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The place of women on the websites of IT companies

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Abstract

As the IT industry is traditionally male-dominated and the needs for a diverse workforce increase, gender issues remain an important concern for IT companies. Website has become one of the major communication channels for companies, on which gender diversity is increasingly discussed. Few studies have been set out to examine the status of women on the websites of IT companies. The aim of this study is to provide an insight into how IT companies enhance gender parity on their corporate websites. A content analysis approach is used to investigate the textual and visual elements on websites, in order to understand the rationales and practices for the enhancement of gender equality, as well as the effectiveness of the use of communicative tools. Our findings indicate that IT companies include women and use communicative tools to show their commitment to gender inclusion on their websites. This contributes not only to the competitive advantage of the organization, but also to its corporate social responsibility. We suggest that serious consideration should be taken to avoid gender stereotypes and invisible discrimination against women. This dissertation extends our knowledge of the website communication of IT companies in terms of gender diversity and provides inspirations to improve the communication processes.

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List of Abbreviations

IT	Information technology
ICT	Information and communications technology
STEM	Science, technology, engineering, and mathematics
WLB	Work-life balance
R&D	Research and development
CSR	Corporate social responsibility
CAb strategy	Corporate ability strategy

Introduction

At the dawn of the Fourth Industrial Revolution, which is based on digital infrastructure, information and communications technology (ICT) serves as the backbone of this transition (Baller et al., 2016). According to the European Union, women's involvement in the digital sector contributes to an annual GDP boost of EUR 16 billion (European Commission, 2018). However, while the IT industry has been dramatically growing and the job opportunities have been increasing, women still tend to be underrepresented in this male dominated industry. With new technologies and new tasks emerging, a highly qualified IT workforce is increasingly demanded, which has the potential to enlarge the gender gap in the industry (Ruiz Ben, 2007). The failure to leverage gender parity could compromise business efforts to prepare for the dynamic new economy.

The development of the IT industry suggests that efforts to enhance gender parity at the institutional level are significant for IT companies to boost their competitive advantages and reputation. As websites are increasingly used as primary public relations tools for corporate communication with stakeholders, they could mirror the organizational values and strategies for gender equality (Uysal, 2013). This research aims to discuss the place of women on three UK IT companies' websites. Firstly, we examine if IT companies include gender diversity statements on their websites, as well as the strategies and tools they use to communicate about this. Then, the research focuses on the extent to which these IT companies enhance gender parity by investigating their motivations and workplace practices.

This dissertation is structured around four sections. The study begins with a review of the literature and includes a discussion of the situation that IT female professionals face, the reasons and strategies of gender diversity enhancement, as well as an insight into women empowerment. The third chapter explains the research methodology and data collection. In this research, the content analysis method was used, and a specific framework was established. The fourth chapter then discusses the results and findings from the content analysis of the websites. Finally, the dissertation ends with a general conclusion.

Chapter 1 Women in IT Professions

Information technology consists of “support for other people’s usage of computer systems”, which has significant implications for economic, social and cultural development (Ahuja, 2002, p. 21). It is in close relation with computing technology. Due to the rapid growth of the technology and digital economy, computing applications have been involved in a wide range of sectors. In this dissertation, information technology is defined in the large sense as processes employing computers in handling electronic information. IT companies thus refer to all corporations that use information technology in developing their products or services. Companies may use information technology in developing services including systems architecture, database design and development, networking, application development, testing, documentation, maintenance and hosting, operational support, security services etc. (ECONOMYWATCH, 2010).

There is a consensus in previous research that the information technology sector is male dominated. Gender related issues remain an important concern in IT. Gender is defined as “patterned, socially produced, distinctions between female and male, feminine and masculine” (Acker, 1992, p. 250). In a study examining the influence of contextual factors on team diversity, Joshi and Roh (2009) carried out a meta-analysis on 8,757 teams, and found that occupational and industrial variables play a dramatic role. They pointed out that gender stereotypes are more likely to occur in male dominated industries and occupations, which place women in an unfavorable situation (Joshi & Roh, 2009). As a result, IT female professionals confront barriers of prejudices that men do not experience in the field.

To understand the status of women, a good summary of the barriers in IT careers has been provided in a stages-model. This model includes three dependent professional stages in IT: career choice, career persistence, and career advancement. Various factors leading to impediments at each stage have been identified: social factors and structural factors. As established in this study, social factors refer to social expectations, work-family conflict and informal networks, while structural factors focus on occupational culture, lack of role models and mentors, demographic composition, and institutional structures (Ahuja, 2002).

Even though it is difficult to investigate all the aspects, Ahuja (2002)’s stages-model serves as a practical framework to recognize and measure issues involved in the current situation of women in the IT industry. Nevertheless, the elements contributing to the lack of women in information technology are much more complex: they do not only feature in the employment stages examined by Ahuja (2002), but also stem from socialized processes at an early age and throughout the life. This chapter is largely based on Ahuja (2002)’s model classification, but the discussion is not limited to this framework. Social and structural factors are investigated to reveal the obstructions experienced by women.

1.1. Social Factors

Being part of the society means that every social element from childhood to employment may influence a person's thinking and decisions. This section focuses on the following social factors: social expectations, work-family conflict, and informal networks.

When investigating the effects of social-cultural factors on gender in the Australian IT profession, Trauth et al. (2003) have identified two streams of research: (1) studies that outline inherent and psychological differences between the sexes, such as women's lower computer aptitude and higher computer anxiety, and (2) studies that outline gender socialization and focused on the social construction of IT as a male domain. Kim and Rader (2010) have suggested that compared to men, women display lower computer aptitude and stronger computer anxiety, which results in different degrees of enrollment in information technology. However, it has also been argued that is social factors, instead of biological aspects, that primarily contribute to the construction of one's beliefs and relationships with the IT field (Marini, 1990). Both biological and socialization processes should be considered while examining the gender bias in information technology.

1.1.1. Social Expectations

Social expectation is constructed by the way women perceive themselves and the external views held by society.

