineers, and technologists (SET) from 13 different cities all over the world⁷⁴. The findings showed that 52 per cent of female talent left their jobs and identified a ‘fight or flight’ moment, between mid to late thirties, when leaving

⁷⁴ Hidden Brain Drain—a private sector task force comprising 43 global companies—launched a research project targeting women with degrees in science, engineering, and technology (SET) who had embarked on careers in corporations. Sponsored by Alcoa, Cisco, Johnson & Johnson, Microsoft, and Pfizer—and named the ‘Athena Factor’ to honour the Greek goddess of wisdom—this project set out to examine the career trajectories of women with SET credentials in the private sector. Over an 18-month period (March 2006–October 2007) the task force, under the Center for Work-Life Policy and in collaboration with Harris Interactive, fielded four major surveys of both men and women and conducted 28 focus groups in Boston, Chicago, Geneva, Hong Kong, London, Moscow, New Jersey, New York, Palo Alto, Pittsburgh, Seattle, Shanghai, and Sydney.

is more frequent and attrition rates increase 10 years into a career. This ‘fight or flight’ moment combined a series of crucial factors from corporate career and family pressures and concluded that interventions in this vulnerable moment were more effective to retain female talent and reduce female attrition by 25 per cent. This specific moment in working life was also associated to the ‘opting-out phenomenon’ (EC, 2018) described in the introduction chapter (see *Chapter 1 INTRODUCTION*); the phenomenon stated that women left the ICT sector and enter other economic activities to a much greater extent than men, more particularly in the age range between 30 to 44 years, the prime working age and the key stage of one's professional development. Furthermore, Griffiths and Moore (2010) analyzed women that had left the ICT sector in their research ‘Disappearing Women’ which involved five hundred ICT women in United Kingdom; women that had interrupted their career in this crucial moment, whether carried out by maternity or other reasons. Some opted for self-employment in order to manage the rest of their professional lives without suffering stress or facing conflicts; others left the sector definitely (by their own decision or because they have no other election) and a minority group remained in the sector and face another series of obstacles that considered endemic in this field of work: age discrimination or deferred dismissal (Woodfield, 2002; Scott & Webster 2007; Griffiths & Moore, 2010). In their research, they identified four types of transitions amongst workers who retire in that moment: ‘potential returnable’ (those that leave the sector due to an interruption in their career but aspire to rejoin); ‘discarded’ (those who try to return to work but find inevitable obstacles); ‘distanced’ (those who leave and resolve never to return); ‘reemerging’ (discarded or distanced, who later opt for radically different jobs from ICT work) (Griffiths & Moore, 2010).

6.9.2 Gendered identities in the workplace

Most managers of technology companies have an engineering background, central to the social construction of the engineer is the polarity between science and emotion, hard and soft, objects and people. This draws another series of associations that identify women with nature and men with technology (Wajcman, 1991; 1998), even referred as ‘techno-masculinity’ (McNeil, 1987).

Women are seen (including frequently in social science research) as the ‘exclusive carriers’ of gender relations – the bearers of the meaning of sex and gender. In contrast, men are easily positioned outside of the realm of gender relations as the agents of versions of ‘human history’ which gender is not significant. (McNeil, 1992, p.111-2)

Exploring patriarchal elements in the culture of engineering/management, engineers have a clear hierarchy of social values, giving more importance to technical competence than any other traditional characteristic associated to women, such as feelings and bodies. The divide social/technical goes hand in hand with a gender divide that marginalizes the domestic sphere from the technical sphere. The professional life-style is not easily made compatible with parenthood (Murray, 1993).

In addition, even though they work in a safe environment, many male engineers tend to draw on the culturally dominant form of masculinity as if they were at risk and employ military metaphors to describe their managerial work. They project themselves as tough and hard (Hacker, 1981). Images of managers of high tech corporations are embedded of power as they involve mastery of the technology and the control of other people, they represent a new corporate masculinity (Wajcman, 1998).

Faulkner (2000) explores subjective experiences of engineering to argue that ‘engineers’ shared pleasures in, and identification with, technology both define what it means to be an engineer and provide appealing symbols of power that act to compensate for a perceived lack of power or competence in other arenas’ (p.87). This dualism mind and heart, together with this toughness translates into a hostile workplace culture to women. Hacker (1981) understands the attempt to reproduce masculinity and to establish the superiority of the male-linked characteristics and claims is within the framework that absence of women from the technical world can be understood.

Wendy Faulkner (2009) in her book ‘Doing gender in engineering workplace cultures’ collected observations about everyday practices in engineering workplace cultures, which tend to make it easier for men than for women to build working relationships and to ‘belong’ in engineering. She also examined the ‘in/visibility paradox’ whereby women engineers are simultaneously highly visible as women yet invisible as engineers. This paradox is a key to understanding how women engineers experience engineering workplace cultures, and a major factor underlying the poor retention and progression of women in engineering. As Faulkner’s explains in her own words:

I am using the term engineering workplace cultures to capture a rather amorphous collection of practices which characterise everyday interactions between engineers, as I observed and heard them. Specifically, my data concern four main types of practices: styles of interacting, topics of conversation, humour and social networks. Some of these practices are directly work-related, others reflect engineers’ shared identities as engineers, and others reflect their out-of-work lives and identities. These three strands are inextricably interwoven in people’s everyday working lives, which is why doing the job so often involves doing gender. And this is significant because workplace cultures are extremely consequential, in two crucial ways. First, they oil the wheels of the job and the organisation. Second, they shape who is

included and who excluded at work. Getting on with one’s colleagues is, after all, a huge part of how much people feel they belong – and are felt by others to belong. This in turn can have a subtle but significant bearing on whether one stays and progresses within a company or occupation (Faulkner, 2009, p.5)

Further research findings state that women in technical fields often report isolation, a lack of voice and a lack of support in the prevailing masculine culture of engineering workplaces (Hewlett et al., 2008; Servon & Visser, 2010; Fouad et al., 2012; Corbett & Hill, 2015). Hewlett and colleagues (2008) identified a series of antigens in engineering and technological cultures, where women left their jobs in these fields because of hostile ‘macho culture’ (exclusionary and predatory, including sexual harassment), isolation, ‘mysterious career paths’ (women find it hard to understand the way forward, and 40 per cent feel stalled in their careers), rewards being dependent on taking greater risks than many women can accept and extreme work pressure (*Figure 68*):

Antigens in SET Cultures (Hewlett et al., 2008)
<p>1. Hostile macho cultures. Women in SET are marginalized by lab coat, hard hat, and geek workplace cultures that are often exclusionary and predatory (fully 63% experienced sexual harassment);</p>
<p>2. Isolation. A woman in SET can be the one woman on a team or at a site. This makes it difficult to find support or sponsorship (45% lack mentors; 83% lack sponsors);</p>
<p>3. Mysterious career paths. As a result of macho cultures and isolation, women in SET find it hard to gain an understanding of the way forward—fully 40% feel “stalled” or “stuck” in their careers.</p>
<p>4. Systems of risk and reward. The “diving catch” culture of SET companies disadvantages women, who tend to be risk averse (35% have difficulty with risk). Without buddies to support them they feel they can go from “hero to zero” in a heartbeat.</p>
<p>5. Extreme work pressures. SET jobs are unusually time intensive and, because of their global scope, often involve working in multiple time zones (54% work across time zones).</p>

Figure 68: ‘The Athena Factor: Reversing the Brain Drain in Science, Engineering, and Technology’ (Hewlett, 2008).

Another research by Servon and Visser (2010), used data obtained from over 2,493 survey respondents and 28 focus groups, in order to understand the barriers that hinder the retention and advancement of women in managerial positions in STEM career fields.

The majority of respondents reported that they had experienced unsupportive and exclusionary workplaces cultures (Servon & Visser, 2010). Another US report based on a large-scale survey, found that women left because they did not like ‘the workplace climate, their boss or the culture’ (Fouad & Singh, 2011).

In addition, a study of women and men working in technology carried out in 21 tech companies by Catalyst (2008), found that women were more likely than men to indicate that their supervisors were less available and receptive to suggestions and less likely to agree that it is safe to speak up most of the time. In one study of women in private-sector technical jobs, a third said that they felt extremely isolated at work. In the same study, four of 10 female engineers and computing professionals reported lacking role models, while about half reported lacking mentors (Hewlett et al., 2008; Corbett & Hill, 2015).

On the other hand, Ayre and colleagues (2013) research focused in women engineers that stayed in engineering cultures despite many of these women had experienced being marginalised and overlooked in their workplaces. As the observed, female persistence in the profession appeared to be connected to steps they had taken to ensure that their work environment matched their expectations of interesting, challenging and enjoyable work in a supportive and inclusive culture.

These studies confirmed that hostile and exclusionary male attitudes continue to generate and support the discriminatory cultural practices which are still one of the reasons that women leave the profession. Their results emphasized the necessity to tackle the prevailing masculine gendered culture which causes these attitudes to thrive; female retention should concentrate on the social and organizational context and its relationship to gender and status (Fox, 2001).

Organizational culture is not a factor in itself, is made up of different elements that have to do with the age, history of the company, its geographical origin, different locations, etc. The organizational culture has an effect on the behaviour of the people who are part of the corporation, it marks the spirit and guidelines of the workplace, in an explicit and implicit way, and is accepted by workers. This culture is transmitted mainly by the people who hold power in the organization, through powerful messages that take the form of decision and actions. They act as gatekeepers of the organization's culture, in Castaño's own words «the guardians of the organization's essence». This factor has a critical impact on the retention of talent. Corporate culture will assume the behaviour of these gatekeepers as the standard leadership model and this will affect career processes as well as promotion to management positions (Webster, 2005). Organizational culture is, in fact, the main guarantor of male dominance in organizations.

The corporate cultures of ICT companies constitute the environments or scenarios in which women and men participate, interact and relate to each other and build their professional identity. Corporate culture interacts with gender standards and norms from the country where they operate (Pfau-Effinger, 1998), which can facilitate or hinder the participation and position of women. Each culture, even if they are self-defined as gender-neutral, contains important hidden biases that assign different roles to women and men (Castaño & Palmen, 2014).

Organization cultures generally foster respectful interactions, but there are subtle dynamics which make it easier for more men than women, to build effective work relationships and to 'belong'. Faulkner (2009) explained how the topics of conversation are generally quite wide-ranging and inclusive amongst close colleagues, but lean heavily on gender-stereotypical subjects with outsiders, in her own words:

Throughout, we see that doing the job often involves ‘doing gender’. Workplace cultures not only oil the wheels of the job and the organization; they can also have a huge bearing on who stays and gets on. (Faulkner, 2009, p. 3)

Cecilia Castaño (2013) questions whether these features are unique to technology or typical of culture male who create technology and goes on to explore if there is an international ICT culture, above countries and universities. Charles and Bradley (2006) analyse 21 OECD⁷⁵ countries and conclude that the cultural stereotypes persist and coexist with egalitarian liberal principles, even when they have materialized in laws and also in countries with high rates of female participation in university studies and the labour market.

6.10 [Conclusion](#)

The underlying barriers for women’s career advancement presented in this chapter, that inform the theoretical framework of this research, have been studied and analyzed widely since the 1970’s by feminist and organizational theorists to our days. Kanter’s (1977) pioneer work and Wajcman’s (1998) influential research have helped in the structure and guide of the selection of areas of my research. Through the analysis of trends and patterns across literature on the topic, research themes appear to be recurrent over time and, although organizational contexts have transformed significantly, these underlying barriers have remained. The theoretical framework defined in this chapter aimed to present the different underlying barriers, in the form of research themes, women

⁷⁵ OECD is the acronym for Organisation for Economic Co-operation and Development.

encounter in the ICT corporate ladder in the way they have been theorized, conceptualized and researched by feminist scholarship. All research themes appear to be interconnected in different ways, although the symptoms, and described effects may differ importantly. The inter-connections between research themes are complex and intricate: the effects of tokenism on women token, opportunities and power management, brotherhood, sexuality, gender stereotypes, the culture, *manstreaming*... All research themes represent different exclusionary practices but, are they dependent from one another? Are there hierarchies amongst them? Are there new ways of marginalizing women from the centers of power?

In a similar approach to science, technology has been socially constructed to the exclusion of women, it has been conceived as 'universal' despite considering the dominant role of men in an androcentric, patriarchal system. Rather than the 'problem' of women in tech corporation it should be referred as the problem of gendered tech corporations. Analyzed underlying barriers per se, may not seem decisive for female retention or career advancement, but all barriers in every day cumulative practices can be translated in gendered structures that favors men over women, with an impact in female retention or career advancement in tech corporations.

So how does tokenism, opportunity and power management, brotherhood, sexuality, gender stereotypes, organizational culture and *manstreaming* impact in the working lives of ICT women in Spain? And to what extent? Do their experiences differ and, if so, in what way? Do they perceive gender inequalities in their daily work? How do underlying barriers impact their career expectations? Is there a common thread in their individual narratives that has not been explored?

In the next chapter I will interpret the analysis of the results of the qualitative research within the frame of feminist qualitative research methods. I will explore the experiences, perceptions and expectations of ICT women in the workplace, in order to understand their individual narratives and identify possible interconnections between their stories and the proposed research themes identified in the theoretical framework. The analysis of women's individual stories will help understand the dynamics between research themes in the workplace, to establish their relevance and possible hierarchies and to co-create new knowledge around the research question.

7 FINDINGS

7.1 Introduction

The previous chapter informed the theoretical framework to my research question by identifying seven themes of analysis among existing preconceived theories and concepts in the field of research from a feminist perspective. This chapter presents the results of the qualitative research centred on the expectations, experiences and perceptions of female talent in the ICT sector in Spain. As previously detailed in the methodology chapter (*see Chapter 2 METHODOLOGY*), my research is interpretative and informed by a feminist approach framed within the ‘Standpoint theory’ (Harding, 2004) and ‘Situated Knowledge’ (Haraway, 1988) to building theory and co-generating new knowledge based on the individual participants’ critical insights around the research question. As such, it draws upon semi-structured interviews with female participants working in highly male-dominant tech organizations. A set of twenty interviews was carried out in the research and, according to the themes of analysis of the script, to a sample composed of women workers in ICT corporations based in Spain. They were STEM graduates, mostly engineers, and according to the conceptualization of talent within the world of work (Gallardo-Gallardo et al., 2013). They were at different stages of their professional careers, from internships to CEOs, from the most junior positions to the most senior positions in an organization; as described earlier, studies highlight that women leave the ICT sector mid-career to a greater extent than men (EC, 2013, 2018; Catalyst, 2014; Hunt, 2010; Corbett & Hill, 2015), therefore, it is central to this research to include in the qualitative perspective, the participation of women at the start of their

professional careers, at internship levels and more junior positions within the ICT sector. In keeping with this same approach, participants were grouped according to their ages, in four groups of five women each: Group 1 (21-30 years-old), Group 2 (31-40 years-old), Group 3 (41-50 years-old) and Group 4 (51-67 years-old). The individual experiences, perceptions and expectations of each informant were valuable in their own life story. Generational and contextual issues were acknowledged but were not the focus of the analysis of the interviews; informants were placed in their specific age groups in order to understand how these life stories might have evolved over time, how perceptions and expectations may have differed with cumulated experience. Even though the aim of the interviews was to approach the categories of analysis identified regarding the underlying barriers to female presence in technology corporations, other contextual issues were identified (e.g. STEM interests, career orientation, reference models) and are explained in this chapter. The research themes or categories identified in the previous chapter, have been aligned with participants' own narratives and described in terms of how relevant they were and how they were interconnected between each other and the possible presence of hierarchies or underlying relationships. This chapter holds no absolute truths, my thesis brings new knowledge about the perspectives of individual participants at a given time and context; it is participants' personal individual accounts about their experiences, perceptions and expectations in the ICT workplace, as interpreted by the researcher. Within the feminist research methods selected and employed for this research, categorization was not contemplated for research goals; it has been stressed that participants do not represent the 'woman category' but rather their own individual critical insights (Griffiths et al, 2006; Sáinz et al., 2012). However, and in order to answer the

research question, a common thread amongst their individual stories was identified, together with the acknowledged researcher's subjectivity.

7.1.1 A reflexive approach to results

Within feminist epistemology and feminist research methods previously described (Harding, 2004; Haraway, 1988), I employed reflexivity practices of feminist qualitative research in order to interpret the unstructured qualitative data in the form of interviews (Oakley, 1981). Thus, it is clear that as the interpreter, I have highlighted the phenomena and conceptualized the underlying patterns that I consider important, although consciously keeping an open-mind to new narratives and concepts from informants (Kvale & Brinkmann, 2009; Bryman, 2012). It was a privilege for me to have women from the ICT sector, who are virtually strangers, entrust me with a glimpse into their own experiences and thoughts. As explained previously, interviews are very effective in giving a human face to research problems but are also complex and intricate. While conducting the interviews, informants concurred in contradictions, awkward behaviours and individual reflexions that needed to be reviewed in detail in order to understand the connections that lay beneath the informant's initial perceptions, experiences and expectations. Being a former ICT worker myself, many of the situations described were indeed very familiar. I undoubtedly recalled my own experiences and perceptions in the workplace, although did not share them with participants in order to focus on their individual stories and experiences. Due to my broad experience as an interviewer, it was not difficult to reconcile the desire to state my own beliefs and the desire to respect their own opinions without interfering, but undoubtedly my responses were shaped by both the

participant's narratives and my own experiences, perceptions and expectations while working in the ICT sector. It is important to take into account the role of the researcher and how that role was influenced by my life situation and personal experiences. As Rubin & Rubin (1995) clarified, qualitative research does not see the researcher as something that is objectively or subjectively unrelated to the research topic and the research process. On the contrary, qualitative research often produces lasting experiences that may even affect an author's life and ways of thinking. As Harding (1987) states 'the beliefs (beliefs?) and behaviours of the researcher are part of the empirical evidence for (or against) the claims advanced in the results research. This evidence must be open to critical scrutiny no less than what is traditionally defined as relevant evidence' (p. 9). The researcher's own background may affect the choice of what to attend to, what is remembered or what interpretations are seen as plausible; in fact, different researchers studying the same context, might honestly report what they see and yet come to different conclusions (Martin, 1992). Itziar Gandarias insists on Gayatri Spivak's (1984-1985) aim to 'being guards of our own practices' and the need for surveillance from within to help us rethink and question the knowledge embedded in the reflexivity practices of qualitative research. In Gandarias's own words:

Not to use it as a confessional act, a cure of guilt, or a familiar practice, but precisely to give an account of the not always comfortable contradictions, difficulties and situations that we live during the research processes. (Gandarias, 2014, p.11)

Even though being an 'outsider' has been associated with more trust and confidence in women's accounts (Miraftab, 2004), as a former ICT woman, with almost 18 years of service in a high-tech corporation, it was easy for me to connect and understand participants and to easily access their already too familiar universe (Anthias, 2008;

Chereni, 2014). Being a 'recent' outsider, a woman that 'opted out', and considered as a 're-emerging woman' (discarded or distanced, who later opt for radically different jobs from ICT work) according to Griffiths and Moore (2010) categorization, did not pose a threat to my participants who did not see me as a competitor in the corporate 'rat race'. On the contrary, being perceived as an 'insider' (Bryman, 2012) by many informants was helpful to reformulate research questions in a way that could be easily understood by interviewees; main questions, follow-up questions and probes, verbal as well as non-verbal responses to participants' statements, facilitated the flow of information. As an example, in some meetings, informants felt they could avoid certain questions or not answer them at all. Quoting Rubin & Rubin (2005) 'depth is achieved by going after context; dealing with the complexity of multiple, overlapping, and sometimes conflicting themes; and paying attention to the specifics of meanings, situations, and history' (p. 35). In addition, participating in interviews was seen by some informants as a rewarding experience; interviews offered the opportunity to reflect on their own perceptions, experiences and expectations and express themselves in an unusual way. Some informants found it flattering or even cathartic to discuss their perceptions and have an 'insider' listening to them with interest while transcribing the conversation in her computer. In fact, some informants got back via telephone or email to describe further details of the experiences addressed during the interview (see section 7.4 *Interview's aftermath* of this chapter). Initially, the researcher perceived that the majority of informants projected a strong presence with determination and self-confidence; a common narrative of working in an equal opportunities workplace emerged, some informants claimed never having experienced sexual discrimination or working in a sector where meritocracy, instead of gender, prevailed. In general, participants felt they

were treated in equal terms and did not feel mistreated compared to their male peers. However, during the interviews, most of their individual narratives showed certain amounts of disappointment, frustration and familiarity with different practices of exclusion.