1.1.1.1. External Views of Women

Before they became male-oriented, computing occupations used to be largely occupied by women. Women dominated in the computing industry before and early after the WWII. Although nowadays most of the well-known people in IT are men, such as Bill Gates and the late Steve Jobs, numerous programming pioneers were female. It was a woman named Elsie Shutt, who founded the first software company in the Unites States in 1958. The first British software company was established by Dina St Johnson in 1956. With the successful performance of women in computing, an increasing number of women have chosen computing related subjects in job training. What's more, an article in 1967 titled "The Computer Girls" stated that "Now have come the big, dazzling computers - and a whole new kind of work for women: programming" (Armbrecht, 2015). Before 1980s, women still considered computer programming as a desirable occupation.

However, the way computing was viewed significantly changed subsequently. Since the 1970s, the emergence and popularization of the personal computer have exerted a powerful effect (Armbrecht, 2015). These new products were advertised as a toy for boys by strengthening their entertaining and educational function. Moreover, male heroes in movies, such as hackers, and male characters in games have also enforced the stereotypical gender attribution in computing. The societal communication pattern around computers has encouraged men with more opportunities to access the field, thus shifting people's perception towards computer use. In short, the social construction of

information technology as a male field has played an important role.

In general, gender bias leads to different social signals given to men and women. Because of the stereotypes about different social roles, different work activities are associated with women and men accordingly. The gender role stereotype is a conceptual bias based on the positive evaluation of abilities of different sexes in particular social activities (Ronald et al., 2006). Regarding computer use, the perception that men are inventors while women are consumers, is widely accepted by society (Ronald et al., 2006).

During socialization processes, most work activities are defined on the grounds of gender traits perceived by people, then the convention is formed and followed. This phenomenon affects people's beliefs about which jobs are suitable for men and women. The main problem is that people are likely to associate male traits with computing competence when considering whether women fit in the IT occupations (Ronald et al., 2006). The perceived male features of competition and violence are believed to be in line with computer culture. Social expectation about female roles and values tends to be related to the domestic domain rather than public productive activities. Due to socialization processes and genetics, childhood behavior is shaped by the definition of computing as a male domain (Fisher & Margolis, 2002). Early social experience based on role distribution is responsible for women's lower self-efficacy in careers (Ronald et al., 2006). Social allocation and women's self-selection of work activities have an impact on each other alongside with the interaction of external expectation and the self-expectation of women in the IT field.

As far as socialization processes are concerned, the external views on women in IT can be identified through a set of social signals. Parental influence plays a role in family where an individual begins to explore the world. It has been found that parents are more likely to expect their sons to engage in STEM industry (i.e. science, technology, engineering and math) rather than their daughters, despite of equal capabilities of both sexes (Byrne, 2017). The level of parent's acceptance of women's engagement in IT reflects social expectations.

Lower expectations of women's technical competence discouraged women from further studying relevant skills and acquiring technical qualifications at school. Subjects such as mathematics, science and computing are defined as male domains even though women are equally qualified. These subjects are not emphasized to the same extent among girls and boys in schools. Graham Kendall, professor of Computer Science at the University of Nottingham, cited a report from the University of Roehampton according to which only 9% of students at girls' schools are offered computing at A-level, compared with 44% at boys' schools (Kendall, 2017). Thus, women are not exposed to computer use and the IT field as much as men. As a result, women are under-represented in IT-related disciplines during the educational period. Only 3% of women involved in information and communication technology (ICT) courses, and women made up only around a third of graduates in STEM education across the world (Wood, 2020; World Economic Forum, 2016). With a lack of adequate support, it appears to be

more difficult for women to obtain achievements in computing studies, which results in women's lower confidence and less positive views of information technology.

National culture appears to have influence on different social expectations towards IT practitioners. According to the cultural dimensions theory, the dominant feature of a society is an important factor to understand a culture (Hofstede, 1983). In a nation where the masculine tendency is more prevalent, there is a wider gap between values associated with men and with women. As technology is usually seen as a male domain, social expectation of female enrollment in IT tends to be lower in a masculine society. Ahuja (2002)'s findings have also confirmed that national culture has an impact on technology acceptance for different genders. Surprisingly, however, it has been shown that social expectation is more influential in countries with greater gender equality: female graduates and professionals in countries, such as Finland and Sweden, are relatively less present in the STEM field (Sossamon, 2018). It is called the "gender-equality paradox". The reason for this phenomenon seems to be a hybrid result of different academic competence, interest in the domain, as well as the degree of financial security (Sossamon, 2018). Work expectation is a combination of self-efficacy, work interest and perception of suitable occupational options (Ronald et al., 2006). Because of the biased social expectation regarding women's computing capabilities and the less favorable structure of opportunities, women are more likely to avoid the IT industry in order to pursue a greater financial safety when they can make the choice.

1.1.1.2. Self-expectation of Women

Self-expectation reflects the ways in which people perceive themselves, which is driven by personal belief and social norms. Women's self-expectation of information technology is represented by self-efficacy, attitudes to computer, and aspiration for the industry.

Self-efficacy is the belief that one is capable of attaining certain objectives by implementing certain approaches. When it comes to IT occupations, self-efficacy is the belief in one's ability to accomplish educational assignments and career duties related to the field (Ronald et al., 2006). It is a dynamic self-concept in interaction with other individual, behavioral, and contextual factors, rather than an isolated and static trait (Lent et al., 1994). To assess psychological obstacles to IT careers, Ronald et al. (2006) investigated the occupational efficacy and passion for computing through a questionnaire with 140 male and female graduate respondents from two American universities with a strong tradition in engineering and technology. They found that in general, men show greater self-efficacy for IT careers and greater passion for computing, and less positive attitudes towards women's technical capabilities (Ronald et al., 2006).

According to Ahuja (2002), not only do women in the IT industry have lower self-efficacy, but they also share higher anxiety about computer use. On the one hand, the detrimental social environment towards female IT professionals results in numerous barriers and it takes women more effort to find approaches to achieve success than men. In order to be perceived as equally qualified, women need to be 2,5 times more

productive than men (Soe & Yakura, 2008). On the other hand, the challenges women must overcome bring with them uncertainty and lower comfort. Ahuja (2002) has pointed out that educational and occupational encouragements are of greater importance for women than men. Thus, the higher requirement of outcome and the lack of encouragement tend to lead to women's lower confidence in information technology. As a result, computer anxiety tends to damage women's self-efficacy and lead to computer avoidance (Ahuja, 2002).

Self-efficacy and vocational interests are intertwined. Vocational interest is the attitude of likes, dislikes and indifference to occupational activities. There is evidence indicating that strong self-efficacy contributes to higher degrees of vocational interest (Ronald et al., 2006). According to the research conducted by Ronald et al. (2006), men show greater passion for computing. However, based on nationwide surveys and case study research in the UK, Panteli et al. (1999) have found that there was no significant distinction between genders when it comes to the aspiration for the IT industry. But interest and challenge are more important for a large proportion of women than men (Panteli et al., 1999). This means that even though women have similar ambition for IT-related careers to men, lower vocational interest and perception of barriers play a more significant role in female career choices and advancement. Nevertheless, according to the structure of opportunities argument, it is the factors other than interest that are more influential to career choices (Ronald et al., 2006). Factors such as work conditions, job options, the creation of new occupations, and the shift of skills demanded appear to reshape the paths to success in the IT field.

Overall, women's self-expectation in the IT field is associated with the perception of technical competence and possibilities of success. Apart from the inherent elements that may influence their expectations of information technology, women's attitudes are also affected by what they assume others may think about them.

1.1.2. Work-family Conflict

Work-family conflict is another barrier that women have to face. Research has indicated that social expectation and work-life family conflict play a significant role when women decide which career field to pursue (Ahuja, 2002). Work-family conflict is "a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (Higgins & Duxbury, 1992, p. 391). It is a specific form of work-life conflict where work roles interfere with personal life roles.

Work-family conflict occurs when the demands of work are not compatible with those of family. IT occupations highly require physical flexibility in time and in location. The fast-changing nature of the IT industry makes the work requirement more and more demanding. Aside from the fact that the constant updating of technical skills increases work stress, IT professionals are expected to be able to work late and be available 24 hours a day to deal with technical problems. Moreover, due to the globalization of IT-related business, they should adapt to frequent travel. Importantly, it has been reported that women and men in IT share similar levels of experience regarding work-family conflict, such as the feeling of burnout, the perception of workload and the perception

of supervisor support (McKinney et al., 2008).

The social distribution of roles strengthens the pressure of women in the family sphere, which can explain why women suffer more from work-family conflict. Previous study has revealed the social beliefs about the image of men as employees and far away from childcare and family responsibilities (Acker, 2006). The socially constructed view that women are primarily family care-givers makes women to undertake more family responsibilities than men, and thus adds to their workload. The gender divide of roles in the household can have an effect on the IT workplace. Women are typically thought to be family-oriented and reluctant to travel or work late.

Professional women face a dilemma. On the one hand, women who devote time to personal life are perceived to be less committed to work and less professional than their male colleagues (Ahuja, 2002). On the other hand, nowadays even if family structures are diverse and domestic work tends to be shared among couples, women still face strong family pressures. According to a profile analysis of 359 dual career couples, it has been found that women who place their career first or at the same level as their husband's have to deal with more conflicts at home than those who place their career second (Duxbury & Mills, 1989). The work-family trade-off for women is a challenge. Gender inequality is legitimized by the beliefs about women's primary household responsibilities and the tough juggling between career and family (Ahuja, 2002).

1.1.3. Informal Networks

The term 'informal networks' refers to informal communication processes in the social interactions. In organizations such as companies, informal networks are dominated by men, and therefore is exclusionary for women. It is also referred to as the "old boy's club", highlighting male based activities and male talk, such as sports talk (Ahuja, 2002). It is difficult for women to break into informal networking. The old boys' network is often identified as the most important obstacle for female career development (Robertson et al., 2001). Business clubs where these informal interactions take place are male dominated. One cannot spontaneously apply for membership; it is by reference only (Robertson et al., 2001). Given the gendered social and cultural roles of women, men are more likely to recommend their male peers rather than women. It leaves little opportunities for women to enter these male-dominated networks. On the other hand, even though some women attempt to access informal networks, they cannot truly engage in and benefit from them, because they are still a minority and are actively excluded.

However, networking is an essential social capital for career advancement. Firstly, lack of informal networks involvement leads to the exclusion of women from important assignments. With experience and information sharing, informal communication allows IT professionals to update career opportunities and access formal positions. While internal hiring to projects and teams tends to be realized through informal networking, women are likely to miss out on these progression opportunities (Kaminski, J. A. and Reilly, 2004). Secondly, the exclusion from networking results in women's lower visibility in the organization. Visibility is of great importance in evaluating a

professional's performance and potential. In a study examining the perception of opportunities for advancement of 240 senior leaders in technology companies, Correll and Mackenzie (2016) have reported that visibility is the most important factor for promotion. This survey has also assumed that women are less likely to be assigned to high-visibility positions than their male counterparts (Correll & Mackenzie, 2016). Thirdly, the feeling of being an outsider in the organization produces barriers for women in IT at the psychological level. Male-oriented networking advocates masculine characteristics and leads women to feel they are unwelcome. Women are found to attach more importance to relationships regarding career advancement (Gallos, 1989). The limited access to relationships development damages their confidence and self-efficacy, and leads to lower commitment to their career and the organization.

Informal networks reflect a biased power structure in an organization that impedes women from engaging further in the IT field. Outlining the gendered relations of power reproduced by communication processes, Robertson et al. (2001) have argued that involving women in the formal and informal networks is the only effective facilitator to change the disadvantaged status of women in computing.

1.2. Structural Factors

While the IT industry has developed and changed over the last decades, the structural barriers faced by female IT professional remain. Occupational culture, lack of role models and positive mentoring relationships, lack of career development regimes, gendered institutional structures and processes, all interact to block women in their paths to IT career development and increase work stress.

1.2.1. Occupational Culture

While national culture affects the perception of female roles, occupational culture and practices at the sectorial level also exerts great influence. According to the 2016 Industry Gender Gap report published by the World Economic Forum, the barriers experienced by women in workplace can be attributed to different industrial cultures (World Economic Forum, 2016). Previous study has identified two dominant computer cultures: the culture of calculation and the culture of simulation (Ridden, 1997). The culture of calculation is a downward approach based on masculinity and individuality, which emphasizes hard skills such as programming and engineering; whereas simulation refers to soft capabilities with which women are said to feel more comfortable. In fact, Ahuja (2002) has observed that the culture of calculation is dominant in computing. The occupational culture in IT has been found to be male-dominated, individualistic and competitive (Wentling, 2009). This has been supported by a study investigating the gender issues within computing in the UK and Scandinavia. Most of the prestigious people in both academia and industry highly value the technical aspects of computing (Robertson et al., 2001).