7.2 [The invisibleness of the patriarchal system in a gendered digital workplace](#)

The analysis of the unstructured data in the form of interviews allowed for the identification of a common framework for understanding the complex interlocking gendered practices and underlying barriers, in the form of research themes, for women's advancement in the ICT sector. In general terms, my own assumptions regarding the underlying barriers for female career advancement, based on the identified theoretical framework, were confirmed. However, I will argue how results showed a different perception of research themes among participants based on the visibility or not of its outcomes; visible outcomes, such as tokenism or brotherhood, from those research themes whose outcomes were invisible, such as *manstreaming* or culture was key to acknowledging gender inequalities in the workplace. Even though structural gendered practices seemed imperceptible and unquestioned by respondents, its impact on them, was not. Exploring individually each woman's experiences and perceptions, the majority of participants had dealt with confrontation and anger along their professional tracks. Further on, I will describe how it was noticed that the research themes with visible outcomes had a strong correlation with years of service and the effect of time in participant's perception of research themes. Women interviewed in more junior positions were more sensible and alert to gender inequalities in the workplace but were in the

process of learning the social dynamics of the workplace. On the contrary, women with more years of service had adapted to these underlying barriers and, at the same time, had developed strategies, not necessarily to overcome them but, to feel at ease or deal with them. For example, guiding or giving advice about what should be done, assuming ‘not being one of them’, not considering a promotion, putting in more effort ‘that will not pay off’, not being part of male activities, etc. In addition, I will argue how results displayed a lack of women agency that is confronted by negotiations at the individual level as a result of avoiding the ‘women category’ in the workplace. Lastly, I point out how the results showed a common thread to all research themes linked to women’s biological traits. The majority of participants identified women’s reproductive role and other biological differences, as a major impediment for career advancement in all research themes. The reproductive role prevailed over the productive role in most participants’ narratives and was internalized by respondents in a similar way to the ‘rational corporation’ days whereby women workers, after becoming mothers, return to their homes. I have described how this preconceived idea impacts participants’ expectations and perceptions from the very first day they join the corporation. In addition to the above described general results regarding the inter-connections between research themes, specific findings regarding research themes were analysed and introduced, highlighting how the essence of research themes remains intact and their resemblance to previously reviewed grounded organizational and feminist theories in *Chapter 6 THEORETICAL FRAMEWORK*.

7.2.1 *I cannot change what I cannot see*

Each research theme identified in the theoretical framework, could be differentiated as invisible, not consciously perceived by participants and not present in their insights, such as gender stereotypes, *manstreaming* and corporate culture; or visible and consciously present in several narratives, such as opportunity and power management, tokenism/critical mass, brotherhood and sexuality. As will be explained in each section, these themes take form in evidence such as the underrepresentation of female workers, or overrepresentation of male workers, the lack of promotions or leadership roles, the male peers' football team, as well as sexuality self-awareness in the workplace.

On the one hand, 'corporate *manstreaming*' stood out as an overarching research theme and a foundational characteristic to corporations, that were made by men with men in mind. The deriving structural research themes such as 'Culture and identities' or 'Gender stereotypes' were not consciously present in the majority of participant's narratives, thus going unnoticed and unchallenged. These enduring research themes and the relationship of interviewees towards them stood as an unquestionable, given in the corporation as they persist and keep shaping a gendered workplace. On the other hand, and as it will be further explained, the resulting effects of these invisible traits were identified in the form of the following outcomes: 'Brotherhood', 'Opportunities and power management', 'Tokenism and critical mass' and 'Sexuality'.

The following illustration establishes graphically the interconnections that were identified during the analysis of the interviews (*Figure 69*):

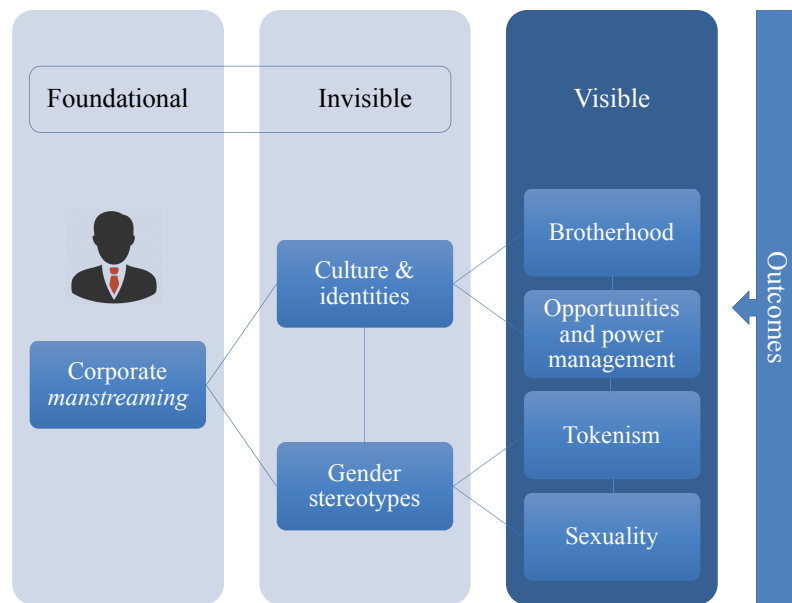


Figure 69: Interlocking research themes in the gendered digital workplace.

7.2.2 Learning survival strategies over time

During the qualitative research, it was observed that participant’s individual perceptions towards identified visible research themes change over time. The impact of years of service was present in research themes that were visible to participants; their experiences over time modified their expectations and perceptions as well as how they related to these research themes (e.g. tokenism, sexuality, opportunities and power management and brotherhood) in a similar way as it has been theorized and conceptualised (Kanter, 1977; Faulkner, 1996; Wajcman, 1998; Powell et al., 2006; Castaño, 2010; Beard, 2018). Based on participants experiences and expectations while climbing up the corporate ladder, the way they perceived sexuality, tokenism and critical mass, opportunities and power and brotherhood was modified over time as will be explained. As explained in each research theme analysed, women respondents learned ‘survival strategies’ in order to manage or avoid the stated underlying barriers for career

advancement. A correlation between these two variables, visibility and years of service, can be established whereby the higher the visibility, the higher the way it impacts in the participants' perception over time, regardless of the relevance of the research theme analysed. The effect of time in participant's perceptions and expectations regarding research themes that were not specifically addressed by participants in interviews, labelled as invisible in the present qualitative research, had a harsher impact on respondents, just like the 'gender shrapnel' effect described by Mayock (2016). Furthermore, they appeared to be enduringly immutable whereby participants tended to conform and/or adapt to (*Figure 70*):

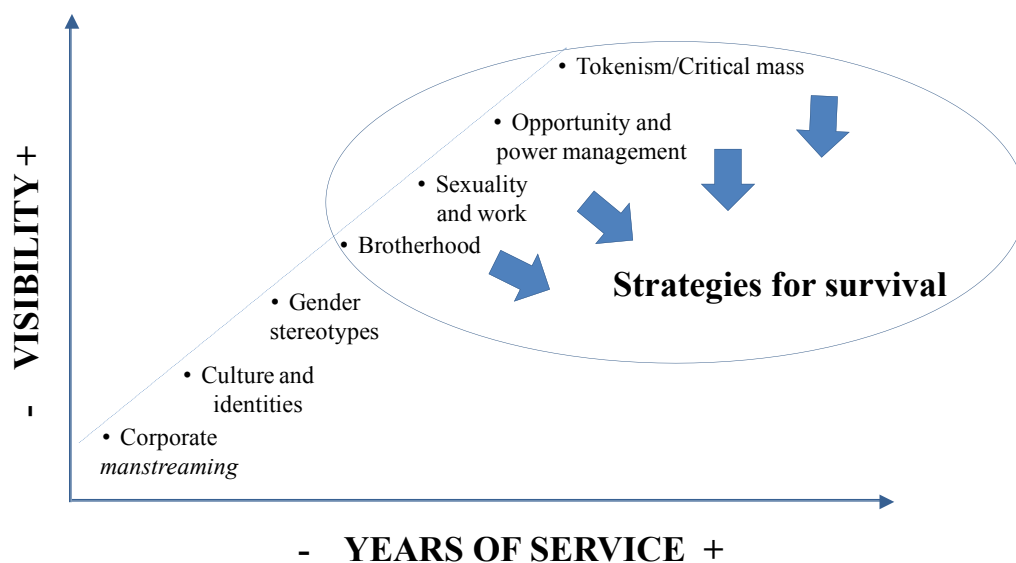


Figure 70: Correlation between tangibility and years of service in research themes.

7.2.3 Rejecting the 'women category' and 'going solo'

Another relevant general finding from the interview's analysis, was the participants' conscious dissociation from the 'women category'. Although it was not

observed in the majority of respondents, it was an identifiable pattern amongst women participants. Narratives referring to women as ‘them’ instead of ‘us’ were frequently identified, more critically in senior participants of Groups 3 and 4. As previously discussed in *Chapter 6 THEORETICAL FRAMEWORK, section 6.4 Tokenism*, it seemed as though token women that had adapted to the male role, held gender bias against the preconceived idea of ‘women workers’ discussed and described by Rosabeth Kanter (1977). Thus, the effect of years of service in visible research themes evolves into the development of individual ‘survival strategies’, that often includes individual negotiations of participants within the corporation instead of identifying common structural needs and organizing as a women’s corporate lobby (*Figure 71*):

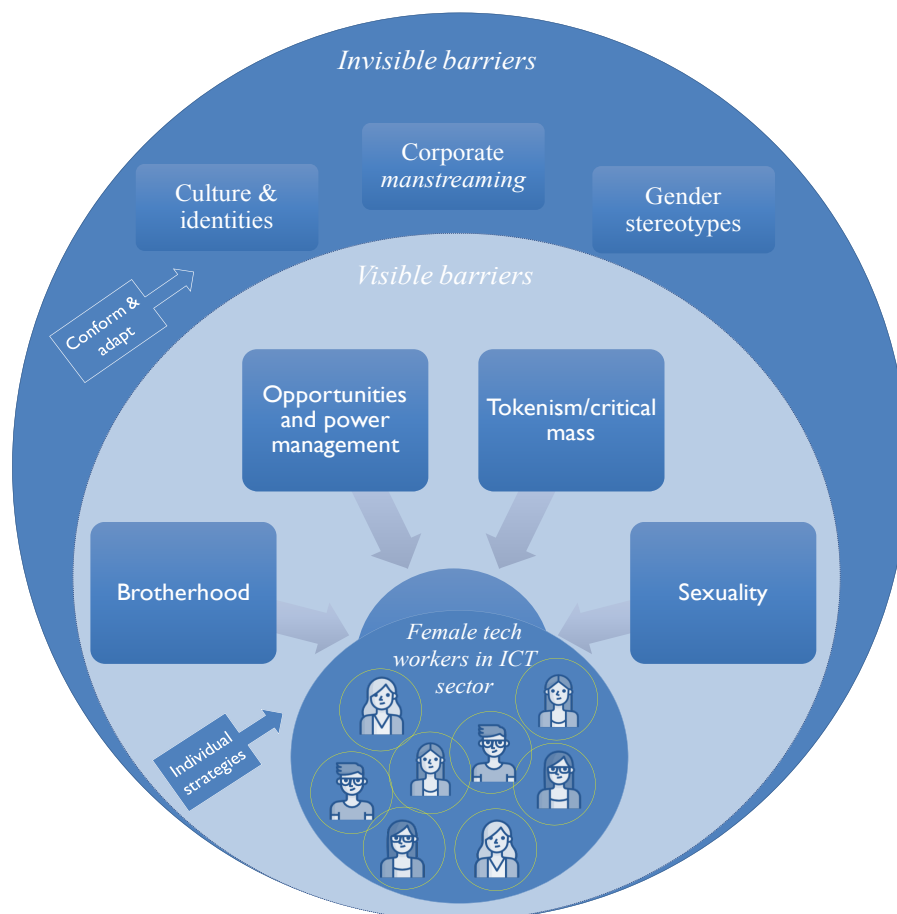


Figure 71: ‘Survival strategies’ to confront tangible barriers are developed individually by respondents.

In order to avoid categorization, individuality of participants was taken into account as well as their interactions between these identity dimensions. It is important to highlight and further analyze the decisions participants adopt within the limitations imposed by the gendered digital workplace and their individual vital context.

7.2.4 Biological traits: Expanding the 'visible' differences to the workplace

During the research interviews, the relevance of women's reproductive role in professional career expectations was introduced by participants in a consistent manner. Motherhood as such, was identified earlier as a binding constraint to the research approach, therefore arguments were presented in order to set aside the matter of maternity and work/domestic balance in favour of exploring less transited literature on subtle underlying barriers. It is a key finding to my research, the relevance of the reproductive role assumption for gender inequalities in the majority of participants. Even though motherhood was purposely absent from the interview script and there was no explicit mention to it, participants concerns around women's reproductive role were brought up as a given in most conversations. Gender roles sustained in biological arguments from the past, were significantly highlighted by participants. As it will be analysed further in the analysis of research themes, motherhood career limitation arguments were brought up by all groups and not necessarily linked to the respondents' having children or not. Furthermore, 78.6 per cent of participants perceived that biological traits determined behaviours in the workplace. Other gender biological differences were present in research themes, such as body differences (e.g. bust, height, size, hair), attributed differences (e.g. strength, tone of voice) or bodily processes, amongst other physical differences. Initially,

most participants pointed out as the main barrier for women advancement in the ICT sector, the most visible and tangible of gender differences: those that correspond to biological differences.

7.3 [The essence of research themes remains intact](#)

The analysis of the data collected for each research themes was linked in a significant way to the theoretical body of research. Participants described experiences, perceptions and expectations that resembled in many ways the phenomena and behaviours described by organizational, management and feminist scholars. Within different timeframes and locations, the underlying barriers for women's advancement described in the theoretical framework of this research are closely related to those experienced by the research participants, as will be explained in the following sections. Research themes are presented based on their level of tangibility and visibility: on the one hand, tokenism and critical mass, opportunity and power management, sexuality and brotherhood and on the other hand, gender stereotypes, culture and corporate *manstreaming*.

7.3.1 *Token woman: From an advantage to a poisoned chalice*

Throughout the interviews and observations, it was easy to identify the consequences of being the few among the many, consequences which include not only women's treatment by others, but women's behavioural responses to the differential treatment they receive. Kanter's (1977) perceptual tendencies – visibility, contrast and

assimilation –, described previously in *Chapter 6 THEORETICAL FRAMEWORK*, were found in all age groups of informants. Visibility creates overwhelming pressure to perform successfully, and tokens tend to respond with either overachievement or underachievement, each of which presents obstacles to further advancement in the organization (Kanter, 1977; Zimmer, 1988). Tokenism effects were consistently present in the discourse of participants, more so, with their background in male-dominated spaces since their STEM university years. During those university years, visibility of participants as token women was always experienced. Most informants perceived visibility in a positive way, being token women made them feel different but not isolated in class. As per quotes below, many participants went as far as to perceive it as an ‘advantage’ in their early days (albeit, other women seemed to ‘disappear’):

At University we were the queens, our male students treated us better than anyone. Being just a few was a very big advantage. At an academic level, they treated us as equals, we even had a reputation for being smart girls... In our first year, we were around 30/70, but then most female students disappeared. (Group 2)

We took advantage of being few women, it was an advantage to be a woman. (Group 2)

My classmates were mostly boys, I always felt protected, happy, they spoiled me. They are still all my friends... (Group 3)

As previously described in the theoretical framework, Powell and colleagues (2006) identified a common behaviour amongst women engineering students to value positively their ‘novelty’ status. In fact, many of the interviewees responses are similar to the responses collected by the authors in their study. As acknowledged by the authors, this so-called advantage seems to lose its positive effect in the workplace as informants climb the ladder; years of service impacts the perception of participants with time and ‘being

special' is translated into feelings of being 'the odd one out'; tokenism starts to be perceived as an obstacle for token women, some women perceived this differentiation as patronizing.

Thus, as women continue in their profession, they may realise that issues that are currently viewed as positive, can hinder them from progressing in their careers at the same rate as their male colleagues (Powell et al., 2006, p.695).

The effect of visibility is translated into self-consciousness at the office. Studies have suggested that the feeling of responsibility or self-consciousness diverts the token's attention from the cognitive task at hand and therefore can result in deficits in problem solving and memory (Saenz, 1994). The transition from college years to the corporation is confronted especially by participants in Group 1. In contrast to their university years, participants felt awkwardness and disliked being token women. However, most understood it was temporary and a matter of time and were optimistic their performance would change the way they were perceived. As one female consultant said:

It is very clear to me that I am THE girl. Personally, I aspire to reach very high in my professional career. However, in the little time that I have been working, I have already felt uncomfortable for being the only woman. (Group 1)

Contrast is another perceptual tendency identified amongst informants. Gender stereotypes are exaggerated in order to separate token women from the dominant group. Informants understood stereotyping comments are frequent in the workplace, and part of their experiences as women workers. Colleagues will assume women are concerned about fashion, child care and diets, amongst other gender stereotyped interests. An informant had experienced not being invited to a team lunch because it was at a Mexican restaurant and their male colleagues though she was on a diet, another woman felt like football

conversations stopped when she showed up at an all-male reunion. Even language is a factor that accentuates contrast, swearwords are avoided or excused when a woman is the room, making it obvious that certain expressions used frequently amongst men are not suitable for female colleagues. In the own words of a female manager participants:

If I am the only woman in the meeting, I am always the one to write on the white board. They beg me to do it, they say women have better handwriting. I don't mind. (Group 2)

As discussed in the theoretical framework, tokens often feel they represent their minority group (Laws, 1975; Castaño, 2010). Evidence of this perception was captured amongst participants:

I shouldn't laugh about it but at a team meeting, we discussed diversity issues. My manager said it was an important matter and wanted to work on a diversity initiative. He told me to lead the initiative since I was the only female in the team. Why? That doesn't make any sense? Just because I am the only woman? (Group 2)

The effect of time, in the form of professional experience in male-dominated work arenas was key to how female senior managers perceived tokenism. Women exposed to being tokens through the years (mainly in Group 4), felt managing tokenism was part of the job, being a '*rara avis*' (Group 4). Some participants felt in their comfort zone as tokens:

I am always the ONLY woman and I do not even realize it. It shocks me if there is another woman. (Group 4)

Cases of isolation were scarcely identified during the interviews, even though some participants (mainly in Group 4) identified men in the Executive Board as 'them' and 'me'. Even though it was not expressly acknowledged by the senior participants, being the researcher I perceived in some expressions a sense of lack of belonging.

Over the years I gained credibility, before they take an important decision, they'd always ask for my opinion (Group 4)

Senior managers in leadership positions felt more identified with tokenism, Group 4 participants had felt like token women most of their professional careers. However, participants that occupied junior positions (mostly Group 1) were a significant minority, there was a critical mass of women; only in one case, a participant was the only woman in the dominant group.

Along the lines of critical mass theory, Powell and colleagues (2006) findings were identified in some participant's experiences, perceptions and expectations - such as the acceptance of gender discrimination, viewing the tech sector positively, valuing their novelty status and being critical of other women. As for the acceptance of gender discrimination, an important observation is the fact that more than 43 per cent of respondents claimed their organization to be equal opportunities employers based on meritocracy and 'up or out models'. On the other hand, none of the informants had experienced equal representation at the executive level in their organization.

As previously analyzed (see sector 6.4.2 *Critical mass*), women often insist that they work in a gender-neutral territory that has equal opportunities for men and women (French, 2005; Castaño, 2008). All participating women thought equal opportunities were important, the majority of respondents identified the added value of working with diverse perspectives (70 per cent) and retaining the best talent without gender bias (30 per cent) as shown in *Figure 72*:

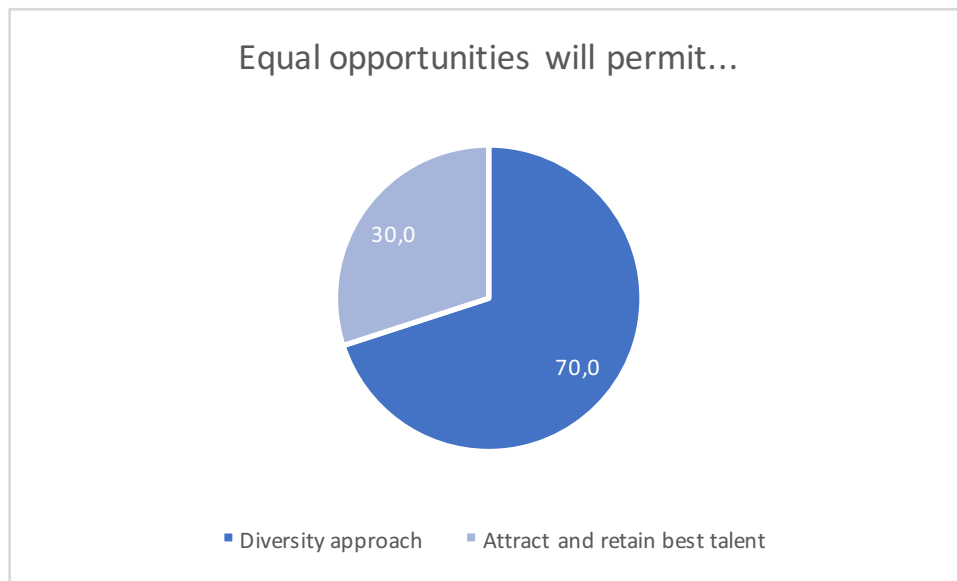


Figure 72: Understanding the benefits of equal opportunities perceptions by participants.