The nature of IT work combined with biased stereotypes towards women leads to a workplace culture that is not neutral. As information technology demands regular technical skills updates, hard skills are overemphasized, which leads the necessary

softer skills side in IT (e.g. social skills) to be overlooked. What's more, beliefs that women are not as competent at computing as men result in the under-evaluation of women's technical capabilities (Trauth et al., 2003). It is believed that women who are successful in IT owe their success to their hard work but not to their competence. Moreover, occupational requirements strengthen the dominant masculine discourse in computing. In masculine culture, women tend to be positioned as potential caregivers (Kirton & Robertson, 2018). IT occupations require professionals to be flexible physically, including being able to work overtime and travel freely. The societal constructed role of women appears to be at odds with the IT working culture. As a result, the masculine culture and unequal gender relations in the IT industry tend to be legitimized.

The persistence of the traditional masculine workplace culture largely accounts for the under-representation of women in IT occupations. Women's avoidance of the IT field is mainly due to the various discouraging messages and experience, rather than to the inherent factors in the workplace (Ronald et al., 2006). Social signals lead women to perceive IT work as an unwelcoming and less supportive field for them. There is evidence that the hostile male-oriented culture of IT professions prevents women from getting involved and persisting in the field. For instance, women's self-exclusion from technical fields is partly due to the dislike of the industrial culture (Panteli et al., 1999). The gender gap in the IT field in return strengthens the male domination in the industry.

Even though the IT industry has changed a lot in recent years, the biased occupational culture has inertia and dies hard. According to a study on the influence of organizing processes on the career development of women in IT, it has been observed that occupational culture is highly resistant to change even if some measures are taken (Kirton & Robertson, 2018). The difficult transformation of the IT workplace culture requires broader efforts at the institutional and industrial levels.

1.2.2. Role Modeling

Role models are persons who have achieved a lot in a domain and are admired and emulated by those who desire to succeed in the same field. They play a significant role in the socialization processes of a profession, with providing career-related information, support and encouragement to inspire and empower others. Role models for women in IT could be widely present in the industry, such as pioneers in computer science, senior female mentors, professors in computing, faculty members, and female campaigners (e.g. Belinda Parmar, Martha Lane Fox etc.).

Role modeling is of great significance to encourage more women to get involved and remain in information technology. Even though role models are reported to be equally influential for male and female IT professionals, women are in greater need of support in achieving excellent job performance (McKinney et al., 2008). This suggests a greater necessity for external assistance from others, such as role models.

Firstly, female role models are evidence indicating that it is possible for women to succeed in the IT field. These successful examples contribute to a clear line sight of

career paths for female professionals, and provide information about the opportunities and benefits in IT careers while women are making trade-offs. Secondly, role modeling inspires women from a psychological perspective. In a study examining the role of workplace culture in the career development of women in IT, it has been revealed that having female role models to look up to is important to build up self-confidence (Wentling, 2009). Thirdly, female role models help to challenge and shift the negative industrial perception. The experience and stories of female role models encourage other women and can help them see that information technology is also for them: women can have a place in the field.

Nevertheless, previous studies have suggested that female role models do not always exert positive effects. For instance, referring to the IT dominant culture that has deeply influenced them, some women could be more critical to other women (Soe & Yakura, 2008). What's more, tokenism problems may occur. According to Oxford Dictionaries, "tokenism" is the practice of "making only a perfunctory or symbolic effort to do a particular thing, especially by recruiting a small number of people from underrepresented groups in order to give the appearance of sexual or racial equality within a workforce"¹. The emphasis on successful women in information technology could lead to a misleading impression of an equal IT workplace. In addition, female role models, who have managed the obstacles that many other women have not, could turn the spotlight on the "deficiency" of other.

The scarcity of female role models and the under-representation of women in the IT industry impact each other. The lack of role models is one of the factors explaining the low employment rate of women in IT (World Economic Forum, 2017). On the other hand, the small proportion of women in IT makes it difficult to find female role models. According to College Board mentioned in an article by ThornTon A. MAy, the primary barrier preventing female students from taking the Advanced Placement test in computer science is the familiarity: 77% of the respondents stated that they didn't know anyone who work in information technology and they didn't seriously consider the IT as a career field (May, 2015).

Overall, despite possible negative influence, the lack of visible female role models results in lower exposure of women to the IT field, which consists of one of the major impediments for women in IT.

1.2.3. Mentorship

Mentorship is of great significance for female IT professionals in regard of career development. Ahuja (2002) have reported that the two hardest structural barriers to advancement in IT professions are the absence of mentors and the shift of the IT industrial structure. A mentor is "an experienced, productive manager who relates well to a less-experienced employee and facilitates his or her personal development for the benefit of the individual as well as that of the organization" (Noe, 1988, p. 65). The assistance from a mentor can be received in the form of career help and psychological

¹ <https://www.lexico.com/definition/tokenism>

support. Ahuja (2002) has reported that a staff member who experiences mentorship once or more tends to have better career performance and greater job satisfaction than those who do not.

Mentorship plays a role in involving women into higher management in IT careers. First, senior mentors can help female mentees to build up social capital and gain visibility in the organization. Mentors, who provide support, networking and recognition, take an important part in the supportive communities for women in the male dominant context of IT (Wentling, 2009). With the help it provides with including women in informal networks, mentoring arguably contributes to a positive change in the situation of women in the IT workplace. Previous studies have revealed that enhancing mentorship and role models is an effective approach to shift to a more gender-friendly organizational environment (Trauth et al., 2003; Wentling, 2009).

When it comes to the promotion of women in IT, the availability of female mentors is also highlighted by researchers. Gender similarity is seen as an important factor affecting the effectiveness of mentorship (Ahuja, 2002). Female professionals tend to be more willing and more comfortable to interact with those who are similar in gender to them. Additionally, as career development challenges are similar for women in IT, female-to-female mentoring relationships seem to be more influential for female mentees (Kirton & Robertson, 2018).

It appears that female IT professionals do not benefit from mentoring relationships as much as their male colleagues. There are not adequate mentors available, especially those who are female. In a study based on telephone interviews with twenty-five women in IT, the respondents stated that it was difficult to find female mentors in information technology (Wentling, 2009). While women's need for mentorship increases, the number of mentors accessible does not change at the same rate (Ahuja, 2002). On the other hand, because of the lower exposure to potential mentors and the stereotypical perception of gender roles, women experience more difficulties in obtaining a mentor than men in the male dominated IT field (Kim & Rader, 2010).

It is important to note that mentorship does not necessarily lead to career advancement. In research aiming to figure out the causes for less promotion among women in higher hierarchy, a sharp distinction is made between mentorship and sponsorship (Ibarra et al., 2010). In sponsorship, a mentor makes an effort to advocate for the mentee by employing their resources and abilities, which is much more supportive than only giving feedback and advice. Based on interviews with forty qualified participants in high-level mentoring programs, Ibarra et al. (2010) have suggested that high potential women are over-mentored and under-sponsored comparing to their male peers, which can partly explain the unequal opportunities women have in terms of occupational progression (Ibarra et al., 2010). Positive sponsorship rather than simply a mentoring relationship appears to contribute to an increase of women in managerial positions. In order to make women benefit more from active mentorship, mentoring programs with accountable sponsors have been shown to be instrumental in supporting and promoting high potential women (Ibarra et al., 2010).

1.2.4. Demographic Composition

Demographic composition provides a mathematical description for a category of people who share certain similar features. Despite the growth of the IT field, women still tend to be under-represented not only in the overall number of the participants in the sector, but also in managerial positions. The declining representation of female scholars and practitioners reflects the lower entrance and retention rates of women in information technology. The lack of women should be addressed as a problem for the IT industry (Griffiths et al., 2007).

1.2.4.1. The Pipeline Leakage

The metaphor of “leaky pipeline” is usually used to explain the imbalance in gender proportion and the lack of women in computing careers. The pipeline is divided into segments corresponding to educational and occupational stages, ranging from elementary school, middle school, graduate school, entry level to management (Soe & Yakura, 2008). Under the leaking pipeline phenomenon, the reasons for the low proportion of women in IT are mainly the “input problem” and the “throughput problem”. The former points to a lack of women entering technology-related training and professions, while the later refers to the leaving trend. According to a survey on 815 IT professionals from American organizations, the “supply-side” issues have been shown to be more significant than the “throughput problem” in the IT industry, with lower numbers of incoming female talent than male talent (McKinney et al., 2008). The pipeline shrinkage problem reflects the organizational and social issues within the industry.

1.2.4.2. The Under-representation of Women in IT

Data from previous studies have indicated the under-representation of women in the IT workforce. According to the U.S. National Science Foundation, the percentage of women in computer science began to fall constantly since mid-1980s (Luxton, 2016). During the 1980s, the participation rate of women in the IT industry made up 25% of the working population in the UK. Then, the proportion of IT women declined to 19% globally in 1993, from a percentage ranging from 20% to 22% in the early 1990s (Panteli et al., 1999). The shortage of women in the IT industry is an issue across the world (Wentling, 2009). While job opportunities in the IT industry increase, the rate of women engaged in the field does not show an upward trend.

The under-representation of women in IT careers is also reflected in the skewed participation in core roles. Women appear to be excluded from the technical positions. A report on gender parity in the Fourth Industrial Revolution indicates that, in the top 10 biggest tech firms in the Silicon Valley, only an average of 18.3% of the tech roles were filled by women, while the percentage of women in non-tech jobs was much higher ranging from 35% to 60% (Luxton, 2016; World Economic Forum, 2017). In addition, in the research on the industry gender gap, women are under-represented in line roles in sectors such as Communication Technology, Energy and Basic and Infrastructure sectors (World Economic Forum, 2016). Line functions, such as sales and

production, directly contribute to the organization in the core business. The participation in these occupations is more likely to help professionals to develop skills and experience that enable them to climb up to higher management layers (World Economic Forum, 2016).

In short, women rarely reach top leadership positions in IT. Even though women can have access to education and enter the IT workplace, the status of women in senior management appears to largely remain unchanged (World Economic Forum, 2017). Studies tend to reveal that the gender gap in senior management layers exists across all industries: women fill a third of junior level jobs, nearly a quarter of mid-level jobs, 15% of senior level position, and represent 9% of CEOs (World Economic Forum, 2016). This phenomenon also occurs in the IT field, where female professionals can essentially be found in lower and middle level positions (Ahuja, 2002). At the top 100 Fortune 500 IT companies, women only account for 13% of board members and executive officers (Catalyst, 2007). When it comes to the appropriate number of women we need in a board, a study on boardroom dynamics has indicated that it is necessary to involve at least three women in order to prevent them from being isolated and to lead to a neutral treatment and a more collaborative dynamic (Konrad & Kramer, 2006).

1.2.5. Institutional Structures

Prior research has revealed that the IT workplace tends to be shaped by the masculine dominant culture, which is incorporated in masculinized organizing processes (Kirton & Robertson, 2018). In an organizational context, the gendered structures and practices that favor men are likely to be normalized and gain legitimacy to the detriment of women's careers. To further understand the impediments impairing women's enrollment in IT careers, this section is devoted to investigating the biased working environment at an institutional level.

1.2.5.1. Gender Discrimination in the IT Industry

The IT workplace tends to be gender biased. Gender discrimination refers to the beliefs based on gender differences about jobs, tasks and roles (Robertson et al., 2001). In an organization, this kind of signals may be continuously communicated and reinforced in daily operations. Previous study has reported four forces accounting for the discrimination against women across industries like computing (Hemenway, 1995).

First, one of these forces concerns a catch-22 dilemma. For instance, women with feminine work styles and who value collective efforts are perceived to be less self-driven and competent than men. On the other hand, women who abandon their stereotypical feminine characteristics and adopt more typical masculine behavior are criticized for being aggressive and are disliked by men. In a survey on whole-career narrative interviews about women's experience in an UK-based IT company, many of the female respondents indicated their conscious efforts to assimilate typical male-behavior and accept norms favorable to men (Kirton & Robertson, 2018). In this respect, they tend to see themselves different from other female peers and feel as the "odd girl out". In fact, Trauth et al. (2003) have pointed out that some personality characteristics

are more expected and acceptable in men than in women, such as assertiveness. Second, there is a tendency for employees to cluster with those who are like them. As men are the majority in the institution, masculine networks are created and tend to exclude women. However, these networks are significant to obtain key information and build relationships that may lead to promotion opportunities in IT careers. Third, the fact that senior positions are mostly filled by men may reinforce the belief that men are more likely to succeed in these posts than women. Finally, masculine behavior including “harmless” joking and “laddish” conversation tends to be hostile to women and make them stressed and less comfortable in workplace.