7.3.2 Opportunity and power management

7.3.2.1 'The motherhood threat'

As for the opportunity and power management research themes, participants showed similar perceptions regarding the behaviours explored and described in the theoretical framework. Informants top three motivators were associated to promotion opportunities in the workplace: decision making, acquiring more responsibilities and opportunities to lead others. As per Kanter's (1977) research, women managers manage in much the same way as men managers within the same specific context; motivation, aspirations and recognition are shaped by organizational imperatives. The factors that less motivated informants to advance in their careers were related to competition amongst peers or human resources management related issues such as raises, promotions or

terminations. The following figure shows informants ratings of elements that motivate them in their career advancement (*Figure 73*):

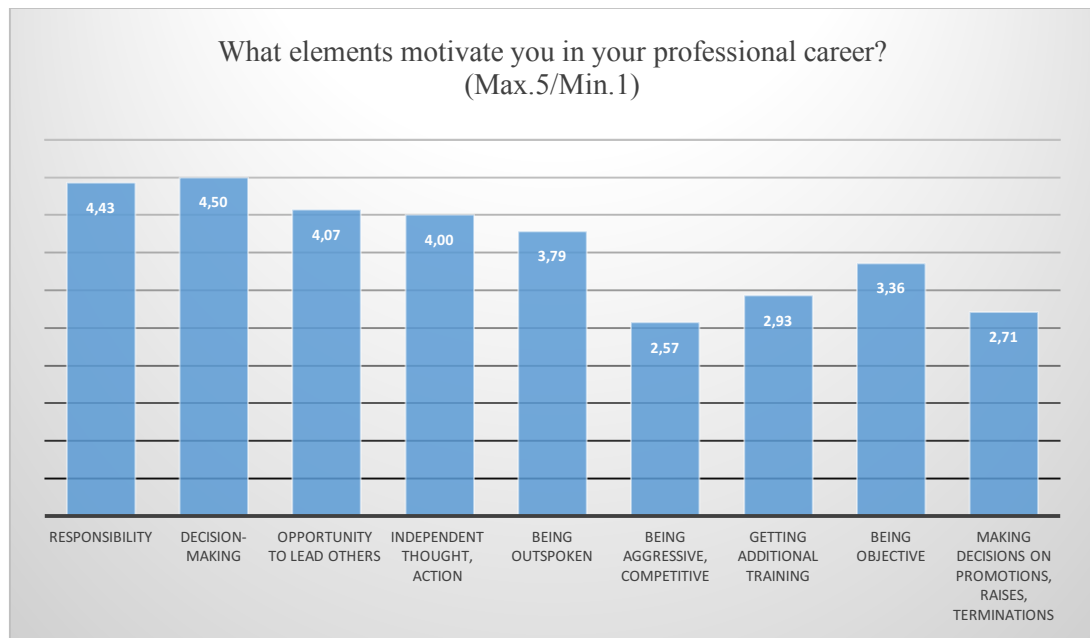


Figure 73: Informants career motivations.

Opportunity and power management perceptions and expectations differed between participants age groups. Years of service is key to understanding how work experiences condition the way opportunities and power are perceived over time. Age is an important factor, and experience and the position held in the corporation are decisive. In the following figure, informant’s responses have been disaggregated by age group, results show that junior positions are more motivated as a general norm in all categories except for being more competitive and making difficult decisions (e.g. promotions, salaries, terminations), a category that increases significantly with career advancement, senior positions rank it higher than the more junior positions (*Figure 74*):

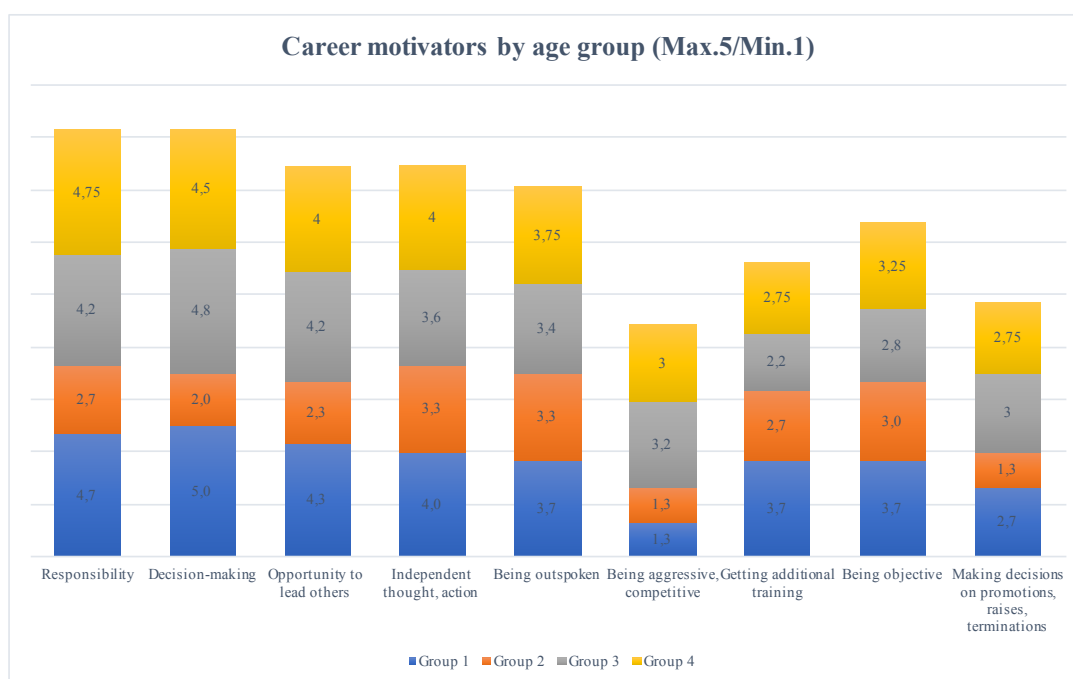


Figure 74: Informants career motivators by age group.

Below two quotes have been transcribed from participants at different stages in their professional career. They belong to junior participants with a positive perception about career advancement and that saw no barriers, except those derived from reproduction:

I see no barriers to becoming a partner, I have a strong internal and external support network, excellent relationship with partners. I also have a great business track. Unless I become a mother, then I might face some trouble... (Group 1)

My boss listens to me when I speak. He believes that I know how to do my job better than he does. I am very autonomous... I know how to take decisions and people like that. I see myself as a manager, holding a good position within my organization. (Group 2)

On the contrary, senior participants (40 per cent in Group 3 and 75 per cent in Group 4) had come to terms with their position and did not feel they could advance, whether it was limits imposed by the organization or by themselves:

No, I have no limits, my limits are self-imposed. At the moment, I have no interest in taking on new responsibilities... My own internal barriers have affected me. Maybe if I had ignored them... maybe the organization

would have imposed them, I don't know. Maybe I had no choice. (Group 4)

As explained earlier in this chapter, all group segments considered motherhood a decisive barrier to career advancement, establishing an unquestionable relationship between motherhood and opportunity, understood as expectations and future prospects and how it defines the way people involve themselves at work and how their behaviour might account for 'sex differences'. All women interviewed faced similar motherhood prejudices even though some might have refused to be mothers themselves, the phenomenon of motherhood perceived as a crucial professional career threat by informants at all stages will be discussed further on in this chapter. Senior women informants without children perceived motherhood as the main barrier for career advancement, and so did the more junior informants without children, both expressed this barrier as the most important one for promotions and corporate opportunities within the organization:

It's a sector (ICT) that demands many hours of work. Women have to take care of the family and men do not have to. Opportunities cannot be the same. (Group 1)

A confident young woman expressed her limiting beliefs towards motherhood in career advancement and the importance of prioritizing the productive over the reproductive role until reaching professional goals:

I think I could be CEO... I do not think motherhood will affect me. I would like to have children later in life, in my late 30's. Before that, I have almost 15 years to exploit my career. (Group 1)

Taking into account the researcher's perspective, I found it disquieting for a young working women to accept without doubt the futile effect of motherhood in the opportunities for professional growth:

I like my job now but in the future... You just cannot grow professionally... you must reconcile if you have a family. (Group 2)

Even female managers with children, that had resigned to family life in favour of full-time jobs, understood there was a penalty for being a mother regardless of their corporate availability:

I've had a break in my career when I had my children. Even though I never asked for part-time and always did overtime... I have worked at all times ... but deep down my focus was on the family. Since my daughter was born and until she was 12 years old, I have always been thinking about my children. Right after giving birth, I was assigned to a project in another city, I only saw my daughter on the weekends... If it happened to be a weekend without work... I didn't do any networking, nor did I promote myself or anything. I thought that doing my job well was enough ... I needed someone to tell me then that working hard was not enough ... I wanted to show that I could do the same as my colleague next door and also, be nice, a good-sport, a good girl ... dealing with everything, being always a collaborator ... When I learned this was not enough... I was already too old... I was already 40 years old. (Group 4)

As explained previously, years of service is also a key factor in order to understand the different perceptions, for example, a senior women participant made rather bitter statements regarding missed opportunities showing how she had developed strategies based on her past experience in the corporation:

I always thought that my children were the problem but... I always worked as hard, with the same levels of engagement. I have never been out of work ... I've worked pregnant until delivery... I tried showing that I could do the same or more (overtime, complex assignments, mobility...). If I had known then, what I know now... I would be manager with or without children ... (Group 4)

In general terms, it is interesting to point out a significant trend in participant's expectations and perceptions regarding career advancement and opportunities altered by the concept of motherhood or family. Another example of this preconceived idea and its corollary effects was shared by a senior manager:

I'm in a transitional period, I do not know if I want to advance in my career... either vertically or horizontally. My son is older now, so I think I can grow again... he is 5 years-old, I can travel and stay away from home for a while. (Group 3)

There were other participants grateful for career advancement, recognized by the organization, and new promotion opportunities despite their motherhood:

I must speak very well of my company. A week after my child was born they called me for an interview face-to-face with my new boss. They gave me the position! I was always connected during my maternity leave, calling people, reading things ... it was a crucial moment. Lots of networking from home... I knew a colleague wanted my position but I had my own informants. It was because I was picked up for the job even though I was on maternity leave, although the truth is I worked really hard on it. I was never missed, I was always there... vigilant. (Group 4)

Another interesting aspect to point out was the age bias senior women go through. Opportunities for more experienced women are scarce and unusual, the message is visible and out there. Senior women tend to be more aware of gender related inequalities they have experienced, although do not tend to see them as structural and common to other women:

Oh, at my age... They let you know you have no future. You start to think you have to leave the company. (Group 4)

I would like to have a senior leadership position to influence directly, not only indirectly, on my organization's decisions. But... it's not up to me at the moment, not anymore. I have shown everything: good execution, international projection, visibility, results ... I intend to persist. I feel especially guilty for not having known how to play my own cards ... and when I learned how to play, it was already too late ... (Group 4)

7.3.2.2 *Managerial empowerment?*

The theoretical framework holds different academic definitions of power (see *Chapter 6 THEORETICAL FRAMEWORK, section 6.3.2 Power management*), though from different perspectives they share a common thread: resources management (either human and/or financial). In fact, power management in corporations is often represented by direct reports and budget assigned. Asking informants managers about the size of their teams or people under their supervision, was not a comfortable question to answer, especially for the more senior managers. In some cases, there was a shared explanation by respondents as why there were no direct collaborators: most managers, senior managers and directors had a functional-based relation with team members, the nature of the relation was not hierarchical. Some respondents had, as part of their responsibilities, to coordinate team members dispersed in a different hierarchical structure. As explained earlier, multinationals involved in the research tend to evolve into matrix organizations, in such case, a team member can report to different hierarchical and functional managers. Women informants had few to no people for whom they are directly responsible, in fact, there is an average of 1,8 people reporting directly to informants, there is an exception not included in the average of one respondent with a team of more than 65 collaborators.

As we can appreciate in *Figure 75*, the average of people reporting directly to informants decreases in age Group 3 and Group 4, mainly occupied by senior management positions:

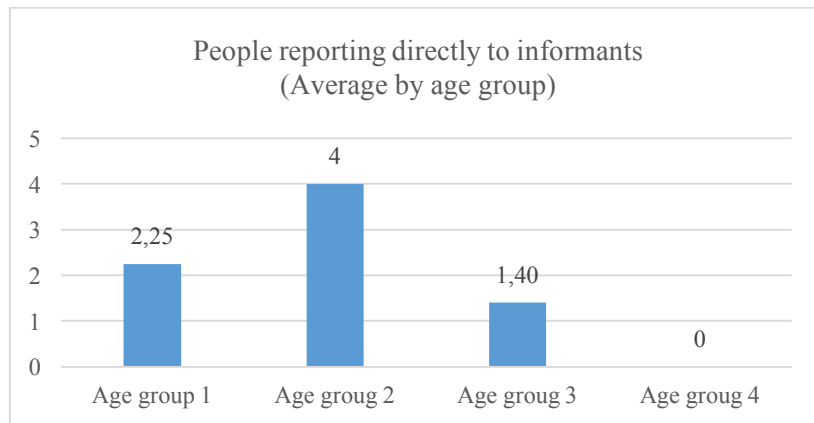


Figure 75: People reporting to informants by age group⁷⁶.

Wajcman (1998) observed in her own sample in ‘Managing like a man’ that women at managerial level are not always executing managerial responsibilities. She found a marked sex difference in the numbers of people for whom respondents are directly responsible, whereas 65 per cent of the women manage fewer than 10 people, this is true for under half the men and over 20 per cent of the men manage more than 50 employees, whereas only 12 per cent of the women carry similar managerial responsibilities. Men are more than twice as likely as women to have responsibility for over 100 employees. At the beginning of the 20th century, Mary Parker Follett, known as the ‘Mother of Modern Management’ together with Lillian Gilbreth, believed that management was the art of getting things done through people; organizational theorist Harold Koontz and Cyril O’Donnell (1968) stated in the ‘Principles of Management’ that management was the art of getting things done through others and with formally organised groups.

⁷⁶ The presented data does not include the CEO in Group 4 with 65 direct reports worldwide.

During the interviews, participants described other situations where they experienced powerlessness in the workplace or lack of capacity to influence in the organization from their position regardless of resource management:

The way of doing business in Spain is very masculine and it seems that we have to masculinize it to be taken seriously. (Group 2)

My team, my project... they will do as they are told but... when I'm at an executive meeting I don't feel empowered. My boss will pay attention to what men have to say and after trying for a while, I will just keep quiet. (Group 3)

Future research should contemplate understanding the perceptions and expectations of male managers in tech companies, in order to look out for similarities or differences.

7.3.3 The sexualized manager

The qualitative analysis shows that sexuality prevails and holds a strong position in the ICT sector today. Wajcman's (1988) research evidenced that there were contradictory demands of being feminine and being business like, although institutionally ignored by organizations, 'women are sexualized in a way that men are not; the male sexual imagery pervades the symbolic order of organizations' (p. 8). Initially most of informants were perplexed with questions regarding sexuality in the workplace; explanatory details had to be provided with information of previous research on the matter or examples of types of sexual discrimination. Contradictions were identified while conducting interviews since most informants made it clear that they were treated as equals and felt the same as their male peers but described everyday uncomfortable situations regarding sexuality (more so in the younger groups). As explained earlier in methodology chapter, this category of

analysis was incorporated in the theoretical framework after the interviews took place since it was not included initially; recurrent allusions to sexuality in participants' narratives were acknowledged by the researcher and thus incorporated. Moreover, 68.8 per cent of respondents stated that sexuality was relevant in the workplace.

Analysing and coding results it was rather obvious that years of service is a factor in the experiences, perceptions and expectations of informants. As a sample, informants in Group 1 felt uncomfortable with comments, mostly from their male peers, about their own physical attributes. Some assumed it was related to being new hires and something they had 'to deal with' and understood it was temporary. Teasing and 'normalized' harassment from their opposite-sex co-workers were much more intense for women in this age group. Below are the reflexions of two junior women that portray these perceptions:

Now I do not care, I assume the beauty role, but sometimes it pisses me off... I do not want it to go on when I finish my internship and hold a junior position. (Group 1)

Yes... they are always making comments about my looks. They tell me that 'not only are you very good, you also look very good'. It annoys me but I know how to deal with it (Group 1)

Previously theorized signals of self-consciousness were part of participants' narratives and feelings of undervaluing their talent over their physical attributes at important business meetings. Another woman informant understood she was taken to client meetings because of her looks:

I think that they take me to meetings for my looks rather than my expertise. I have almost no experience... Still they take me to meetings with clients, I think it is because I project a good image. (Group 1)

However, a different trend is identified in more senior groups. Senior women in Groups 3 and 4 seemed to have accepted or normalized their sexualisation at the workplace. Some thought of it as an advantage for women, even considered it a useful ‘weapon’ as shown in *Figure 76*:

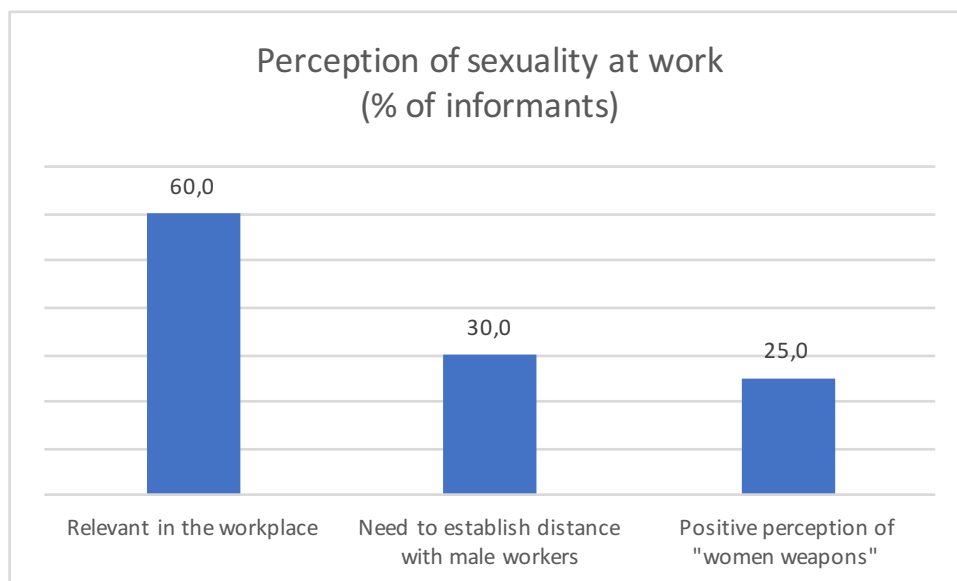


Figure 76: Perception of sexuality at work

Women’s sexuality in the workplace was acknowledged by some participants that had developed ‘survival strategies’ based on cumulative experience whereby their sexuality was projected in order to comply or even to seduce their male counterparts. On the contrary to junior participants, senior women did not show feelings of anger or bitterness, they felt at ease with their sexuality and joked about it. Several women used the term ‘women’s weapons’ to refer to their sexuality in the workplace. One informant had repeatedly used her sexuality to manage challenging issues with success:

I was sent to the UK to a project with a car company, my English level was bad but I had to get information from the client. I approached men using my ‘women weapons’... and knowledge, of course! to get the results I wanted: being nice, smiling, etc. I was aware that I was using them to get the information I needed. (Group 4)

Some senior managers felt empowered by sexuality, the way they dressed, talked and smiled was perceived as a space they could easily control. Two senior managers out of the five women in Group 4, could fit the stereotypical role of ‘the seductress’ described by Kanter (1977) in *Chapter 6 THEORETICAL FRAMEWORK, section 6.5.1 Women stereotyped roles*. One informant in this group, described how her sexuality made her life easier at the office in different ways:

When I became a partner, they told me to stop showing my cleavage at the office... To dress more ‘professionally’... Ha! But then they regretted it! They told me to continue to do so (laughs). The truth is I like to seduce. It's a like a weapon ... The slit of the skirt... I don't know... It gives you power, you go into the meeting with a smile and it surely makes things easier for you. (Group 3)

As analysed previously in *Chapter 6 THEORETICAL FRAMEWORK, section 6.7.2 Cover for success*, female clothes are perceived in a different way to male's. ‘How to dress up and when’ was identified as a relevant issue in some participants as lessons learned over time. The existing complexity regarding women work attire is unthinkable in men work attire. The power embedded in female clothes was described by two different senior managers, in a detrimental way towards the ‘Seductress’ stereotyped role:

Men are the weaker sex ... you show your cleavage and you have them dominated... I always say the same thing. In business, women need to a chapter on ‘how to be dressed’. Many women make sure to show their cleavage and miniskirt to have it easier at some meetings. It's a strategy tool. I don't like that. You have to look powerful but not sexy, you have to feel like the CEO. I don't want to send the wrong message. I came here to work. (Group 4)

There are very seductive women, but you do not make yourself respected. I have used it unconsciously because you want people to like you, I do not want to be liked anymore. I want them to see me powerful. I do not take off my stilettos ever! Not even drunk! We have to look to each other in the eye and they are all over 1.85... I always wear huge rings; long hair gives me power. (Group 4)

Other women rejected such seducing behaviours and had developed survival strategies oriented to blocking out their sexuality in the workplace, the ‘blending in’ strategy, attempting to be unnoticed. Desexualisation might be seen as a protective strategy but probably can lead to Catch22 situations (feminine vs. business like) as described:

Some women tend to seduce at all times. I think you lose respect. In the past, I have used it unconsciously because you want to be liked, I do not want to be liked anymore. I want to be appreciated for what I bring to the company that is differential, not for my legs. (Group 3)

In addition to dressing up, potential sexual behaviours affected the way informants established relationships with their supervisors in a drastically different way than their peers. Male bosses can be perceived as a sexual threat in certain situations that are perceived as everyday office life by most males (i.e. going for a beer or staying late at the office). Survival strategies were applied in hierarchical relationships when men were supervisors, but not with the same intensity in the case of male peers. However, one respondent systematically refused all situations that could mislead or be interpreted in a sexual way:

You have to put a barrier because they can misinterpret a series of things... You know... dinners, beers... I never have accepted an invitation from a male colleague or boss! You never know. (Group 3)

The majority of the participants interviewed did not feel threatened by male peers or direct reports sexual behaviours, in fact, a few women interviewed had met their partners in the workplace:

I met my husband at the office. I’ve been attracted by many colleagues. Sexuality is always there. It is a motivation to work better for both men and women. (Group 3)

Regarding sexual harassment, most of informants were unaware of this type of discrimination in the workplace. They considered that sexual harassment took place in other workplaces but not in ICT multinationals. They stated that the majority of sexual relationships in the workplaces were always consented. During the interviews, the researcher brought up the #metoo movement latest events and mentioned specific findings in the ICT sector (Mickell & Madansky, 2016). Their understanding of 'sexual harassment' in the workplace was limited to extreme forms of sexual harassment mainly physical contact or stalking the women worker. Verbal or visual forms of sexual harassment seemed to be normalized within the workplace, more so in Spanish corporations; informants from Anglo-Saxon multinationals, stated that any type of sexual harassment was immediately discouraged by male and women workers and could have severe consequences for the employer that perpetrated them. Yet, independently from the corporation they work for, senior women were more open to talk about sexual harassment in the office. In general terms, they felt this type of discrimination had decreased in the last decade and had learned to manage it on their own terms:

It's an old issue ... before it was more usual... especially with secretaries, they were approached by male peers constantly... (Group 4)

Sexual attraction is there, in the workplace. You have to learn how to handle it. I think the ICT sector is privileged because it is not very often that you feel harassed. Although I do have to endure sexual metaphors almost on a day to day basis. (Group 4)

Younger and single women (mostly in Groups 1 & Group 2) seemed to deal more often with a normalised verbal and non-verbal type of sexual harassment. In fact, as seen previously, single women are more prone to be seen as sexually available by their male colleagues and vulnerable to out of place sexual behaviour by them.