1.2.5.2. Organizational Gender Segregation

Organizational segregation consists of stereotypical perceptions of expertise and structural factors based on differences between various sub-groups within an institution (Ruiz Ben, 2007). To describe the segregated organizing patterns, horizontal and vertical segregation in occupations have been distinguished and documented.

As far as the horizontal segregation is concerned, women are most suited to softer aspects of the IT occupations connected with interpersonal skills and communication skills (Robertson et al., 2001; Ruiz Ben, 2007). For example, women tend to be employed in labor-intensive and routine work, including sales and support functions (e.g. customer service, office and administrative roles) (Roos & Zanoni, 2016). In large companies, due to the specialization of tasks, there is a tendency towards horizontal gender segregation and, socially and externally oriented jobs are mostly allocated to women (Turban et al., 2019). Conversely, men are more likely to undertake technical and analytical jobs (e.g. analyst, programming etc.). The absence of women in technical positions and the deep involvement of women in non-technical positions may lead to the devaluation of women’s capabilities. Vertical segregation in computing represents the male domination and female under-representation in senior rungs of the corporate hierarchy (Robertson et al., 2001). Women are still associated with non-managerial occupations and lower levels of management, both in technical and non-technical tracks

While gender discrimination is partly visible, IT female professionals can also be excluded indirectly (Panteli et al., 1999). Although IT related organizations make conscious efforts to hire female personnel and enhance their benefits, Meyerson and Fletcher (2000) have argued that this does not address the deep-rooted gender issues. The subtler interactions in organizations account for the gender inequalities and the detrimental situation of women (Kirton & Robertson, 2018). Blatant discrimination is easier to identify and eliminate with direct strategies, such as legislation (Robertson et al., 2001). Nevertheless, invisible gender disparity is more difficult to tackle. In order to understand the status of women in IT companies, it is essential to examine the factors impairing women’s development at the institutional level.

First, the patterns of work organization in the IT workplace are male dominated. According to a study examining the shape and degree of gender inequalities in an UK-based IT company, most of the work in the organization is structured around the idea that men are not associated with caring responsibilities (Kirton & Robertson, 2018).

While women are first and foremost viewed as family carers, a work organization that does not involve care responsibilities distances women from demanding IT occupations, which require working long hours, international assignments and constant skills updating.

Second, informal interactions are of essence for internal hiring, but they are exclusionary to women in IT fields. Male managers tend to hire and assign prestigious assignments to those who they trust, including people they know and have worked with, as well as those recommended by other senior personnel; yet these trusted people are mostly male (Kirton & Robertson, 2018). As a result, women lose many career development opportunities, which their male colleagues more easily benefit from. However, internal training provides women with the possibility to acquire qualifications and help career advancement. Women associate more importance to training than men, which can affect their decision to retain or leave the company (Panteli et al., 1999).

Third, institutional practices in employment appear to be biased. In recruitment processes, as the expected profiles are not clearly defined, additional qualifications are usually required by companies (Turban et al., 2019). The vague hiring practices give rise to unequal treatment. Furthermore, while various job titles are available for similar functions, the lack of standardization in this respect may also make the paths to advancement more complicated for women because the seniority in job titles does not necessarily equate more responsibilities or the rise in corporate hierarchy (Kirton & Robertson, 2018).

Fourth, pay differences based on gender exist in the IT industry. Women do not earn as much as men in IT related occupations. Women are already excluded from the opportunities for higher managerial occupations that usually bring along a higher salary. Due to women's low involvement in international assignments and long hour work, male IT professionals earn on average 50% more than females on Wall Street (Soe & Yakura, 2008). Moreover, a nationwide survey on the status of women in the UK industry has indicated that women do not receive equal pay for equal work in IT careers (Panteli et al., 1999).

Finally, women have less pleasure and job satisfaction than men in the IT workplace. Job satisfaction reflects the extent of the affection of an individual towards their career (Wentling, 2009). There is a correlation between work-life balance practices and job satisfaction (Kirton & Robertson, 2018; Sharma & Nayak, 2016). Female IT professionals encounter more challenges that stem from workplace culture and line-management attitudes, rather than from the nature of the work or caring burdens. In an empirical study across software and IT units in India, training and working conditions prove to have a significant influence on job satisfaction (Jyothi & Ravindran, 2012). What's more, according to a study on the impact of work-life balance (WLB) in the IT sector, WLB practices, including parental leave, welfare strategies, flexible working arrangements, and a supportive work environment, all have a positive impact on career satisfaction (Manasa & Showry, 2018). The implementation of WLB strategies

contribute to a better resolution of work-family conflict and thus reduce work pressures. The lack of flexibility regarding work times may hinder women's retention in IT careers.

To sum up, the societal and structural barriers for women in IT are intertwined. Social expectation of female participation in IT related fields lead to masculine discourse in educational and workplace culture and practices. On the other hand, the gendered beliefs and patterns in IT organizations reinforce the social perceptions disfavoring women and the male dominated image of the industry.

Chapter 2 Enhancement of Gender Parity in the IT Sector

2.1. Rationales for Gender Diversity

Diversity is “a commitment to the ethical norms of representativeness, equity and differences as opposed to actions that are merely a matter of legal obligations and risk management, such as equal employment and affirmative action regulations” (Uysal, 2013, p. 13). While digital development accelerates, new opportunities and challenges for the IT industry emerge. The external environment urges the IT field to value gender diversity. IT firms also hold requisite reasons for the enhancement of gender diversity due to the benefits for the organization. The rationale for diversity is documented in the literature, and can be divided into two main aspects: (1) diversity as requisite variety, including successful business case, competitive advantage, market-based motivation etc.; (2) diversity as corporate social responsibility, which emphasizes the moral responsibility of an organization to manage diversity (Singh & Point, 2006; Uysal, 2013). Based on this distinction of the rationales for diversity, this section discusses the external and internal reasons why IT corporations can be seen to make conscious efforts to enhance gender balance.

2.1.1. Emergence of New Challenges in the IT sector

As the Fourth Industrial Revolution is shifting the digital economy, the information and communication technologies (ICTs) are key in the evolution of industries. The 2016 Global Information Technology Report has illustrated that the new changes of the digital revolution lead to the transformation of tech related companies (Baller et al., 2016).

Firstly, not only the innovation in technology is increasingly demanded, but also the innovation in governance and regulation should be taken into account. Various types of innovation based on digital technology and new business model emerge, which also shows a tendency towards near-costless effort in R&D. The winner take-all dynamic in tech fields makes the competition in innovation much fiercer. Moreover, having innovative and right framework conditions is critical for the sustainability of the new digital economy, including new types of leadership, governance and behaviors. It has been suggested that the agile governance mechanism enables tech and non-tech organizations to react quickly to the changing environment (Baller et al., 2016). Secondly, there is a risk that businesses fail to keep pace with the rapidly emerging digital population and lose this part of market. As consumer demand constitutes the most important driver of digital innovation, the failure to capture the growing market may lead to economic loss.

The new changes in the IT industry will influence the participation of female and male professionals in the sector, and prompt the improvement of strategies and organizing processes in IT firms.

2.1.2. Gender Diversity as Requisite Variety

Requisite variety suggests that “variety within a system must be at least as great as the environmental variety against which it is attempting to regulate itself” (Uysal, 2013, p. 15). Requisite variety results in the best functioning of an organization when concepts and views are shared, because it allows a better coordination of activities among the stakeholders (Heath, 1995). Therefore, if an IT organization aims to engage in a diverse external business environment, it is expected to be firstly diverse enough in the organizational system.

When it comes to diversity, requisite variety is believed to be an asset to companies since it increases their competitive advantage (Uysal, 2013). Gender diversity in IT professions is beneficial to increase the competitiveness of a country (Ahuja, 2002). At an institutional level, a diverse workforce “increases profitability, but beyond financial measures, encompasses learning, creativity, flexibility, organizational and individual growth, and the ability of a company to adjust rapidly and successfully to market changes” (Thomas & Ely, 1996, pp. 79–80). According to the literature, competitive advantage rationale for gender diversity is often translated into the benefits for business success, for strong talent pool, as well as for meaningful rewards.

First, maintaining a competitive talent pool is an important rationale for the enhancement of gender parity. The skill and talent shortage remains a concern for companies. The absence of women in IT corporations leads to the loss of talent, creativity and stability of the industry. More than 25% of companies perceived female talent as a critical part of the future workforce strategy; in the ICT industry, more than a third of companies believed they could extend their talent pool by including women (World Economic Forum, 2016). Targeting talented women in the workforce planning contributes to stronger confidence and flexibility to react to future disruptive changes. However, aside from the benefits from the full talent pool, the loss of female talent results in economic damage as well. HR practices, including recruitment and training, require the investment of different resources, such as time and money. The difficulties of recruiting and retaining IT female professionals cost a lot for companies and mitigate their benefits. Hence, companies make more efforts to advance women who are already trained or in course of development.

The enrollment of female talent in the workforce helps to unleash new business opportunities. Diversity for business growth has been found to be an important consideration of companies, including expanding different markets, and enhancing creativity and innovation (Uysal, 2013). According to the 2016 Industry Gender Gap report, more than a fifth of companies investigated had the motivation for diversity as business success. Interestingly, the report has also indicated that the gender composition of a company’s customer base is strongly correlative with the gender make-up of the workforce (World Economic Forum, 2016). As women increasingly enter the workplace, their purchasing power rises along with the increase of disposable income. Thus, women represent an important segment of the market. The increasing involvement of female professionals in IT careers allow organizations to target broader groups of customers.

Last but not least, applying for industrial diversity awards is also a motivation for IT companies to boost gender parity. As gender diversity is more and more emphasized by society, organizations who have the best performance in endorsing a diverse workforce are likely to be rewarded, which adds to their competitive advantage.

2.1.3. Gender Diversity as Corporate Social Responsibility

Corporate social responsibility (CSR) is another important rationale for diversity. It represents the “the economic, legal, ethical and discretionary expectations that society has of organizations at a given point of time” (Carroll, 1979, p. 500). CSR is often associated with moral responsibility and messages of “good citizenship”. In this respect, external views and interpretations are important. While dealing with gender disparities, around 20% of the companies from different sectors felt external pressures from the media, public opinion, and government regulation (World Economic Forum, 2016). CSR makes up a part of the rationales for gender parity, but it is not as important as the requisite variety rationale (Uysal, 2013).

Addressing gender imbalance is beneficial for companies to manage external relations. Gender diversity management enables an organization to build up its reputation. This reflects the concept of an organization as a brand. Organizational brand is the perceptions held by important stakeholders of an organization, including employees, customers, government, industrial institutions, shareholders etc. (Vasavada-Oza & Bhattacharjee, 2016). To attract talented employees, companies tend to brand themselves as a desirable employer. As the challenges of recruiting the right people emerge, the recruitment processes begin far before the traditional ones. To strengthen the advantage in hiring talent, IT companies should include employer branding in communication processes (Vasavada-Oza & Bhattacharjee, 2016).

2.2. Strategies to Promote Gender Parity

Given that gender disparities persist in the IT industry and have negative effects on the sustainable economic development, effective actions are expected to be designed and implemented. To foster gender parity, two basic questions should be considered: (1) when men and women should be treated differently; and (2) what strategies will result in long-standing and real gender equality in organizations (Jonsen et al., 2010).

As various strategies can lead to a diverse workforce in companies, a model of three approaches to diversity has been elaborated: the assimilating diversity approach, the diversity management approach, and the approach of leveraging differences (Mazzei & Ravazzani, 2008). Firstly, the assimilating diversity approach refers to the processes of recruiting minority groups (e.g. ethnic, women etc.) to promote the equality in the organization. Secondly, the diversity management approach emphasizes the impact of embracing diversity on business performance (Mazzei & Ravazzani, 2008). However, the assimilation and management approaches to diversity have been criticized to exert one-way communication and not to truly include the minority groups (Swanson, 2002). Therefore, the approach of leveraging differences in organizational practices has been suggested, which goes beyond the limitations of the former ones. Uysal (2013) has

pointed out that using participative discussion channels on websites contributes to the interactions with the visitors, such as employee networks, blogs, social media features, survey, real time chat etc. In practices, companies tend to adopt the diversity management approach, while the leverage of gender diversity is more and more considered (Uysal, 2013).