There is a lot of that (verbal and non-verbal sexual harassment) going on in the office... specially at junior levels (Group 2)

Only one informant had experienced sexual harassment. Initially, she thought she could handle it on her own but soon realized it was more complicated than she thought. Before things getting seriously out of hand and when she could no longer cope with the situation, she reported to her direct supervisor since she was not aware of any corporate protocol against sexual harassment implemented. As a result, her male peer was told off and he immediately stopped his behaviour. Reporting sexual harassment incidents are rare in the ICT sector and other male-dominated spaces; in fact, few women report incidents of sexual harassment because of fear of retaliation and ridicule, and in order to protect their professional interests in a context where such complains are often not taken seriously (Collinson & Collinson, 1996).

7.3.4 The unreplaceable male bond

The results of the analysis of the data collected during the interviews showed participants perceptions, expectations and experiences around the ‘brotherhood’ research theme and its impact in corporate socializing and career advancement. Brotherhood is a core element of organizational life in tech corporations where years of service is crucial in the development of participants ‘survival strategies’, although it is perceived at early stages of career advancement. Some junior informants shared awkwardness and doubtful feelings of not belonging to informal social networks, it was a perception difficult to explain with words but evidently experienced:

My female peers feel quite awkward because they are women. They feel that their boss has a better feeling with their male peers and they feel like outsiders ... or do not know how to behave. (Group 1)

I don't know... I have a weird feeling that my presence is something that does not fit in meetings. I can't describe it! (Group 1)

As previously explained, even though the majority of participants felt a palpable 'otherness', most participants consciously made an effort to adapt, something that is not required or experienced by male colleagues in a similar setting were women are usually more restricted:

Surrounded by men or in a meeting, I think that although there is equality ... yes you have to make an effort to adapt ... because initially if there is a group of guys then you have to make an extra effort not to stay out. (Group 2)

Efforts of managing 'otherness' were not exclusive of new hires, the need to adapt perpetuates while climbing up the ladder and was identified in other age groups:

With my boss and my male colleagues... I always feel like I need to catch up... Relevant decisions are not always discussed at meetings, they are communicated at meetings but discussed in the bar (Group 4)

Junior informants connected the 'outsider' feeling with being isolated from the dominant group, participants with more experience and years of service brought a sideway impact to the equal opportunity dimension in the way of similarity bias and favouritism. Interviews findings showed that the 'boys club' is a consistent recognized underlying barrier to advancement in their organization, as was theorized in the theoretical framework. All female senior managers interviewed had identified all-male networks as a mean for information exchange, sharing resources, diffusion of achievements, promotions and project assignments that excluded them from the circles of power (Bras, 1985; Haeussler, 2011). Participants identified the power of the boys'

club from an expressive perspective, making corporate life more enjoyable, and from an instrumental perspective for personal contacts and career advancement:

It's complicated when your boss is a man. He will likely promote your male peers before you. (Group 3)

There is a story that I lived ... people look for their peers. Companies are full of men, and that's why they look for their peers. (Group 2)

I worked a lot, my work was always very good, I was a perfectionist. I thought that that would get me very far. When I was 32, I realized that I would not go far ... that I was a woman. You realize that men that start their careers with you, become pretty soon managers and you don't... They have their friends... (Group 3)

Listening to their individual narratives, their perception of 'brotherhood' in the workplace was that of an irreplaceable bond between men, regardless of their seniority within the corporation, a networking space that allowed junior men to access and contact corporate top management positions. These informal social networks shared un-written, all-male rules and activities, defined in their own male terms with an access criteria reduced to being a male (Singh et al., 2002). Female senior managers interviewed were witnesses of the dynamics of these networks where women might be formally present, due to their position within the corporation, but where the male norms and all-male dynamics prevail in many ways in which women are systematically excluded:

Oh yes... the executive team dinners ... on Fridays ... I felt a bit excluded... They were all talking about their new cars, their beach house, golf merits... They all came along with their wives... I was the only executive woman and did not know where to seat! (Group 4)

These structural established all-male practices were identified by several female managers at different age groups. Some junior participants did not feel being left out deliberately but rather self-blamed themselves for not joining in:

I have never been left out but... In fact, I always receive invitations (beers, basketball ...) although I do not play basketball or drink beer, so I can never join... (Group 1)

These exclusionary practices are not only evident in informal settings and/or leisure time with colleagues or supervisors, it can also prevail when ‘doing business’. Experiences described by some senior managers included informal social networks with clients (e.g. football match, having drinks, lunch, etc.):

If you take a quick salad for lunch... you won't make it to partner! (Group 3)

Some went further to indicate fields that could not be transgressed, feeling that male workers had the unavoidable power to exclude them:

Then there is clubbing and whores... there you cannot compete with your male peers (Group 4)

As analysed previously, sexuality and sexual behaviours play their part too. Women and men refrain themselves from attending informal meetings and gatherings considering sending out wrong messages or possible office gossip, the sexual factor limited importantly the implementation of adaptation strategies. It was very tangible for many informants yet no alternatives or strategies were developed to overcome them. Years of service reinforced participants’ perception of the importance of ‘brotherhood’ for being successful in tech corporations yet with feelings of acceptance more than resistance. Several women interviewed, probably due to the participant selection method through a professional women’s network, had joined all-female networks outside their organization or belonged to all-female STEM groups. No relevant findings were identified regarding the impact of these networks in advancement when analysing collected data analysis, although motivational factors were clear.

7.3.5 Managing social discrepancy as a (wo)manager

An initial approach to the analysis of the qualitative data collected from participants brought findings regarding gender stereotypes in career options. Only 28.6 per cent of respondents were keen on developing a career in a STEM field during their school days. Concordant with other research from the field (Honey, 1994; Martin 1992; Schofield 1995), career options responded mainly to pragmatic and related reasons such as the desire for secure employment, its versatility, encouragement from others and employment offer and demand needs. All of interviewees to the exception of two women, were outstanding performers in STEM subjects and enjoyed them in their school days. Career guidance was predominantly influenced by the fathers (some of them were engineers themselves or would have liked to be engineers) (*Figure 77*):

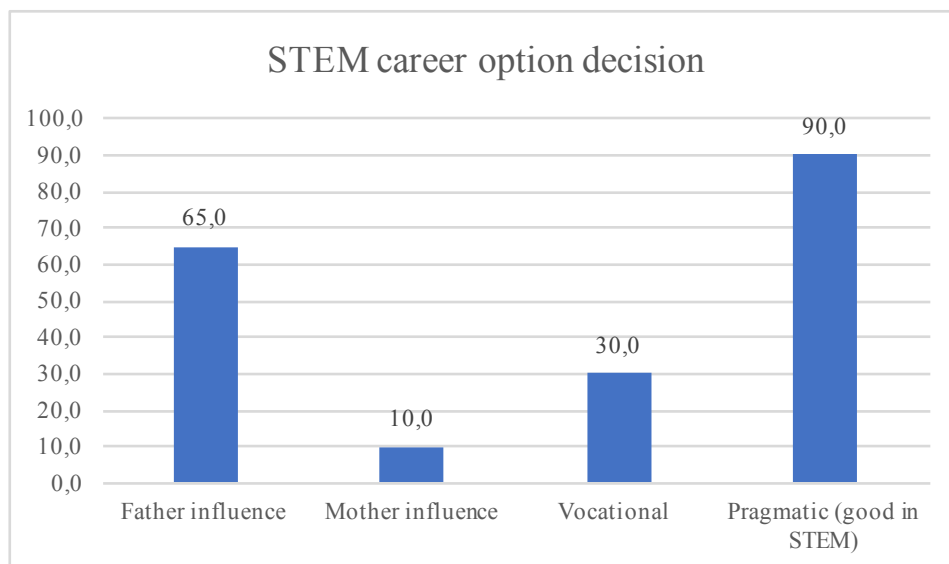


Figure 77: STEM Career option decision of informants.

Gender stereotypes were deeply rooted in the interviewees, the usual discourse revolves around gender leadership stereotypes based on management literature on the topic (Sargent, 1981; Loden, 1985; Helgesen, 1990; Rosener, 1990, Sandberg, 2013).

Female leadership is described by informants in terms of an alternative feminine leadership model characterized by cooperativeness, collaboration between managers and subordinates, lower control from the leader, and problem solving based on intuition and empathy as well as rationality (Loden, 1985). The majority of women informants perceived themselves good at interpersonal and communicating skills, as well as being more empathic than their male peers. Men managers were perceived as more ambitious, aggressive and 'stricter' than women managers, and had a greater lack of skills when managing team member's needs. Some responses reflected the gender stereotypes embedded in leadership styles, the assimilation of natural ability for 'taking care of people' was evident in many narratives:

Women are more complacent, like kind mothers, they take care of everything ... On the other hand, men are so competitive that it leads them to arrogance. (Group 1)

Women have a greater tendency to understand individuals than men. (Group 3)

Women are more empathetic, they tend to listen more, it's in our character. Women cry and men shout! (Group 3)

Several informants thought of this ability of taking care as women's 'sixth sense':

We have very positive qualities in positions of leadership: organization, people management... We are leaders, not bosses. Our sixth sense is to see talent in people. (Group 2)

Our leadership can be linked to our sixth sense, we look after the team, we care about people. (Group 2)

As argued in the general findings of the qualitative analysis, this research theme was less tangible and therefore the years of service effect on gender awareness by participants was not evident. Individual survival strategies were not as present as in the

previous analysed research themes, age differences were not detected or lessons learned from senior women over time. In fact, informants project these stereotypical behaviours in themselves. Only one informant recognized not being assertive and good in team management skills, and she was in a very early stage of her career:

I need to improve my ability to work as a team. Sometimes I am too individualistic and I do not have patience for decisions that are made in a group. (Group 1)

There was a shared perception about what a ‘women manager’ is and should be, descriptive and prescriptive gender stereotypes were present recurrently. Many of the women interviewed seemed to fit, or in the process of trying to fit, the mould of descriptive and prescriptive gender leadership stereotypes analysed in *Chapter 6 THEORETICAL FRAMEWORK 6.5 Gender stereotypes*; describing their own leadership styles they referred to themselves as caring, inclusive and understanding:

I try to promote creativity, that we can all contribute and be happy, to get the best out of each one. (Group 1)

My leadership style is in process ... Although I like when there is consensus and everyone’s opinion is taken into account. (Group 1)

My leadership style has evolved... At the beginning, when I was young I was very hard and demanding. Then I learned to develop teams. You have to understand each individual. (Group 4)

As the researcher, I encountered the paradigm of female leadership stereotyped with the expected attributes, which was the way many respondents described their own leadership style, and the description of the leadership style of females in their own workplace. Female stereotyped attributed characteristics in an abstract way, are seen positive and needed in our workplace today, yet existing female leaders in the workplace are often described in negative terms. Gender bias related to being ambitious are present

amongst informants regardless of age group. When asked for their position towards the following statement '*It is acceptable for a man to be competitive but not a woman*', informants laughed or felt annoyed and neglected this line of thought in different ways:

I know ambitious women who have been discriminated against because of it. (Group 1)

Competitiveness is not well seen in the feminine ideology. (Group 2)

Competitive women are bitches, it's a bias we have to avoid. (Group 3)

Yet when asked respondents to describe female leaders in their organizations, female ambition is disliked by them:

A female leader in my organization? Not many... Well, there is this woman... She has one of the fastest career of the entire company, very commercial and focused on results. With a very aggressive leadership style. She has had to fight so much that she has deformed her character and everything is a battle. She has aroused much hatred. (Group 1)

My director was very smart and fast, although she was too tough... She imposed herself a lot, she raised her voice often, used swearwords when she was talking, she was too masculine. (Group 3)

Some descriptions fit in the Queen Bee phenomenon, arguing that women in leadership positions tend to be against other women (Kanter, 1977). Below some quotes by different age group participants reflecting this phenomenon:

She is the worst I've seen, so ambitious. Very aggressive style with those below her, shows another face looking up the ladder. She does not know how to work in a team, everything that is not under her control, she devotes herself to destroying it. She is more against women than men. (Group 2)

Domestic life and female physical attributes are under constant scrutiny and counts as an unconscious evaluation factor. Male leaders are described in their work context regardless of their physical attributes but for a few exceptions, yet women are described

in their public and domestic life, as well as by their presence. Thus, references to marital status, motherhood, attractiveness and style are present most of the time in most of informant's discourses. The stereotypical women roles defined by Kanter (1977) and analysed previously in the theoretical framework (see section 6.5.1 *Women stereotyped roles*) were in the interviewees imaginary and used as a reference, especially the opposites ('seductress' vs 'iron maiden'). As an example, these quotes from the interviews were characteristics of the 'iron maiden' stereotypical role were described:

She doesn't have a life. She lives for the company. I think she is divorced.
(Group 3)

I remember my first female boss... She had a male leadership style, she had a son when she left the company, she was already 48 years! She tried to look like a man, she was very tough but was good with the team.
(Group 4)

However, when the interviewer addressed specifically the same categorization Kanter described in her research, some informants agreed to it but included male workers in those roles as well:

In HR, they are all like mothers, they are beautiful and patient, they are always pleasant and listen to you, although they can't do much for you. We do not have the typical Merkel, nor Iron Maidens ... If there is a pet ... that would be me ... I love to flatter people. (Group 1)

There are stereotyped roles for both, women and men... although the mother is usually a woman. They can be attributed to both genders. I do not identify with any of these. (Group 4)

In the past, the 'mothers' used to be the secretaries... but they don't exist anymore. I think it is an important role, mothers are good for managing people's needs. There are not many seductresses, I think that belongs to the past ... I would definitely relate to the Iron Maiden! (laughs) (Group 4)

Regarding self-perception, no common factor was identified in the description of strengths and weaknesses amongst women informants. Strengths identified included being creative, empathic, analytical, hard worker, problem solver, ability to manage conflicts, results oriented, practical, structured, networking skills, amongst others. Areas of improvement included these issues as well. All of the identified abilities have been traditionally associated to management and STEM background and no gender differences were observed. In fact, Wajcman (1998) analysed whether there are differences in how men and women manage and concluded that the similarities between women and men who achieve senior management positions were considerably larger than any differences between women and men. The ‘theoretical analysis of sex differences in leadership styles’ by Eagly & Johnson also concluded that organizational roles override gender roles in the workplace and corroborated Kanter’s structural interpretation of organizational behaviour (Kanter, 1977; Eagly & Johnson, 1990).

Behaviour may be less stereotypic when women and men who occupy the same managerial role are compared because these organizational leadership roles, which typically are paid jobs, usually provide fairly clear guidelines about the conduct of behaviour. Managers become socialized into their roles in the early stages of their experience in an organization (Feldman, 1976; Graen, 1976; Terborg, 1977; Wanous, 1977). In addition, male and female managers have presumably been selected by organizations (and have selected themselves into these roles) according to the same set of organizationally relevant criteria, further decreasing the likelihood that the men and women who occupy these roles differ substantially in their style. Thus, reasonable assumptions about socialization into leadership roles and selection for these roles suggest that male and female leaders who occupy the same organizational role should differ very little. Managers of both sexes are presumably more concerned about managing effectively than about representing sex differentiated features of societal gender roles (Eagly & Johnson, 1990, p.234)

On the contrary, informant's description of their own leadership styles had a strong gender bias. Responses were consistent, in fact, two thirds described their style as 'very cooperative and good with people'. This similarity could not be found when describing female leadership at their company, more than half of respondents defined women leaders as aggressive, competitive, opportunistic and/or weak at interpersonal skills. This circumstance seemed like a contradiction in itself, as they are women in leadership positions, and questioned the gendered nature of these descriptions.

Eagly and Karau (2002) describes the 'role congruity theory of prejudice toward female leaders' where women are perceived less favourably than men as potential occupants of leadership positions and evaluating behaviour that fulfils the prescriptions of a leader role less favourably when it is enacted by a woman⁷⁷. *Figure 78* illustrates the perceptions of interviewees when asked to describe female, male and their own leadership styles at their workplace; female leaders are identified more prone to 'order and command' style and less cooperative, yet female participants (female leaders in their workplace) describe themselves with a cooperative style (*Figure 78*):

⁷⁷ A role congruity theory of prejudice toward female leaders proposes that perceived incongruity between the female gender role and leadership roles leads to two forms of prejudice: (a) perceiving women less favourably than men as potential occupants of leadership roles and (b) evaluating behaviour that fulfils the prescriptions of a leader role less favourably when it is enacted by a woman. One consequence is that attitudes are less positive toward female than male leaders and potential leaders. Other consequences are that it is more difficult for women to become leaders and to achieve success in leadership roles. Evidence from varied research paradigms substantiates that these consequences occur, especially in situations that heighten perceptions of incongruity between the female gender role and leadership roles (Eagly & Karau, 2002).

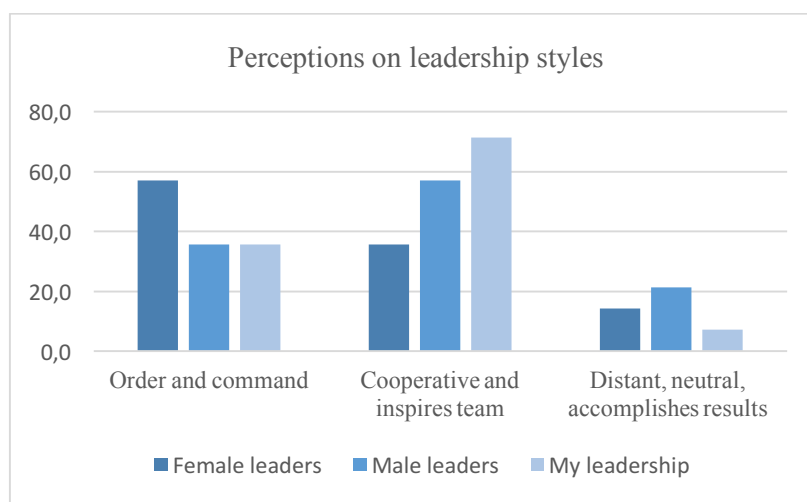


Figure 78: Perception on leadership styles.

Other gender stereotypes such as being more emotional aroused in several conversations, some informants considered crying a female characteristic. Some seemed to feel ashamed of displaying traditionally female traits:

It's true that girls are more emotional, sometimes they cry... They feel very pressured ... (Group 4)

At that time (during my pregnancy), I was on the verge of crying all the time, I associate it with a hormonal issue. My boss thinks that when women cry, we are playing dirty, like a women's weapon to soften men. I'm ashamed of behaving like that but hormones can make you be unprofessional. I explained to my CEO, you scream like a mad person because you're a man and a women's way of screaming is crying, it's as simple as that. (Group 4)

Overall and as I have argued, findings show that gender stereotypes appeared as an intangible, invisible research theme within interviews, immutable in the perceptions of informants over time.

7.3.6 Challenges are in the masculine culture not in the 'masculine' work

As it was explained, organizational culture goes beyond written norms and can be explicit or implicit, rational or irrational; they contribute to the creation of identities and influence the individual and collective behaviours. Male-dominated corporations, such as tech corporations, have been described in the theoretical framework as strongly gendered (Acker, 1990); much like the scientific field built around the female/male dichotomy (Oakley, 1972; Aaltio & Mills, 2002) and dualistic gendered stereotypes (Wajcman, 2006). Along these same lines, the findings of the qualitative analysis described how ICT women workers experienced and perceived their organizational culture, the results are two-fold: on the one hand, the constant need to demonstrate their technological skills in spite of being a woman to their male peers and on the other hand, managing the battle field that takes place in the office confronting 'fight or flight' situations or even 'freeze' situations.

As for the constant need to demonstrate their technological competence, findings showed female managers, especially in Groups 1 and 2, perceived their technical expertise was questioned, or even ignored, when being assigned to projects or specific corporate functions. Most of the women interviewed for the research had functional management responsibilities, in fact, many had been shifted from technical expertise positions to more generalist positions or functional positions such as HR or Marketing. In some cases, this shift from technical to generalist positions had taken place at a very early stage in their professional careers. Only 12.5 per cent of informants, both in Group 1, were in technical positions and considered their STEM career had a direct relation with the jobs they performed. Faulkner's (2009) research on gender and engineering cultures

explained how women engineers' invisibility as engineers is evident and the greater effort required from them to be taken seriously as 'real engineers' and the undermining of confidence which can ensue. An Aeronautic engineer senior manager explained to me how she was naturally shifted away from her technical expertise, it is interesting to observe again, and in parallel, how STEM women are lost along the way:

My work doesn't relate at all to what I learned at University. In fact, this annoyed me at the very beginning. I had the best grades in my class at Engineering School so I was granted with a scholarship in a big aviation company. They chose 15 of us, all boys and two girls (the other girl didn't accept the scholarship... I don't really know why). I was the only woman... Regardless of my capabilities and demonstrated skills... When I joined the company, everyone was being assigned to something technical, except for me (laughs) ... Structures, installations, operations ... issues that were specific to the industry and I had the best grades by far and they assigned me to finance instead!! I was so upset... it had nothing to do with what I liked. That experience was traumatic...really. I was the only one that had finished university in 6 years (including the final project). It bothered me a lot, I had to fight so that they would change me to another department. I insisted for 6 months... Finally, I got the transfer after the summer... I went to the Department of Structures; my supervisor was a woman. Even so, it did not motivate me... I left in order to join a technology company. (Group 3)

Similar experiences were shared by other participants, confused to be assigned to organizational functions leaving aside her technical background and expertise:

As a telecom engineer, you think you will be in a tech team working with networks, IT architecture, I don't know... Then you start working in change management and you see the positive side to it... The truth is you can use your career to structure and solve problems anywhere (Group 3)

Another respondent had noticed, after 5 years of working experience, differences between male and female technical positions. She shared with me her perceptions about the challenge of being seen as an expert in a technical field by her male colleagues, clarifying that it was not the case for women colleagues:

I think that there is no difference, although if I think about it... sometimes I have seen cases of teams where women are underestimated... they (men) don't see us as specialists; it is assumed that you are less or have less specialization in the field. It is my perception at least... by their comments, the way of working, etc. (Group 1)

In tech cultures, technical competence is part of the hierarchical values, it goes hand in hand with the social gender divide that marginalizes the domestic sphere from the technological sphere. Gendered identities are socially constructed in everyday practices. During an interview, a manager explained how her technical ability was ridiculed, or even patronized, by her colleagues at certain times in the form of 'normalized' office jokes and the persistence of gender divide paradox:

I'm especially upset by jokes: women cannot do this, women have to make dinner ... Sometimes I cannot defend myself because I'm not in the mood. (Group 2)

Theorized patterns of being simultaneously visible as a woman, yet invisible as an engineer was experienced and described by an industrial engineer participant:

I was introduced like: 'This little girl who is going to tell us' ... in a meeting! Can you believe it? It has been harder for me to demonstrate and break those barriers (Group 2)

However, none of the respondents felt uncomfortable or perceived challenges in their work field or related tasks, the challenges were identified within the culture. Demonstrating technical expertise within the organization were not identified amongst senior management participants, possibly due to their management position, where detailed technical expertise was less relevant or due to consolidating a technical reputation through the years within the organization structure.

As for working in a high-tech culture, tech women are confronted by a technomale culture that was described by some participants as 'harsh, virile and even

unbearable at times'. There is a new corporate masculinity associated to the mastery of technology and the control of other people (Wajcman, 1998), where technology is associated to men and nature to women. Values such as extreme work pressure, high competitiveness, immediate responses and conciseness were identified as part of the tech culture by participants. Feelings of being uncomfortable and out of place are shared by some participants, the following participant described day to day practices that made her feel uncomfortable, as well as other female colleagues:

Some work moments are uncomfortable... The macho vein appears and they have to make a joke completely out of place... It's strange ... but then things are oriented and productive. Sometimes I hallucinate a lot. They are Pleistocene jokes, they are not even funny. They are inappropriate jokes and they know it. It's like 'hey, I am the macho here', they just want to be cool for the other guys... When there are other women... we just look at each other and hallucinate. (Group 3)

Senior managers with more years of service seemed to be in a constant 'fight, freeze or flight' situation at work. One participant shared her feelings of unbearable cultural practices she experienced constantly in the workplace and how it affected her:

I have changed my ambitions, they treat you badly, they make your life impossible, what you have to put up to stay there... Before I was annoyed by the comments 'for being a woman' but now it does not bother me anymore. (Group 4)

Another senior manager described vividly how aggressive she perceived the executive team environment when she was promoted to a director position within the corporation:

Transitioning to C level suite... I felt very small. I tried to hide because there were daggers everywhere... it was a very aggressive environment ... I felt very uncomfortable. I tried to hide behind my desk! (Group 4)

In general terms, top management respondents felt the need to conform to the existing macho culture in the workplace and either attempted to be 'one of them' ('fight' option) or wanted to leave the organization or give up promotions ('flight' option) or are thinking of what to do next ('freeze option'). Following there is an example of fight and flight situations described by senior manager respondents:

I learned to be an Iron Maiden at work. I swear, I shout... just like them. They take you seriously then. When my boss talks about me he says: 'Watch out with the blonde! She pees like you and me! (Group 4)

There are always men who do not let you talk, there are days that you feel intimidated ... in a room with eleven guys and me ... depends on the day, You just want to be in your corner away from the cock fights... (Group 3)

I don't know...I think of starting my own thing... and take advantage of my experience... (Group 3)

On the contrary, the 'geek culture' and lack of socialising skills described in the theoretical framework, was absent from the participant's narratives. Tech male socializing skills were mentioned by participants when recalling their college days but not amongst their male colleagues. A 26 years-old telecom and computer engineer, recalled similar attitudes:

You feel pity for the guys that can't socialise with you. It's like they don't know what to say or how to behave. We had many of those in our class... (Group 1)

In addition, identifying positive female role models within top management is a challenge. Many respondents, more so in senior levels, were token women that had had scarce opportunities of working with other women:

Ufff... I do not know how to say, I know they exist, but I do not know them directly. (Group 3)

Clients are men, there is a strong masculinization of leadership and women tend to become masculine and there is a lack of feminine references. (Group 1)

As argued by Wajcman (1998), senior women are expected to manage like men; twenty years apart from her research, and based on the individual stories of senior women participants in the ICT sector in Spain, findings show similar assumptions are perceived by respondents with the absence of new alternative models of leadership that could confront the masculine leadership model that prevails and predominates in the tech corporate culture.

7.3.7 Corporate Manstreaming: A corporate given

As previously explained, Wajcman's (1998) 'Managing like a Man' insisted on the existing contradiction between being a manager and being a woman, she observed the pressure women workers felt to become more like men, denying or ignoring specific aspects of themselves in order to exercise power in a legitimate way. Their work experiences are not the same due to the fact that they are conceived as different type of workers. Women bodies are sexualized to an extent that is rarely experienced by men in the workplace and the valid relationship of women and the domestic sphere is also reinforced. The present qualitative research reinforces this category of analysis that as explained previously remains unexplored by women participants, invisible, unquestionable. It is as though corporation's maleness is an irreplaceable given. The literature review of my research (see *Chapter 3 GENDER AND TECHNOLOGY*, *Chapter 4 WOMEN AS TECHNOLOGY CREATORS* and *Chapter 5 WOMEN AND CORPORATIONS*) explored the relationship between gender and technology in order to

understand if there were factors that alienated women from technology and/or corporations; I argued how technology and corporations were socially constructed to the exclusion of women, creating heavily gendered spaces. The construction of technology or corporations have been developed by men with men in mind establishing a foundational intangible trait that is not perceived explicitly by women respondents, regardless of their age or years of service in the corporation. Women managers cannot name it or address it specifically, it is a distressing feeling of 'professional mystique' (Mayock, 2016), the impossibility of becoming a man in an androcentric space.

Like in a patriarchal system, men are seen as the corporate standard that prevails since the origin of the corporation. Power, authority, norms and references take the male/universal form to which women are expected to conform. This phenomenon was perceived in different ways by informants: their physical appearance, patriarchal life cycle, authority and gender roles. Comments regarding physical aspects as limiting authority were shared, it could be the pitch of the tone of voice, the height, the strength, the amount of hair...

I was very aware of my presence... People would listen to me differently if I was a tall and strong guy. The role model I had at the office did not look like me at all. (Group 2)

The CEO is an alpha male ... he's like a gorilla ... He's 1,85 is huge, very strong voice. (Group 4)

My boss told us he wanted 'men with hair on their arms' on the board... He played water polo and was very strong. It was funny because my female colleague said 'Thank goodness I have some hair in my arms!' (Group 4)

Informants described experiences and perceptions where they attempted to be ‘more like a man’ or ‘less like a woman’ in order to exercise decision-making authority and gain corporate influence:

Those that succeed blend in with men, they have punch and aggressiveness ... which is what prevails. (Group 3)

Masculine leadership style is difficult to change in the workplace... other leadership styles should be prioritized. (Group 3)

Participants involvement was confined mostly to offering input into decisions that men took undoubtedly, as reflected in Reskin and Ross (1992) findings, yet a 100 per cent of informants in Groups 3 and 4 agreed to have ‘decision power and influence in their work environment’:

As the only woman, I always say what I think, that's why they ask me for an opinion and pay attention to what I have to say. (Group 4)

Another thing is that sometimes in order to address you, or other women, they do it in a paternalistic way, especially older men, but not with another man who is young. (Group 2)

When I look back... I think it has affected me although I never felt discriminated ... but if I look back I see that they all went further up in the ladder and earned more than me ... you think that it has affected you and that... yes... I have been marginalized (Group 3)

Under this patriarchal system, successful career tracks ignore the reproductive role and are centred in the male productive role. Women’s reproductive role does not belong to the workplace, thus the majority of senior managers interviewed accepted maternity and its aftermath as a binding constraint for successful C-suite careers:

Top management is a high competition sport, you have to train at all time... because your neighbours are training at all times, the differences are minimal. Your head cannot store more information, you can't afford to waste CPU space with issues that are not work-related. You have to go on a man role, you cannot spend your personal resources on other

things. It's a league, it's survival, it's very competitive and it has to be. You have to be always there. It's a 24x7 job (sighs). (Group 4)

Another senior manager was explicit when referring to the masculine life-cycle career in the corporate world not considering maternity in the career equation:

Things change with vital moments... they separate you from the 'rat race' which is very masculine. (Group 2)

We have a general context that is the subject of reconciliation, it is very difficult to have a fast career without having a crazy schedule because men do not stop, do not take leaves, because the law gives them fewer days (Group 1)

As explained in the theoretical framework of my research, Wajcman (1998) identifies how 'quarantining women' has the effect of locating women as the problem. Therefore, women's traditionally associated issues (e.g. pregnancies, childcare, periods, house chores) are rejected in the standard template for successful career advancement and seen as a corporate problem. A senior manager discouraged strongly maternity leaves while occupying senior positions:

A maternity leave in a senior management position is a big mistake. If you are 'doer' it's not... but when you are a leader you are marking the path for others. You cannot leave if you lead people. (Group 4)

As analysed previously in this chapter, most participants declared to be in equal opportunities organizations, where opportunities are determined on merit and based on 'up or out models' where talent was central. However, equal opportunities treat women the same as men but women are situated differently, thus qualitative research findings showed that the experiences, perceptions and expectations of participants lacked gender

equality⁷⁸ and take place in organizational spaces where male power is preserved. Traditionally and under patriarchal structures, men develop their corporate careers with a recognized and normalized female support infrastructure that is granted by public policies, legally reinforced and gratuitous. Senior managers amongst participants aimed for a similar support infrastructure as their colleagues and based their equal opportunities workplace perception primarily in the adaptation of pre-existing policies instead of confronting the difference or demanding affirmative action towards women. One senior woman in particular explained how she carried out a survey amongst her male colleagues in the board of directors to find out that most of his colleagues' wives did not work or worked part-time. Another senior manager stated that her best professional moment was during the time her husband was unemployed:

They (men) are 150 per cent dedicated to work. My best professional moment was when my husband was unemployed and took care of the children, house chores... he was in charge of everything! I thought I was growing a beard! (Group 4)

As it was explained to the researcher by some informants, senior women in top management needed a 'house-partner' in order to be able to offer full-time work availability to the corporation, just like manager's lives were designed in the rational organization days when gender roles were the norm and women 'belonged' to the private sphere just as much as men belonged to the public sphere. There was a shared assumption amongst some participants, mostly in top management positions, that it was up to women to learn 'men's ways', to fit the 'standard' template that happened to be male, not human.

⁷⁸ My research did not acknowledge how or in what way participant's experiences, perceptions and expectations differed from those experienced and perceived by men.

As explained in the theoretical framework, ‘because men dominate the workplace, the status quo suits them well’ (Stechert, 1986). Even the Spanish term ‘*ingeniera*’, referring to female engineers, was neglected by some participants that wanted to be referred to as ‘*ingeniero*’, the Spanish term for male engineers; this response reinforced the ‘in/visibility paradox’ described by Faulkner (2009) whereby women engineers perceive they are highly visible as women yet invisible as engineers. Another senior woman shared her perception of gender equality based on the corporate male standard whereby women can be just like men, even though they are not:

I have been so privileged (affirms). I have never felt different for being a woman. You have to believe it. I think attitude is very important. I never thought I was less because I was a woman... there is nothing I couldn't do just like them (Group 4)

Findings on this specific research theme, showed how intrinsic and invisible corporate *manstreaming* was to participants in the sample, and how time shaped women to conform the male template in a ‘fight, freeze or flight’ situations as the only applicable survival strategy. Moreover, from a junior participant’s perspective, women in leadership positions that had conformed to the male template, did not come across as positive role models generating previously theorized ‘Queen Bee’ phenomenon (see 6.5.2 *The Queen Bee phenomenon*). The foundational aspect of corporate *manstreaming* placed this research theme as an overarching corporate given in the minds of the majority of participants that understood corporations as they were conceived.

7.4 [Interview's aftermath](#)

Feminist research challenges the status quo and is recommended to be action-oriented, seeking to empower women and transform patriarchal institutions (Fonow & Cook, 1991, 2005). Along these lines, some participants experienced different types of gender awareness and empowerment. Although it was difficult to process, it was rewarding to experience how conscious gender awareness was unchained in some participants. In sum, I received three types of different messages from participants (by email or WhatsApp): firstly, 'thank you' messages from participants; secondly, messages adding up information they thought could be interesting for the research and lastly, sharing their second thoughts and starting 'office activism':

I just feel like a fool. I've been thinking all afternoon about our conversation. I don't understand why I told you having children stopped my career... I have never ever stopped working... always 100 per cent available, always done more than was expected... Even with a high-risk pregnancy, I never took a day off... I think it's about not being one of them... not me or my work or my technical expertise... I have no regrets about that... is as simple as not being a man (Group 3)

7.5 [Conclusion](#)

My thesis is interpretative and informed by a feminist approach to building theory and generating new knowledge, in this context, the data collected was qualitative and analysis was thematic, grounded in feminist theories. Framed within the 'Standpoint theory' (Harding, 2004), it aims to value women's experiences and co-create new knowledge based on their stories, assuming that knowledge is always situated in a place, at a time and that depending of those factors it can mean profoundly different things (Haraway, 1988). Therefore, the analysis of the data collected during the interviews was

interpreted by the researcher, and holds no absolute truth but the perceptions, experiences and expectations shared by individual women at a particular time and place. Knowledge must be grounded in the interaction of perspectives through communicative action and consciously away from categorization, social labels and hierarchies; however, based on the findings presented it can be deduced that women participants, diverse in many ways, encounter every day theorized gendered exclusionary practices in the workplace where corporate *status quo* is more likely to favour male needs. Research themes were explored through the personal experiences of women to provide critical insights to the research; experiences that complied consistently with the theories, phenomenon's, syndromes and its effects on individual and collective behaviours and attitudes, described by field scholars and informed the theoretical framework of my research. As described previously, corporations have changed in many ways, however the patriarchal overarching 'maleness' of tech organizations persists. Research findings showed that, even though the majority of participant's narratives affirmed they worked in equal opportunities corporations, there were tangible gender inequalities in the way they experienced and perceived the workplace. Even though the results shown in this chapter, present a common thread amongst the individual stories of participants, dominated by the cumulative effects of the identified underlying barriers, women's stories were unique and so were their attitudes and career aspirations. Either if they took pride and pleasure in the technologies they created or worked with, or were disappointed and disillusioned with their jobs, or opportunity seeking, their narratives were of great valuable since they represent part of the female talent that remains in the Spanish ICT workforce and, as such, serves to consolidate the group's shared work identity and wisdom.

Results showed how diverse talented women with STEM backgrounds, at different stages of their working lives, experienced and perceived the ICT workplace. Even though it appears to be invisible or intangible for participants, they described the experiences and the consequences of a gendered digital workplace under a patriarchal system. All research themes identified impacted respondents in different degrees, although those that were more visible (e.g. tokenism/critical mass, brotherhood, opportunities and power and sexuality) were more easily identified by participants. Amongst the ‘business as usual’ conditions experienced by participants, and shared with the researcher during interviews, were the notoriety of being part of a gender minority, having a chronic underrepresentation of women in leadership positions, experiencing how supervisors and team mates met informally to practice sports while sharing business information or being scrutinized for showing one’s cleavage. The effect of these visible traits increased with time and it was more likely for senior managers to have developed ‘survival strategies’ to overcome them. In addition, junior participants were more prone to experience feelings of awkwardness and being out of place. These visible barriers were perceived in a subtle way during the first working years, perceptions of not belonging were frequently identified and making an effort to manage them individually, sometimes incurring into self-blaming, were common amongst participants with less years of service. Experience reduced the subtleness in which these barriers were perceived and participants were conscious of their disadvantages versus men peers. Identifying these barriers helped participants develop different ‘survival strategies’ over time, with individual based negotiations favouring individual female retention, though collective gender inequalities remained untouched in the workplace.

However, the consequences of the research themes that appear to be invisible and intangible, those that are part of the air participants breathe in the tech workplace, where difficult to describe and hardly consciously acted upon. Participants seemed to be more oblivious of those underlying barriers that persist in the corporations from its origins; questioning their role as female ‘managers’, instead of questioning the role of ‘managers’ or ‘humanagers’. ‘Fight, freeze or flight’ situations were abundant in senior manager’s experiences, perceptions and career expectations but an attitude towards complying with the institutional maleness of corporations was evident in those that remained in leadership positions.

Corporate *manstreaming* is a corporate given, it goes unchallenged and unquestioned since the origin of corporations. The imperative of ‘maleness’ in corporations is reinforced by gender stereotypes and gendered identities in the tech culture. Conversations held gender stereotypes, significantly more so when describing specific female leaders or leadership skills in the corporation. As reflected in the findings, the majority of female leaders interviewed, perceived themselves in the role of stereotyped female leadership traits (e.g. ‘good with people’, interpersonal skills, inclusive), however, when defining female leaders within their corporation, they tended to incur in the gender stereotypical roles identified by Kanter (1977).

The digital gendered workplace is socially constructed around the dichotomies female/male, nature/technology and emotional/rational that preserve hierarchies and prevail in participants discourses. As for motherhood, the perception of the gender dichotomy regarding private/public life was clear, having to choose between the reproductive role or the productive role in the worker. The patriarchal reinforcement of

biological traits as determinant for gender inequalities was in the narrative of all participants.

Structural gender inequalities are difficult to see, they are intangible and, even though the symptoms are vividly described by participants, the causes go on unidentified. The results presented in this chapter, supported the theoretical framework of my research yet showed how the vast feminist research on the field (e.g. feminist theories, genealogies phenomena) regarding gender dynamics in the tech corporation have not penetrated into the workforce. Narratives based on the experiences, perceptions and expectations, showed a lack of feminist perspective amongst participants and their corporations when identifying and prioritizing gender inequalities in the workplace. However, the patriarchal gendered idiosyncrasy of corporations has survived different political, economic and social contexts since they were conceived more than a century ago.

In the next chapter, I will discuss the research findings presented in light of the feminist theoretical and methodology framework, in order to answer the research questions and co-generate, together with ICT women research participants, new knowledge in this field. In addition, I will justify how research results move the academic debate forward highlighting specific discussion themes that conform the gendered digital workplace conceptual framework.

8 DISCUSSION

I found that the key variables were not women themselves—it was in the nature of hierarchies in companies and society. (Kanter, 2018)

8.1 Introduction

My aim in this chapter is to discuss findings around the proposed research question: **What are the underlying barriers for women’s advancement in the ICT workplace?** Moreover, my research goal is focused on determining which underlying factors slow down the representation of women in Spain’s ICT sector, as well as their participation in decision making, assuming that a more equal representation will redefine society’s priorities and needs in a more balanced way. The question specifically refers to ICT women workers’ career experiences, perceptions and expectations; women with a technological or related academic background who have already joined a tech corporation in Spain. Thus, I will examine the individual narratives shared by ICT women working in male-dominated organizations, in light of the identified theoretical framework, structured mainly by Kanter (1977) and Wajcman (1998) and the feminist research methods proposed for my dissertation. The analysis of the experiences, perceptions and expectations shared by participants help elaborate a deeper understanding of the underlying barriers for women’s career advancement in the ICT sector and the gendered workplace dynamics. Framed within feminist research methods, mainly based on the ‘Standpoint’ epistemology (Harding, 1986) and ‘Situated Knowledge’ (Haraway, 1988), my purpose is to explore and revalorize the perspective of female talent in tech corporations, through different voices but linked to the day to day practices and lived

experience. In Sandra Harding's (1993) own words 'starting off research from women's lives will generate less partial and distorted accounts not only of women's lives but also of men's lives and of the whole social order' (p. 56). As a result, problems that affect women collectively in their career advancement have been identified in a common thread, acknowledging women's diverse situations as well as the gendered institutions that frame those, and have been examined and referred to previous feminist and organizational academic research, co-generating new ideas to advance the academic debate around female retention in tech corporations and help the reduce biased situations that women confront in the ICT sector, with the final intention to realize social justice for women (and men) in male-dominated specific contexts (Eichler, 1997; Olesen, 2005). Finally, my main contribution to academia is to offer a conceptual framework informed by the critical insights of a sample of ICT women workers who were attracted to this field and remain in it, grounded in feminist and organizational theory on the field. This framework will contribute to determine the relevant underlying factors for women's career advancement and the gendered dynamics that take place in the digital workplace, bringing a new qualitative perspective to the pool of knowledge about similar problems concerning the underrepresentation of women workers in the ICT sector in Spain, upon which meta-analysis can then be performed.

8.2 [Response to the main research question](#)

As stated in the methodology chapter of this thesis (see 2 *METHODOLOGY*, 2.2.2 *Research question*), my main research question has guided the research process. This process has combined a theoretical perspective, grounded in feminist and organizational

theories, and a qualitative perspective based on individual interviews with a sample ICT women workers in Spanish technological corporations. My research question highlights the absence of women from technological workplaces, an ongoing social problem that has not significantly improved over time. In Spain women are significantly underrepresented in tech corporations, and most importantly, have a limited role in decision-making positions (Castaño, 2010; Sáinz et al., 2013); this is a common trend amongst other European and Western countries (Corbett & Hill, 2015; EC, 2013, 2018). This has been a recurrent topic in feminist epistemology, evolving from the ‘question of women in science’, via the ‘the science question in feminism’ (Harding, 1986; Haraway, 1988), to ‘the Technology question in feminism’ (Faulkner, 2001) which questioned how technological knowledge was being produced, and signalled the consequences of women’s absence from technology in the design, development, diffusion and use of technologies and artefacts (Wajcman, 1991; Berg & Lie, 1995; Bijker, 1997 Faulkner, 2001). The representation of women in technological fields is critical in order to avoid an androcentric way of identifying, prioritizing and solving issues in our society without a gender perspective (Harding, 1991; Schiebinger, 2007; Castaño & Webster, 2014), as well as for the future of work employment. My research aims to contribute to analysing further female talent retention in the ICT sector, rather than analysing the social or environmental factors that contribute to attracting women to this field, since efforts in attracting women will not pay off if women are not subsequently retained.

The response to the research question ‘**What are the underlying barriers for women’s advancement in the ICT workplace?**’ is complex and intricate. Therefore, the response has been conceptualized in a framework in order to identify and explain the

different underlying factors, their inter-connections, hierarchies and context of the gendered digital workplace.

The main findings of the results inform the ‘gendered digital workplace framework’ with four explanatory discussion themes that will be further detailed:

(1) From Rational to Digital organizations: the persistence of patriarchy. This theme will describe the similarities between the techno-scientific culture and the corporate culture of tech organizations, and how the conceptualization of women as a different type of worker persists, albeit organizational transformations;

(2) Managing ‘otherness’: The gendered workplace climate. I will explain how women perceive the workplace environment, together with its explicit and implicit associations, and the constant need to manage their ‘otherness’ in a *manstreamed* corporation;

(3) Managing domesticity: the ‘motherhood threat’. This discussion will explain how corporations continue to rely on women’s domesticity for corporate career success and how the idea of motherhood is perceived by women as a career threat at all stages of their career, positioning itself as the main limiting belief;

(4) Managing to survive: ICT female retention. Finally, I will describe how ICT women’s behaviours are shaped by years of service, corroborating Kanter’s (1977) central argument, and the need to conform and comply with the male standard in senior management positions argued by Wajcman (1998).

Figure 79 illustrates the ‘gendered digital workplace’ framework with the four main discussions arguments around my dissertation research question:

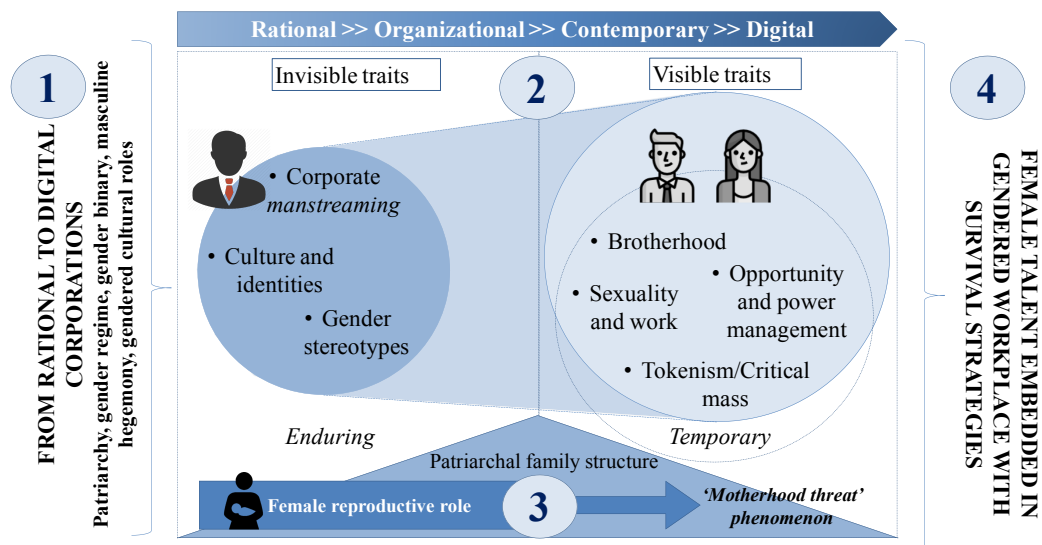


Figure 79: Gendered digital workplace framework⁷⁹.

Due to the complexity of the conceptual framework and the high degree of intertwining of concepts and underlying barriers, together with the subtle interconnections and hierarchies of research themes, I like to visualize the conceptual framework and make a parallel, as a metaphor, with different theatre features (Figure 80):

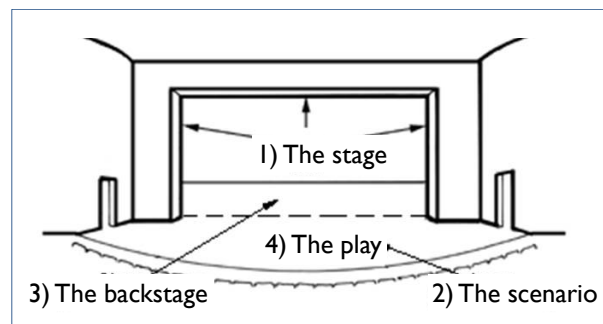


Figure 80: Metaphor of theatre elements of the identified discussion themes

(1) The Stage, referring to the conceptualization of patriarchal organizations as a corporate given described; (2) the Scenario, with the identified visible and invisible

⁷⁹ To facilitate the comprehension of the conceptual framework, the numbers indicate the representation of each explanatory discussion theme.

obstacles women face; (3) the Backstage, where the crucial interconnections between public life and private life take place; and (4) the Play, referring to the survival strategies women develop over time while climbing up the corporate ladder.

8.2.1 THE STAGE: From Rational to Digital organizations. The persistence of patriarchy

My thesis findings confirm that the patriarchal foundation of the rational corporation described by Kanter (1977) persists in the digital corporation; in fact, since the origin of corporations in the late 1880's to the present day, organizations share one outermost factor in common: women have been perceived as a different type of worker. As I will explain in this discussion theme, this argument is two-fold: on the one hand, it is based on the socially constructed masculinity of technology and misleading dichotomies, defined to the exclusion of women; on the other hand, corporations have reinforced those dichotomies and assumed the same masculinist assumptions in the form of masculine managerialism. All through my dissertation I have argued how post-industrialism (Touraine, 1969) brought a new economy based on services, human capital and the valuation of knowledge that made Western countries transition from factories to computer-based offices. From a gender perspective it is important to understand this technical change in the workforce, since the basic measures of masculine status and self-esteem, masculine-related skills and physical strength at that time, gave way to masculinity ingrained in technology itself – where engineers had exclusive rights to technical expertise -, reinforcing the construction of identities through the use of technology perceived as masculine (Cockburn, 1983; Connell, 1987; Stanley, 1998;

Wajcman, 1998, 2004; Ortiz-Gómez & Santesmases, 2016). Since then, technology has been seen as a key source of men's power and masculinity with the implicit association of machines and artefacts to men (Castaño, 2005). In the 1970's, feminist scholars began to denounce science and technology as patriarchal and androcentric, arguing how technology's inherent masculinity had been accentuated by dichotomous and antagonistic concepts between men and women such as rational/emotional, reason/passion, public/private, objective/subjective and technology/nature to characterize it and justify the domination of men and nature (Keller, 1978; Merchant, 1980, 1998; Jordonova, 1980; Fee, 1981, Harding, 1986; Warren, 1998), this included other aspects of dominant regimes such as biology, race and class (Millet, 1970). These dichotomies in the computer culture emphasized technological determinism with the gender division of labour and generated technophobia and alienation (Turkle, 1986; Stanworth, 1987; Mies & Shiva, 1993). Despite its novelty, technology operates in relation to gender interests and reinforces traditional power and hierarchies, the connections between past and present social practices regarding differentiation of genders are embedded in technology; the idea that computers and technology are for men became a narrative that remains strong today. The inherent masculinity of technology has been reinforced by male's monopoly of technology and the Western idea of men as the solely technology creators of our time. Women's contributions have been systematically airbrushed from official tecno-scientific history (Stanley, 1998; Pérez-Sedeño, 2000), despite the efforts of a wave of feminists scholars' to generate genealogies to rescue female technology creators from oblivion (Sayre, 1975; Stein, 1985; Harding, 1987; Dickanson, 1992; Stanley, 1995, 1998; Pérez-Sedeño, 2000; Cabré, 2002; Rubio, 2006; Jiménez & Carrasquilla, 2010), and their contributions ignored, belittled or 'taken over' as argued in my dissertation.

Technological development referred only to activities considered relevant to men and where technological inventions of women, fell outside that definition. Yet women have contributed to technology in all areas, from theory and machine design to languages, and to various applications of computer technology business (Stanley, 1998). As explained along my thesis, any intent to transform technology from its foundations has failed. Cyber-feminists and other scholars' intent to feminize technology exploring its fluidity, avoiding binary assumptions, and understanding its potential as a mechanism for women's liberation (Haraway, 1984, 1997; Firestone, 1970; Irigaray, 1990; Stone, 1995; Plant, 1997; Millar, 1998) was categorized as technological determinism and gave way to technological constructivism, understanding technology as a concept that needs to be revised. Technology is not only artefacts, it is a combination of artefacts together with social practices, social relationships and arrangements, social institutions, and systems of knowledge (Johnson, 2010). These are social practices and as such they can be reconstructed (Cockburn, 1985; MacKenzie & Wajcman, 1999).

As stated earlier in this discussion theme, technology and corporations share one outmost factor in common: the conceptualization of women as a different type of worker, although this patriarchal system locates us as inferiors to men and far away from privileges. Since the origin of corporations, job conditions have been constructed around men's skills and patterns of work (Webb & Liff, 1988; Wajcman, 1998; Goldin & Katz, 2016) and has been reproduced ever since, drawing heavily on Kanter's (1977) account of US corporations, from the 'rational organization', to the 'organizational organization', to the 'contemporary organization', to our days with the 'digital organization'. Since the beginning of the twentieth century, changes have affected corporations (e.g. in their values, structure, composition, decision-making procedures) while women's roles have

transitioned from clerks, to secretaries, to managers and to CEO's, still 'men and women relate to each other and their work through jobs that often segregated with idealized images of the capacities of the people in them' (p. 29).

Corporations were conceived as 'rational' spaces by men and with men in mind, dominated by a 'sexual narrative' (Hearn & Parkin, 1987). Managers aimed for efficiency that was obtained through a rational way of working (Crozier, 1954), similarly to the reinforcement of dichotomies in the techno-scientific, rationality was associated to masculinity. Effective managers were meant to be rational, analytical and leave aside all emotional and personal issues, being tough and expected to employ military language and metaphors to describe business (Hacker, 1981). On the contrary, women were emotional beings and therefore the antithesis of the 'rational managers'. This idea derived to our days and involves the growing presence of women in positions related to people and communication, seen as 'social workers of management' (Lynch, 1973), an argument that has been confirmed with my research findings and the experiences of ICT women being derived to HR or Marketing functions, albeit their technical background and experience in the tech field. Even though women were judged to be 'too emotional' to carry out functional and administrative positions in the 1880's, they were soon feminized while management was masculinized.

The mid 20th century, brought the 'organization man' (Whyte, 1956), workers not only worked for the organization but belonged to it as well. Ideally, the organization man could not distinguish between business objectives and his own goals, between his work and personal life, worked long hours and had total availability for the corporation. Success was related to length of service and loyalty, and careers would progress and consolidate at middle management. This linear view of organizational career, excluded primary

women (Cohen & Mallon, 1999; Edwards & Wajcman, 2005). As will be discussed later in the theme 'Managing domesticity', the 'organization woman' had to choose between her professional career as a priority or had to either give up having children, postpone having them or subcontract childcare services or opt for part-time jobs with less opportunities and lower salaries. It seemed as if discrimination was a myth and it was due to women's personal choices (Hakim, 1995).

New organizational and workforce changes came along with the 'Contemporary organization', due to the uncertainty of corporate restructuring and the decline of employment security, managers were challenged to think by themselves, work autonomously, take risks and were evaluated on merits and results, much like an engineering culture (Kunda, 1992). Employees were the consumers of jobs and employers the sellers of jobs (Edwards & Wajcman, 2005). Corporate culture changed as it demanded men and women workers to be implicated in the project at full emotional level (Coates, 1998). Many scholars thought of the advantages of this new career for professional women, it was adapted to the individuals interests and special abilities, and evaluation performances were based on merit (Wirth, 2001). Expectations were not met them as corporations continued to be spaces of masculine hegemony, and women continue to struggle in male-dominated corporations.

The 'Digital organization' has brought flexibility and connectivity of digital working tools, though the structure of careers remains at odds with women workers' life-cycle patterns. Digital organizations can solve and create new problems and could partly threaten the future of work, by the expansion and improvement of Artificial Intelligence and its implications in female work. The images of managers of high tech corporations embedded of power as they involve mastery of the technology and the control of other

people, represent a new corporate masculinity (Wajcman, 1998). Tech workers identify with technology and what it means to be an engineer and provide appealing symbols of power that act to compensate for a perceived lack of power or competence in other arenas (Faulkner, 2009). My thesis findings support the identification by ICT women of the tech ‘alpha men’ that are successful at corporate level and perceived as competent tech specialists, setting the standard to masculine hegemony (Connell, 1987; Faulkner, 2009), and corroborates the ‘in/visible paradox’ (Faulkner, 2009) whereby ICT women experience, especially new hires or female workers with few years of service, the struggle to be seen as either ‘real’ workers or ‘real’ women. This paradox is key to understanding how tech women experience tech workplace cultures, and a major factor underlying the poor retention and progression of women in the field.

As corroborated by my findings, corporations continue to reflect a set of gendered assumptions that construct the office as a hegemonically masculine political actor and take shape within organizations in the form of a masculinist managerialism (Elias, 2007). Taking on the theatre metaphor, the corporate ‘stage’ continues to be sustained by gender regimes with unequal power management, is gender binary reinforcing gendered dichotomies based on male/female and that instigates masculine hegemony through patterns and norms based on male needs and preferences, and strongly based on gendered cultural roles. Corporations and technology share many structural barriers and have had to transition from all male workplaces to spaces where women are part of the workforce too. As my results demonstrate, the cultural linking of ‘technology’ and ‘masculinity’ continues to be played out in the technical/social dualism, where women have been actively excluded from the techno-scientific field by various mechanisms and strategies that persist in the tech field today.

As discussed in this theme, political, economic and social contexts have transformed corporations in many ways along these decades, yet patriarchal structures have persisted and go on unnoticed and unchallenged. Women's incorporation to the labour market, gender equal policies, women entering the tech field, the increase of female talent in graduates, corporate social responsibility, diversity policies, the transformation of leadership and praise of 'soft' skills and the #metoo movement, are just a few of the elements that have procured social changes in corporations and that have been partially absorbed by the corporate patriarchal system. Patriarchy has dealt with these social movements by its reorganization, over and over, in order to maintain gender regimes, sometimes recurring to backlash when women have made substantial gains in their efforts to obtain equal rights in the corporate scene.

My research findings support the, previously theorized, perception of the technological environment as masculine and alien to ICT women workers in the way it has been constructed and maintained. The 'chilly climate' (Mills & Ayre, 2003; Faulkner, 2009; Castaño & Palmen, 2014) is perceived but goes unnoticed by tech workers and corporations. Women in tech positions also identify with high tech symbols and take pleasure in the deployment of power, technology *per se* is undoubtedly cherished. Technology and technological work was described with enthusiasm by women in the tech sector and no evidence of rejection to ICT work was collected during my research, confirming that women find it more difficult to cope with the tech corporate culture than with the actual tech work (Evetts, 1998), partly due to research participants being tech women workers themselves. Tech women are constantly moving under this patriarchal 'stage', they manage their projects, or business functions, on a daily basis in the ICT corporate 'scenario', as it will be discussed in the next discussion theme, this 'scenario'

holds different underlying barriers, visible and invisible, that act as exclusionary practices in the gendered digital workplace.

8.2.2 *THE SCENARIO: Managing 'otherness': Gendered workplace dynamics*

As previously argued, there has been more than a century of organizational changes in corporations, there has been dramatic changes in the structure, career assumptions and certain aspects of today's organizations have evolved in different ways (e.g. employee's loyalty or the importance of seniority in the company), working customs have changed, every day practices that seemed normal a decade ago, are different today, yet my research results demonstrate that the sensations women experience when inhabiting male-dominated organizational spaces, do not differ importantly over time and confirm the research theoretical framework (Kanter, 1977; Wajcman, 1998; Faulkner, 2009; Powell et al., 2009; Servon & Visser, 2010; Castaño, 2010; Corbett & Hill, 2015; EU, 2018). Women who leave the ICT sector are very similar to women who stay in the ICT sector, it seems the differences are not in the women themselves but in their workplace environments (Corbett & Hill, 2015). Women workers continue to perceive themselves as intruders in technological spaces and are systematically challenged to manage their 'otherness' in a gendered digital workplace where male needs and standards design career paths and tracks, ignoring women workers needs and 'otherness'.

The key insights in the analysis of Kanter's (1977) and Wajcman's (1998) in their approach to women's advancement in male dominated corporations, continue to be essential for understanding the workplace gender dynamics that drive organizational gender inequality. Kanter's pioneer analysis of token women in the corporation and

shared symptoms, and how the distribution of opportunities and power within the corporation affects the careers and self-images of women are basic principles for understanding organizational behaviour; consistently, Wajcman's (1998) influential work challenges the established views about gender and management, exploring the corporate male standard that positions 'women as out of place' (Kelemen & Rumens, 2008) in gender stereotyped roles and workplaces, brotherhood, sexuality and organizational culture. Both authors, Kanter (1977) and Wajcman (1998) have a critical look at women's and men's experience in the corporate climate and share a similar methodological approach, they seek for cultural factors and barriers inherent to the organization, those of a structural or institutional nature or situation centered, and not those that are part of the individuals in the workplace. In addition to their similarities, there are also contextual differences in the work due mainly to the organizational changes that take place in the two-decade gap decades that separate both works (e.g. horizontal segregation, managing diversity, domestic life). Nevertheless, they do have important differential approaches that have been crucial to structure my research: on the one hand, Kanter's (1977) central argument is that the structure shapes behaviour, how the definition of the situation determines how people behaves in the workplace and there are no noteworthy distinction about the way men or women perform they tasks (Crozier, 1963); on the other hand, Wajcman (1998), amongst other scholars (Fagenson, 1990; Green & Cassell, 1996; Savage & Witz, 1992) points out that Kanter 'fails to see that the person and the organization structure are not independent factors and thus ignores the social context and organizational cultures in which managerial behaviour takes place' (p. 47). Wajcman's feminist approach interrogates the male norm to which women are being compared against and is committed to exposing the masculine assumptions and power relations that

coexist in apparently gender-neutral organizational and management literature at that time.

However, my results demonstrate that both arguments, Kanter's and Wajcman's, are valid today. It is clear that worker's behaviours are shaped by the positions they hold, their access to opportunity and power, and whether they are outnumbered or part of the dominant group, as it will be further explained (I will refer to how years of service affect ICT women workers in different ways). At the same time, ICT women are expected to fit the corporate male standard and work in a gendered workplace that has been constructed to meet men's needs, and promotes brotherhood, sexual differences, that adds to a masculine culture that is perceived as gender-neutral. Along these lines, my results showed how the barriers identified in the theoretical framework (e.g. corporate *mstreaming*, organizational culture and identities, gender stereotypes), were not perceived directly as barriers to women's advancement, instead, they were part of working in a male-dominated workplace and had been normalized as such, thus, the gender inequality system reproduces itself overtime. In 'formal' gender equal workplaces, it is becoming increasingly subtle and harder for women to identify discrimination as such (Benokraitis & Feagin, 1986; French, 2005; Castaño, 2008; Kelan, 2009). Eagly and Carli (2007) describe the evolution from the 'concrete wall' of the past, where exclusion was explicit and normalised, to the 'glass ceiling' with an absolute barrier to leadership roles to the 'labyrinth' where 'women are excluded more frequently than men, but the process underlying this result are varied and not necessarily obvious as they were in the past' (p. 7). Taking from the previous discussion theme, it can be observed how the origins of rational corporations based on an all-male, all white-collar workforce, gave way to a masculine culture with strong traditional gender stereotypes and roles (men/bread

winners, women/housewives). These enduring elements, or invisible traits, are hardly questioned and remain unchallenged. Research results demonstrate how deeply rooted gender stereotypes are in ICT women, as an example, the majority of women in the sample described their own leadership styles incurring in gender leadership stereotypes, whereby corporate women leaders are more prone to be 'good with people' and outstand for their interpersonal skills (Kanter, 1977; Oppliger, 2007; Hoyt, 2010; Heilman, 2013), however when they described other corporate female leaders in their office, they portrayed systematically 'women transvestite as men' with prejudice toward female leaders as described by Eagly and Karau (2002) in their 'role congruity theory'. Other examples confirm the persistence of the women's stereotyped roles described by Kanter (1977) with more emphasis on 'The Iron Maiden' and 'The Seductress' roles over 'The Mother' and 'The Pet' but all valid in the gendered workplace. My results pinpoint how ICT women in my sample, apply similar stereotyped roles to men in leadership positions and are described in similar terms, to the significant exception of family life, that is to say that female's leadership descriptions included professional and personal aspects of their life (e.g. marital status, having or not having children) whilst male leader's leadership style only included professional aspects of their life, ignoring any information related to their personal life (Wajcman, 1998). However, unlike other scholars (Correll, 2001; Castaño, 2010; Sáinz et al., 2014; Corbett & Hill, 2015), my research did not identify stereotypes of technology associated to men amongst women in ICT, this is probably due to the fact that they are tech specialists that have opted for ICT related degrees and work in the tech sector.

The incorporation of women to corporations in such 'scenario', has produced a series of combined effects, in the form of tangible traits (e.g. tokenism/critical mass,

opportunity and power management and brotherhood), that have delayed women's equal career advancement in the ICT sector. As argued previously, on the one hand there is a selection of underlying barriers that have been institutionalized since the origin of management and corporations, where manhood is mainstreamed along every building block of the organization and is intrinsic to the corporate culture, where gender stereotypes and gender roles are embedded. These institutionalized career advancement barriers are difficult to identify but easy to experience, if you are a woman working in the ICT sector. Just as men workers, women workers have interiorized a patriarchal system, although this system locates us as inferiors to men and far away from privileges. On the other hand, there are more evident advancement barriers to participants as a result of women's incorporation to the ICT sector such as tokenism, opportunity and power management, sexuality or brotherhood; these tangible traits are more likely to be condonable and questioned: Why so few? A glance at corporate segregated data of men and women will highlight the underrepresentation of women in the ICT sector and the dramatic scarcity of women in leadership roles; brotherhood is a common lament between female senior manager and sexuality is notable and strongly experienced as well (e.g. dressing up, sexual behaviours that are/are not acceptable, existing bodily process, amongst other tangible aspects).

Women with more years of service identify more frequently the outcomes of these underlying barriers and react to them as it will be discussed later on (see 8.2.4 *THE PLAY: ICT Female talent retained*). It is the case of the gendered dynamics around corporate opportunity and power management described by Kanter (1977), female senior management realize that they do not have the same opportunities, in the form of promotions, as their peers. Their critical insights on this underlying barrier were clear,

they could objectivize and compare their professional careers to that of their colleagues, to understand there is much more to work, than work itself. Behaviours identified and theorized in low opportunity contexts (Dubin, 1956; Chinoy, 1955; Langer, 1970; IESE, 2017) were identified amongst the research results. Contrary to results expected, power management was not seen as a generator of permanent self-awareness and conflict amongst women as feminist and management literature holds (Rabindra & Kanungo, 1988; Wajcman, 1998; Beard, 2018), the exercise of power by them or other women was seen as legitimate, however the circles of power and the conceptual ideal of power was identified with corporate men, not women.

Other visible outcome that my research findings support is tokenism, Kanter's (1977) analysis on the behaviours observed in token women amongst the dominant group (e.g. visibility, contrast and assimilation), being a token women is perceived as an advantage as undergraduates of STEM careers but entering into the labour market and with the accumulation of years of service becomes burden or a poised chalice to hold. It was observed that first, tokens get far more visibility when alone in a dominant group, perceptions of self-awareness were consistent in ICT women with less working years; secondly, the differences of token women were exaggerated by contrast with the dominant group and finally, the tendency of assimilation with token women being highly distorted to fit stereotypes associated or as a symbol to the minority they belong to. This tendency results in the token's role encapsulation (Segal, 1962) and will be described further as a discussion theme. As for the critical mass theory, research findings support the tendency of token senior women to reinforce, instead of challenge, corporate *status quo* as theorized by scholars (Powell et al., 2006).

One critical outcome of a gendered workplace are the formal and informal networks that are established when socializing. Research results identified this all-male social networks as instrumental with job-related, information exchange, advice and recognition (Baker 1981; Han 1983; Ibarra, 1993; Paksi & Tardos, 2018), as well as for promotion and higher incomes (Bozeman & Corley 2004). It seems as though the digital corporate ladder is held by the 'boys' in tech corporations of Spain and operates to the exclusion of women from power circles (Faulkner, 2009; Corbett & Hill, 2015). This outcome is strongly perceived by senior women that often feel out of place or excluded from commercial activities with male clients. Furthermore, there is a perception that men peers will use these informal networks to outpace women on purpose.

Lastly but not least important, sexuality is another visible outcome of underlying barriers, significantly perceived by ICT women. As previously explained along my thesis, sexuality was not contemplated initially in the theoretical framework and was introduced afterwards. Even though women try to manage their 'otherness', it is obvious they remain female and their bodies are sexualized in a way men's bodies are not (Wajcman, 1998). Bodies and sexuality need attention and control, the characteristics associated with women arise from the symbolism and cultural meanings ascribed to women's body and biology. Many of these differences are in conflict with organizational values and, thus, undervalued in the workplace. Women are aware of their differences and try to manage their identity to convey (Bilimoria, 2007). My dissertation findings support this underlying barrier with certain nuances, ICT women that join the corporation are more focussed on managing their 'otherness' and put more effort in controlling their sexuality, they are also more prone to be harassed by male colleagues and supervisors. Women try to 'blend in' in a male organizational culture not only in the way they present themselves

but also in their behaviour. However, research results show how women with more years of service, far from managing their 'otherness' will use their sexuality to their advantage, further on, sexuality was claimed by senior ICT as an empowerment tool in the workplace; far from hiding their femininity, they will take pleasure in using their 'female weapons' to their advantage (e.g. stilettos, big rings, long hair, cleavage). This phenomenon was absent in my research feminist and management academic literature review to the exception of Kanter's women stereotyped role 'The Seductress' although it had negative connotations. As for sexual harassment (Martin, 2003), verbal and non-verbal harassment appears to be normalized in the office, more so in corporations originated in Spain and not so acceptable in those corporations with Anglo-Saxon origins. Office jokes, flirting, degrading comments, and inappropriate smiles (Hearn & Parkin, 1987) are better dealt by ICT women when are joined by other women than by themselves. Sexual harassment of women by their male colleagues has been used to exclude women from this type of work (Tallichet, 1995; Collison & Collison), findings show women are precautious of joining her supervisor or colleagues to after work activities, not taking part of informal gatherings ('brotherhood').

The gendered 'scenario' in which ICT women daily work, continues to be perceived as intrusive in a male-dominated tech environment with a corporate culture that reflects the power structures of patriarchy, which gives privileges to men (e.g. opportunities, power, social networks) and continues to give invisibleness to women's contributions. Visibilizing everyday exclusionary practices in a gendered workplace is essential for social change, informal corporate norms and behaviors that promote inequality and feelings of otherness in ICT women workers have been internalized as a product of corporations and therefore, inevitable. It is necessary to reflect on how we reproduce

inequalities in a formally equal workplace in order to minimize them. Visibilizing the ‘scenario’ underlying barriers is crucial for change and to improve the experience of female employees but will not suppress gender inequality in the workplace. The complete ‘gendered digital workplace’ framework needs to be exposed, until the institutional ‘stage’ is redefined and the ‘backstage’ under the spotlights, female retention will be an arduous task.

8.2.3 *THE BACKSTAGE: Managing domesticity: the ‘motherhood threat’*

My research approach obviated two fundamental academic debates concerning the underrepresentation of women in ICT companies: gender management styles and women’s reproductive role. As a researcher in the field, I acknowledged the correlation and decisiveness of the impact of gender social construction in our expected behaviour and women’s reproductive role, in fact, ignoring women’s relation with the private sphere or gender roles would be penalising women for our difference, instead of confronting it (Wajcman, 1998). Yet these debates, albeit their importance to career advancement and retention, have been intensively researched and discussed (e.g. EC, 2010, 2018); I aimed to identify the subtler underlying barriers, women confronted while climbing the corporate ladder. In fact, my results have demonstrated how significant these imperceptible barriers are to determine women’s experiences, perceptions and expectations in the workplace; the experience of day to day exclusionary practices, that have been partially normalized, is central to gender dynamics in male-dominated workplace cultures. However, an unexpected result for my research showed how women’s reproductive role is assimilated as a fated barrier by female participants. The

shared perception that productive and reproductive gender roles were assigned based on sex, remains unchanged in the majority of the discourses. Research findings reveal how the traditional patriarchal family structure is assimilated and identified by participants as the main barrier to career advancement in the workplace, understanding that motherhood and family life was the central problem to the underrepresentation of women in the ICT sector. Narratives around maternity, pregnancies and childcare were, regardless of age or experiences of motherhood, strongly linked to women's opportunities in the corporate world. In line with the research approach, motherhood as a topic was not in the interview script and there were no questions attempting to inquire on the matter. Nonetheless, I suspected participants with children would include motherhood in their career advancement equation; however, what I did not expect was to witness how the majority of participants, regardless of being mothers, pointed to motherhood as the main threat for female retention in the tech workplace. The 'motherhood threat' was evidenced in the majority of participants discourses, it was perceived as the moment when a woman cannot continue to be like a man. The internalization, or unconscious assimilation, of our reproductive role over the reproductive role was present in all participants, motherhood understood as the main threat to climbing the corporate ladder. The assumption that men do not get pregnant therefore they can make it to the top, did not take into consideration that being a woman doesn't necessarily mean being a mother. Under our patriarchal system, men's reproductive role is ignored, only motherhood, and not fatherhood, is seen as a 'career problem'. Not only working mothers, but women in general see 'the motherhood threat' as an indelible shadow in the workplace. Women with responsibilities for the primary care of children describe discrimination that is shown by not being offered promotions, senior positions, those women working part-time believe they are further

discriminated against because they are not considered to be committed (EU, 2013, 2018). Women without children report that they too experience discrimination based on assumptions that women will become mothers and even those that chose to not have children, understand that motherhood is the main barrier. Young single women foresee marital and family 'obligations' will compromise their quest for upward and career mobility, planning ahead promotions and career timings in order to reach to the top before becoming mothers and looking for part-time arrangements. The women I interviewed are valuable technological talent, outstanding academic performers and have or have had successful professional careers yet struggling to make it to the top or have settled along the way; reviewing and questioning the idea of homogeneity of the experience and trajectory of women in the sector, my intention is not to victimise these women, on the contrary, they react by negotiating the direction they take or taking decisions about career options based on gender identities, their sense of personal purpose and how they perceive the environment (Griffiths et al, 2006; Sáinz et al., 2012).

Throughout the history of work, many aspects have changed for women workers in Spain, however, when it comes to motherhood and the collective imaginary that builds it, we are constantly faced with the duty of reproduction over production. Domestic arrangements and the household division of labour are very different for men and women, yet managerial careers are sustained by traditional gender roles in the private sphere; it seems as differences between men and women managers are more marked in how they manage their household than in how they manage their work (Wajcman, 1998; 2006). In the early days of corporations, men workers of the rational organization could develop their corporate careers with a recognized and normalized female support infrastructure that was granted by public policies, legally reinforced and gratuitous. As described by

Kanter (1977), organizations promoted and encouraged marriage and having a family life so that men could work full-time for corporations. One central argument of Wajcman (1998) is that corporations function as a result of 'The Sexual Contract' (Pateman, 1988), whereby a fully dedicated 'corporate wife' that can take care of all non-related work matters is crucial to be a successful manager. Carole Pateman (1988) explained how women were expected to enter the workforce along with their husbands in the role of 'housewives', she explained the construction of woman as 'housewife' and man as 'worker', and the relationship between marriage contract and employment contract as part of the division of labour and subordination that extends from the private to the public sphere. Managers were expected to be devoted to work and this often meant no dedication to personal life, other than resting on the vacation period. Wifely skills and cooperation became critical to such men as they attempted to be a 'family man' (Mulholland, 2003). The role of the corporate housewife reinforced stereotypes at the office, managers thought of women workers as an anomaly. ICT women today perceive the disadvantage of lacking a recognized and normalized support infrastructure. The 'motherhood threat' assumption permeates into society, specially to women workers and female undergraduates, and it is reinforced by research academia, public policy and corporations. Women workers themselves see women with children as a liability and often informally cast them into the 'mommy track' in the workplace (Lindsey, 2015). It takes the form of a 'kind reminder' from patriarchy to women, not to forget our reproductive duties come first. The 'motherhood threat' establishes a vicious circle amongst women's expectations and career opportunities that can lead into a false self-fulfilling prophecy (*Figure 81*):

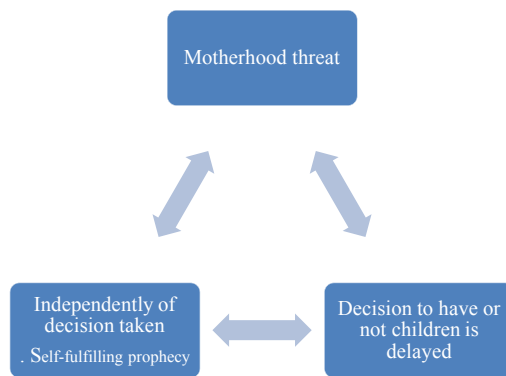


Figure 81: The ‘motherhood threat’ dynamics in career advancement.

Reinforcing gender stereotypes about masculinity and femininity, and organizational hierarchies based on the gendered division of labor has had long-lasting effect on job opportunities (Acker, 2006). The results of my research offer support for the position that there is a need to continue deconstructing women’s reproductive role and constructing men’s reproductive role in the workplace. Family issues have become public issues that belong to public policy and human resource company policies, in fact, Wajcman (1998) understands that ‘corporate responses to family needs are constructed as benefits rather than rights (p. 97) and that women are not responding to the demands of full-time employment by renegotiating the sexual contract of marriage, instead they are looking for individual solutions to the social reproduction of the household by contracting domestic work rather than confronting male power at home as we will explore in the next discussion theme.

Recurring literature on this field, reinforces the ‘motherhood threat’ which is an evident indicator that tech corporation’s ethos is not universal but gendered in favor of men. Twenty-first century digital corporations cannot be socially sustainable if they do not incorporate motherhood into career advancement nor survive in a talent pool where women are exceeding men in numbers. The ‘backstage’ of the private sphere in the

division of labour and in the lives of corporate workers of the corporation needs to be in the spotlight and cannot continue to be ignored if female talent retention is seen as a business imperative by today high tech organizations. Under the ‘stage’ and ‘scenario’ and with the ‘backstage’ in mind, ICT women workers that remain in the sector have their own role to ‘play’.

8.2.4 THE PLAY: ICT Female talent retained

As a result of how the analysis of the qualitative data connects with theoretical research themes, and the extent in which they impact in women’s career advancement in the ICT, it is observed how the cumulative effect, whether conscious or unconsciously, generates a discomfort in ICT women that can result in individual ‘fight or flight situations’ (Hewlett et al., 2008) or even, as my research findings have proven, ‘freeze’ situations; thus impacting ICT retention since women may opt for leaving the company (Frehill, 2010, Griffiths & Moore, 2010), stop climbing the ladder or reproducing male leadership patterns. Research findings support the theories around the ‘fight or flight situations’ and ‘disappearing women’ within 10 or more years of service. Senior ICT women were either considering other alternatives outside their corporations (flight), saw no motivation to continue climbing the ladder (freeze) or choose to ‘play’ under the male standard to which she is already in inferiority of conditions (fight). In accordance to the theoretical framework, results show that sometimes it is easier to accept stereotyped roles than to fight them, even if they mean limiting demonstrations of task competence because they offered a comfortable and certain position; other women opt to distance themselves from the group stereotype which not only involves perceiving the self as a non-

prototypical group member, but may also elicit stereotypical views of other in-group members (Ellemers et al., 2004); a response of women token might result in behaving like men in order to succeed by being ‘one of the boys’ and dissociate themselves from the minority group which they really belong to (Ely, 2004). Token women experience a number of contradictions and pressures, they are aware of the differences but act as if they don’t exist, Kanter referred to this as the Queen Bee syndrome that might result in being too manly and attracting the ‘iron maiden’ label or by being too feminine, developing ‘fans clubs’ of senior men and attracting the ‘seductress’ label. Wajcman (1998) supports Kanter’s description of stereotypical roles and states that men tolerate token women only so long as they are able to consign them to traditional roles that men can respond to, understand and control. She understands that whichever way women play it, women will never make the grade as men.

In addition, findings identified a common trend amongst women with more years of service within the ICT sector, due to the cumulative effect of underlying barriers to their career advancement, senior managers increasingly recognize barriers identified in the theoretical framework. I have argued how tangible traits outcomes become more visible over time, and the importance of the years of service factor to encourage women to develop their own individual ‘survival strategies’ in the workplace. Thus, female talent appears to be embedded in a gendered workplace where gender inequalities can be negotiated at the individual level, refraining from analysing structural differences and women agency. Women that continue their efforts to climb the corporate ladder, and are in a ‘fight mode’ are most likely to reinforce the masculine culture, ignoring female specific needs. (Faulkner, 1996). Research findings support Kanter’s (1977) central argument that the definition of the situation determines how people behave in the

workplace, thus senior women, explicitly and consciously, behave in order to comply with the male standard of leadership and can identify with the dominant masculine discourse in relation to their professional identities and their work (Henwood, 1998); they will assume the need for an 'isolation capsule' and being disliked by peers, since women do not have the informal networks in which they can resolve in a friendly manner their corporate 'fights over power'.

The 'woman category' is often rejected by senior women who work in all-male spaces, in an attempt to be seen as equal to men or in order to avoid being associated to what being a woman signifies in the ICT corporation (i.e. not the corporate standard). There is an implicit perversion in this rejection, as women can fail to address structural barriers or identify common 'survival strategies' that can be lobbied into the corporation.

The effect of years of service creates a stronger perception of gender inequalities awareness in senior positions, yet these senior positions are more prone to neglect the 'woman category', sometimes even as a survival strategy, and are more likely to discuss individually their concerns. On the contrary, female workers with less experience are learning how to manage 'otherness' and are less capable of addressing structural tangible traits, thus establishing a vicious circle where women's advancement in a hostile workplace evolves significantly slow.

Like in Wajcman's (1998) masterpiece 'Managing like a man', women in senior management positions continue to conform to the corporate standard as a survival strategy in their way up the corporate ladder. Managing like a man continues to be a successful part to 'play', amongst the female that remains in the ICT sector, in order to survive.

8.3 Conclusion

The discussion presented in this chapter are circumscribed to the narratives of the participants and their individual experiences, perceptions and expectations in the ICT sector in Spain framed within the review of feminist and organizational theories and framed with feminist methods of research. From the rational organization described by Kanter (1977) to the digital organization, gender equality encounters new challenges as organizational contexts expand over time. Tech women continue to inhabit hostile spaces in a male dominated industry where existing public and corporate policies are designed to address tangible barriers supported by patriarchal gender roles. Corporate women seldom feel at ease in the ‘woman category’ and rather be ‘gender-neutral’ leaders of the corporation; as a result, ‘survival’ and ‘otherness’ management takes place at an individual level, failing to promote women’s agency to address the structural intangible barriers that persist in the ICT sector. An unquestionable patriarchal framework persists in organizations whereby women’s reproductive role prevails over our productive role and is central to corporate and workers discourses of women’s underrepresentation. The ‘motherhood threat’ has haunted women workers and shaped career expectations and perceptions of the workplace to different generations of women. Visible traits, together with explanatory biological differences, have helped to elaborate a solid narrative about women’s exclusion from high tech corporations. However, the impact of enduring gender traits in women’s experiences is evident, the way women perceive themselves as equal but experience day-to-day imperceptible exclusionary practices, like ‘gender shrapnel’ (Mayock, 2016), challenges their expectations into a ‘fight or flight’ situation. Deficient female retention will by no means encourage the attraction of future tech women to

corporations, a deficit of female new candidates and hires is consistent within high tech organizations. Institutional sponsored programs coordinated by Universities or/and corporations will fail to succeed if potential role models continue to experience ‘fight or flight’ situations, regardless of the outcomes. Effective retention of female talent in tech corporations will take place in ‘human’ workplaces, instead of male designed workplaces, together with the promotion of feminist, and not masculinist, corporate cultures and leadership.

As discussed in this chapter, it is vital to understand how institutions, and not only people, are gendered and how it impacts in women’s work experiences. Gender equality movements advance intermittently in a changing landscape where new patriarchal strategies, policies, terminology and concepts emerge rising pressure for real gender equality giving way to formal gender equality; it is the example of the extension of the #metoo movement to the tech industry, at first it was perceived as a successful step towards corporate retaliation of sexual assault and harassment, the elimination of equality in gendered power relations. Organizational gendered changes in the tech sector will come across when the pillars of the ‘gendered digital workplace’ framework acknowledge male worker’s reproductive role, together with its consequences, and the invisible inequalities that remain inextinguishable are in the spotlight of action. A positive transformation of the ‘gendered digital workplace framework’ requires of a feminist leadership that is transversal to all different elements of the organization.

9 CONCLUSION

« *To be in command of the very latest technology signifies being involved in directing the future* » (Wajcman 1998, p.110).

9.1 Slowly but surely?

Much has been said about talent in the world of work, it is seen more and more as a high-priority issue and considered a critical determinant of organizational success (Michaels et al., 2001; Beechler & Woodward, 2009; Gallardo-Gallardo et al., 2013) even more so in today's digital organizations (Filos, 2006). In addition, there is an increasing demand in ICT jobs that is not always met; in Spain, the percentage of companies that face difficulties to meet the demand for ICT specialists has been growing for the last years (INE, 2018). Moreover, Spanish tech corporations have been recognized with institutional Gender Equality distinctions and have legally complied with the elaboration of Gender Equal Plans for their organizations. However, women's narratives collected and analyzed in my research, do not differ much from past qualitative research in the field (e.g. Wajcman, 1998; Powell & Bagilhole, 2006; Faulkner, 2009; Powell et al., 2009; Castaño, 2010; EU, 2018). Individual women's workplace stories are stocked with shared feelings of not belonging, perceptions of inhabiting a place where they are seen as intruders and the common need to manage their 'otherness' or, as presented in the words of a research participant 'feeling like a *rara avis*'. The experience of every day, imperceptible, exclusionary practices derive in feelings of isolation, displacement and intimidation in a 'chilly climate' (Mills & Ayre, 2003). Why do these feelings persist in women's narratives over time? Will these feelings eventually be replaced by a sense of

belonging in a welcoming digital workplace? My research results have demonstrated how research themes identified in the theoretical framework persist in the narratives of ICT women and how generational replacement has proven not to be enough to dissuade mechanisms that reproduce gender inequalities over time. The behaviors identified by Kanter (1977) in token women (e.g. visibility, contrast and isolation) persist in the digital workplace and continue to be experienced by women. Critical mass theory (Kanter, 1977; Rosener, 1995; Shrader et al., 1997; Kramer et al., 2006) whereby when female minority reaches a certain presence it could contribute to improve their experience and attract more women, has proven not being necessary or sufficient for change (Hillard et al., 2014), moreover, women will tend to reinforce the dominant groups' culture and remain isolated (Faulkner, 2009). Another proven exclusionary practice that persists today is the bond between men in circles of power, the 'Old boys Club' and its elite academic background has managed to transform into 'brotherhood', a corporate contemporary form of male bond prioritizing power over class, yet women's perceptions of these all-male networks remain the same (Wajcman, 1998). The corporate workplace is central to the reproduction of societal gender inequalities and generating new ones but also a key institution for promoting social change. Kanter (1977) focuses in corporations as substantial 'people shapers' of our society and as such it is vital to review organizational cultures, the patterns and the gender dynamics that take place because patterns of sex segregation in workplaces remain stable even after the transformation from the rational organization to the digital organization.

Feminist scholarship views gender as an inherent and constitutive element of all organizational processes, and decades of research have provided empirical evidence for this theory. The contextualization of the theoretical framework to the ICT sector in Spain,

through a qualitative field research, showed scarce improvement in the underlying barriers for women's advancement. The sample of ICT women workers interviewed shared similar experiences to those described by Kanter in the 70's and by Wajcman in the 90's. Female leadership programs, mentoring initiatives, family friendly policies, equality plans, amongst other initiatives have not improved female retention rates in the corporate tech world. Feelings of powerlessness, exclusion from the power networks, gender stereotypes, sexuality control, hostile work environment harassment, feelings of 'otherness' persist. Interviews reinforced the persistence of patriarchy in tech companies where women informants work, companies that claim to be advocates for gender equality and women's advancement and have gender equality structures within the organizational chart. Organizations that are working on the 'ICT women problem' and not the ICT sector problem with the pool of talent. Strategies for the retention of female talent in the ICT sector have failed to date, in general terms. Solutions based on individual support models must give way to solutions based on models of structural change thus challenging the *status quo*. Increasing the presence of women in the ICT sector is not a utopia, it is possible and requires a significant effort to transform the very essence of the organization since the power of patriarchal structures is undeniable.

Understanding the underlying barriers for women's advancement in a gendered digital framework, new research questions arise: Why women continue to be conceptualized as a different type of worker? How longer can women remain in less powerful positions when they are better educated than men? Even when a society is in dire need of human resources, why are women underutilized and their economic contribution not valued? And finally, will patriarchy resist against corporate competitive advantage?

9.2 Limitations and future research

My dissertation brings a new individual qualitative perspective to the pool of knowledge about similar problems concerning the underrepresentation of women workers in the ICT sector in Spain, upon which meta-analysis can then be performed. Qualitative research is linked to the context in which my research takes place and therefore results should not to be generalised. My intent in this section is to take into consideration certain limitations as the research process finalizes; some are strictly limitations of the research that have been previously acknowledged and anticipated, such as the absence of intersectionality, others are suggestions for improvement that have been identified during the research process and can be taken into account in further field research.

9.2.1 *Intersectionalities in Spanish ICT sector*

Feminist scholars and activists use the term ‘intersectionality’ to describe the categories of identity that inhabit individuals and how different aspects of social and political discrimination overlap with gender. ‘Intersectional theory’ argues that people are often disadvantaged by multiple sources of oppression: their race, class, gender identity, sexual orientation, religion, and other identity hierarchies. Feminist poet Audre Lorde described herself as a black, lesbian, feminist, mother, warrior and poet, and appealed feminist scholarship to expand their vision and embrace, rather than fear, differences among women women’s studies, programs and conferences,

As women, we have been taught to either ignore our differences or to view them as courses for separation and suspicion rather than as forces for change. Without

community, there is no liberation, only the most vulnerable and temporary armistice between an individual and her oppression. But community must not mean a shedding of our differences, nor the pathetic pretense that these differences do not exist. (Lorde, 2007, p. 112)

It is acknowledged by the researcher, and within the feminist methods applied in the research, that a greater attention to race, class and sexuality and their intersection in with research question is needed. Representation of women in ICT typically assumes women to be homogeneous in nature and fails to understand the variation that exists among women. Intersectionality also means viewing gender as a non-binary category and expanding the definition of families and life since most of the work-family and work-life discourse assumes heterosexual families and life (Ozbilgin et al.,2011).

How do the experiences of Spanish women differ from those belonging to a different culture, such as South American women peers? How does class impact in the intersecting challenges associated with being underrepresented in terms of gender and class? More specificity about what constitutes an intersectional analysis, how to conduct one and what is achieved by such an analysis is partially absent from my dissertation. The justification of this absence is two-fold; on the one hand, the qualitative methodology employed for the selection of the participant's sample was a complex process, based on tools such as LinkedIn and the database of a professional women's network that contained no information regarding participants possible intersectionalities, such as sexual orientation or class. Even though personal information of participants was collected during the interviews, questions regarding intersectionalities were not considered within the script objective. Nevertheless, a few participants spoke openly about class and all who shared experiences regarding sexuality were behaviours of heteronormative nature in all

accounts. Regarding race, a first screening of participants led to the conclusion that Black, Asian or Latinos women in the ICT Spain were extremely underrepresented, even symbolic. On the other hand, gender disaggregated data from corporations regarding women workers' recruitment, promotions and retention rates is scant and hardly accessible, even more so in order to track intersectionalities regarding women workers in ICT (race, class, sexuality, age, cultural background). However, data regarding disability intersectionalities of workers is officially requested to corporations by the Spanish Government⁸⁰, whereby corporations are obliged to hire at least two per cent of their employees with declared disabilities.

Finally, it is understood that my analysis might reinforce a gender binary concept of the ICT workplace, where women occupy isolated spaces that position men as dominant over women's experiences and perceptions of inequalities. In the near future, it is suggested that further field research employs as a central argument gender intersectionalities in the Spanish ICT sector, it is important to challenge the assumption of female heterogeneity in this field by investigating how the intersection of gender, race and class identities shape the corporate experiences of women in minorities groups. The acknowledgement of intersectionalities is crucial to feminist research and it is equally crucial to value and collect the individual experiences of women in the ICT sector. However, results should not to be generalised, as data collected belongs to a time and

⁸⁰ General Law on the rights of persons with disabilities and their social inclusion (1/2013, November 29) recognizes people with disabilities as holders of a series of rights and public authorities as guarantors of the actual and effective exercise of those rights, in accordance with the provisions of the International Convention on the Rights of Persons with Disabilities. It establishes the regime of infractions and sanctions that guarantee the basic conditions in terms of equal opportunities, non-discrimination and universal accessibility for people with disabilities.

place, and biased by the researcher. Taking into account these premises, the existing data contains potentially different research themes that should be considered for future analysis and research (e.g. expected behavior, parental influence, leadership styles).

9.2.2 Further analysis of the data collected

The data collected through the interviews is exceptionally rich; the length of the interviews and my working experience interviewing workers about work issues concerning workplace inequalities, have resulted in a vast material that needs to be further analyzed. Time constrictions have limited my analysis to the research themes identified in the theoretical framework although further analysis would bring new research themes to explore. As I explained earlier in my dissertation, ‘Sexuality’ was introduced after analyzing the recurrence of the topic in the interviews. Due to my own personal experience and behavior in the workplace, I had discarded very relevant issues concerning bodily processes, image and behaviors (e.g. clothes, crying, flirting) from my theoretical framework. After I decided to introduce sexuality as a research theme and therefore review the academic literature on the topic, I thought of new questions that were missing in the original script. It is important to reflect on the complexities of both insider and outsider knowledge and to consider topics beyond my own identity.

On another note concerning the data collected, it is important to note that the interviews were executed in Spanish, the translation of the data collected into English was challenging and implied losing the essence of some local expressions, further research should contemplate keeping the original language used by participants.

9.2.3 Divergences: Spanish context, Anglo-Saxon context

The context of my dissertation is the Spanish ICT sector, yet the main scholars that have guided my research, Kanter and Wajcman, are Anglo-Saxon; this fact has conditioned much of the references in my thesis. Nevertheless, my tutor Cecilia Castaño has introduced and complemented my research with crucial references in the Spanish field of research such as Milagros Sáinz, Juliet Webster, María Caprile, Eulalia Pérez Sedeño, Esther Rubio, Montserrat Cabré, Óscar Pérez, José Luis Martínez, amongst others, that have contributed to the contextualization of the research question to high tech corporations in Spain and understand and compare the links between Western cultures.

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11 Appendix A

11.1 Research Interview script

The interview script focuses on the research question and contains the topics, mainly highlighted by theoretical framework as themes of analysis: opportunity and power relations, gender stereotypes, tokenism and critical mass, brotherhood, corporate roles, sexuality and organizational culture. The script has been divided into four different segments with different objectives: the first two blocks aimed at creating a comfortable and more intimate atmosphere, the third block aimed at confronting the theoretical framework through subtle guided open-ended questions and the fourth block intended to gather the informant's perceptions about specific concepts and/or conclusions of the theoretical framework. The script segments, together with the purposes previously explained, gathered the following information:

(a) The first block was presented as an introduction whereby informants were asked to give professional information regarding their educational background, current position, length of service and main responsibilities, and also personal information, such as their age, civil status and number of children, if any. This block's purpose was to 'break the ice' with questions informants are familiar with and are relatively comfortable to answer. As a researcher, I already knew most of the information shared in this block since they were variables I had taken into account when designing the sample, as I will later explain;

(b) the second block, included questions most informants were familiar with, but slightly less comfortable to respond at. They were introspective questions about their performance at work, the abilities and skills they considered they excelled at and those

they considered they had to improve. The purpose of these questions was to establish a more confidential and intimate face-to-face meeting, were they could feel they could freely express themselves about themselves without judgement or distance from the interviewer. A complementary purpose of this block was to get acquainted with them and understand their demands or necessities;

(c) the third block was the most relevant to the research; it contained questions conducted to confront the theoretical framework, and previously defined research themes, with the sample of ICT women workers. Subtle questions were formulated to tackle the topics indirectly and obtain data based on the participants own perceptions, observations and experiences from their undergraduate days to their workdays at the office;

(d) the forth block highlighted concepts, phenomenons or conclusions made by the authors in each research theme, and interviewees had the choice to express or not their feelings and/or opinions around such statements.

Additionally, the script incorporates an identical survey type questions employed by scholars Kanter and Wajcam in their research⁸¹⁸² with the intention of comparing results obtained at that time and place and the results obtained in the present research. The interview script was a guide for the researcher during the meetings in order to understand with more detail the implications of the many observations, experiences and perceptions of women workers in the Spanish ICT sector. Through the conducted questions, I aimed to obtain information of the self-concepts and the expressed work

⁸¹ Table 4.2. Principal career barriers (Wajcman, 1998:88), Table 5.1. Most positive support in their career (Wajcman, 1998:126).

⁸² Table 6.2. Items reflecting managerial tasks (Kanter, 1977:142).

needs of women informants: How does the ICT women worker see their selves different from the ICT male worker? How does she feel in her work environment? How does she describe women in leadership positions and does it differ from men in such positions? Are her needs in the workplace fundamentally different from her male colleagues? Do women in management perceive they are in need to adopt a certain type of personality to be accepted and successful? Are they constrained to conform gender stereotypes? Do they understand women bring new managerial perspectives, needs and ways of behaving or do they replicate the existing model where men are seen as the standard? Do informants hold gender stereotyped perceptions about other women and themselves?

N° #	INTERVIEW DATE ORGANIZATION POSITION YEARS OF EXPERIENCE
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AGE & DEPENDENTS

ABILITIES & SKILLS

Outstanding skills.

Skills that need improvement.

EXPERIENCE

CURRENT POSITION • ORGANIZATION • YEAR ENTRY • YEARS IN POSITION

Main responsibilities.

Main outcomes.

Team size.

EDUCATION

DEGREE • UNIVERSITY • GRADUTATION YEAR • Academic merits.

Scholarships.

OTHER INTERESTS AND RECOGNITIONS

Activities in other fields (sports, social, volunteering, etc.).

PART I: PERCEPTIONS & EXPERIENCES

1. University career perceptions

- 1.1. Why did you study this career?
- 1.2. What did you want to be when you grew up? Why? What influences do you recall?
- 1.3. How do you remember university life? Was it inclusive?
- 1.4. Would you recommend this career to your friends / family a STEM career? Why?
- 1.5. How would you relate your university career to your professional career?

2. Perceptions about organization

- 2.1. Do you think your company offers equal opportunities to men and women?
- 2.2. Are women and men represented equally? If not, what do you think is the cause?
- 2.3. Can you identify a woman who holds power in your organization? Please, describe her leadership style.
- 2.4. Can you identify a man who holds power in your organization? Please, describe her leadership style.
- 2.5. Can you identify a man who holds power in your organization? Please, describe her leadership style.
- 2.6. What measures / actions do you think would have the greatest impact in your organization in order to have greater parity? Could you cite them according to their degree of impact (from highest to lowest)?
- 2.7. Have any of these measures / actions been implemented in your organization? If so, with what degree of impact? With what degree of acceptance?
- 2.8. Do you think that an equal representation in your organization is important? Why?
- 2.9. What are the main barriers in your organization to achieve greater parity? Superficial and/or underlying?

3. Perceptions about professional career

- 3.1. Have any of the previously mentioned obstacles affected you in your professional career? How have you reacted? If it is not your case, any peer?
- 3.2. How would you describe your relationship with female and male supervisors?
- 3.3. How would you describe your relationship with female and male peers?
- 3.4. How would you describe your relationship with your female and male subordinates?

- 3.5. What are your career aspirations for the next years? What does it depend on? Could there be any barrier for you?
- 3.6. How would you describe your own leadership style?
- 3.7. Do you always feel like an equal in your organization? When not? Why? What have you done?
- 3.8. Do you have influence in your work environment? Why (or not)?
- 3.9. Do you participate in the same way as your peers in meetings?
- 3.10. Have you experienced tokenism?
- 3.11. Do you feel you have to act/behave differently than others for being a woman?

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PART II: CATEGORIES OF ANALYSIS IDENTIFIED BY THE AUTHORS OF REFERENCE

1. Opportunities and power management

"All the people in the organization are rational regardless of the appropriateness or otherwise of their manifestations or behaviors, that, on the other hand, are usually the result of their particular situation in the organization and in order to preserve their dignity, control and recognition." (Crozier, 1964.)

2. Gender roles

"Men make better supervisors"

"It is acceptable for a man to be competitive, but not a woman"

"A woman cannot be a supervisor and feminine as well"

"Mother, Iron Maiden, Whore, Pet"

"Female Leadership style"

3. Boys Club

4. Sex & business

5. Hostile environment

6. Career expectations

What motivates me the most to advance in my career (5 - 1, 5 is highest):

Responsibility 4

Decision-making 4

Opportunity to lead others 3

Independent thought, action 4

Being outspoken 4

Being aggressive, competitive 2

Getting additional training 3

Being objective 3

Making decisions on promotions, raises, terminations 2

7. Career support

Most significant career support (5 - 1, 5 is highest):

Partner

Family

Colleagues

Male boss

Female boss

Male role model

Female role model

Women's network

Men's network

Other:

8. Career barriers

Career barriers (5 - 1, 5 is highest):

Inflexible working patterns

Family commitments

Lack of adequate childcare

Lack of career guidance

Lack of training provision

Prejudice of colleagues

Lack of personal motivation/confidence

Senior management seen as a "male club"

Social pressures

Sexual discrimination/harassment

Insufficient education

- "En la tierra seremos reinas,
y de verídico reinar,
y siendo grandes nuestros reinos,
llegaremos todas al mar."

Todas íbamos a ser reinas

Gabriela Mistral, 1938.