Based on the previous literature, we have summarized seven aspects of strategies to enhance gender parity: (1) recruitment and measurement processes; (2) mentoring, role modeling and training; (3) transparent career paths; (4) a supportive working environment; (5) senior management commitment; (6) occupational culture and awareness; (7) external diversity commitment.

First, the competence of male and female employees should be equally valued. Both soft skills and technical skills should be recognized as essential to the company. It is important to position professionals as learning employees, and to perceive “male” and “female” skills as learnable (Roos & Zanoni, 2016). To mitigate subjectivity, performance appraisals criteria should be explicitly determined. Evaluations should be made based on the feedback from different departments. To eliminate the implicit biases in recruitment, studies have suggested several measures, such as gender-blind recruitment and the use of open-recruitment tools (e.g. advertising and employment agencies) (Eagly & Carli, 2007; World Economic Forum, 2017).

Second, mentoring relationships, role models, and training are of great importance to boost gender parity. In this regard, networking is essential to build up connections and relationships. For instance, Nokia has established an employee network named *StrongHer* with 2,300 members from more than 60 countries. *StrongHer* aims to foster gender parity in the technology sector. It offers social networks, the exposure to diverse role models, repositories of leadership, as well as e-mentoring programs (World Economic Forum, 2017). The equal access to career support helps women to go further and succeed in IT careers. In addition, to empower potential female talent to acquire the important skills for career development, training programmes should be improved (Panteli et al., 1999).

Third, transparent career development schemes help to interrupt the informal processes of promotion and enhance equal opportunities. Women should be given equal access to assignments that prepare them for the management. The decision to promote an employee should be made based on “tangible objective accomplishments” or result-driven measurements, but not on the subjective perceptions stemming from informal interactions (e.g. informal hiring and presenteeism) (Kirton & Robertson, 2018, p. 17). The accountability mechanism of the senior management could be an effective practice to eliminate the invisible inequalities and create an inclusive and tangible culture of the IT workplace (World Economic Forum, 2017).

Fourth, a supportive working environment contributes to gender diversity, which includes effective organizing processes and friendly working conditions. Collaborative practices are helpful to interrupt the individualism culture and lead to a more inclusive IT workplace for women. Several measures can be taken to construct a participative

workplace culture: team-oriented institutional structures with “a narrative of collectivism and cooperation”, mutual decision-making of business goals, open work space, network facilities (e.g. for bottom-up networking), endorsement of different styles of leadership, a considerable number of female team members etc. (Roos & Zanoni, 2016, p. 13). On the other hand, family-friendly practices can increase the flexibility in work. Manasa and Showry (2018) have observed that work-life balance arrangements support women and reduce role conflicts, such as flexible working time, teleworking, paternity and parental leave, child and elderly care support etc. Informal mobility is another effective means, such as job sharing, intra-organization transfers and job rotation (Roos & Zanoni, 2016).

Fifth, to effectively foster gender parity, actions should start from the C-suite of a company. Research has revealed that visible commitment of the senior management is one of the most contributing factors to include a diverse workplace (World Economic Forum, 2017). For example, we can learn from the measures taken by the *CEO Action for Diversity and Inclusion* who: (1) establishes platforms and forums that facilitate open-minded and inclusive conversations among staff; (2) creates functions and sections to manage diversity; (3) organizes unconscious bias training; (4) regularly assesses the effectiveness of gender diversity practices; (5) shares the best and unsuccessful experience.

Sixth, it is difficult to eliminate the organizational subtext without the awareness of gender imbalance. Even though the male-dominated culture in IT is resistant to change, proactive strategies can be taken to tackle the biased assumptions and create a more inclusive occupational culture. In this regard, a critical mass is essential for the cultural change (Soe & Yakura, 2008). A non-dominant group can have an impact on the whole group when their members are numerous enough. A novel range of emotional norms emerge when women make up 15%-20% of the group, and the culture will be changed when the percentage reaches 35% (Kanter, 1987; Martin, 1998). Moreover, Soe and Yakura (2008) have pointed out that the enrollment of women in senior positions contributes to the transformation of managerial cultures. Having a considerable number of women in management leads to a gender-neutral culture in IT companies.

Seventh, as gender inequality in the IT field is a systematic problem, the external environment should be put into consideration. There are several approaches to promote gender parity at the societal level, including: gender-neutral advertisements; the diversity programmes for external stakeholders (e.g. suppliers, distributors, business partners); the partnerships with the institutions committed to enhancing gender equality; multiplatform campaigns; and the scholarship projects for female candidates etc. (World Economic Forum, 2017).

2.3. Website Communication of Gender Diversity

Corporate website serves as “windows” for an organization (Singh & Point, 2006). With multiple sections on a single website, it has the advantage of addressing different audiences at the same time (Biloslavo & Trnavčević, 2009). There is an increasing trend that companies use websites as a prior tool to manage public relations and communicate

with stakeholders (Uysal, 2013). Companies can show a competent, responsible, and reliable corporate image by positively communicating about their products and services, corporate culture, values, diversity policies etc. As gender issues are more and more concerned, diversity statements have been increasingly included on corporate websites (Uysal, 2013). In this section, to give an insight into how IT companies communicate about gender diversity on their websites, the rationales and strategies on this topic will be discussed.

2.3.1. Diversity Discourse

The term “discourse” is increasingly adopted to describe the written and spoken language used in a specific social context. It includes linguistic and other semiotic elements (e.g. symbols and images) (Singh & Point, 2006). Discourse facilitates the “construction of social identities, social relations and systems of knowledge and meaning” in organizations (Jørgensen & Phillips, 2002, p. 67). Corporate identity is “the set of values and principles employees and managers associate with a company”, which can lead to the construction of a favorable image of the corporation (Vasavada-Oza & Bhattacharjee, 2016, p. 9). However, as corporate image concerns the perceptions held by the public, it goes beyond the control of an organization and may be perceived in an unexpected way (Biloslavo & Trnavčević, 2009). In companies, diversity discourse is based on a set of communication tools and processes, which leads to a sensible and dedicated corporate image in leveraging diversity. In fact, half of the top European companies disclose diversity statements online (Singh & Point, 2006). Companies tend to use equality and social justifications, thereby they are still at the earlier stages of diversity communication (Liff, 1999).

Different corporate strategies have been developed. As discussed earlier, there are three strategies to enhance diversity: the assimilating diversity approach, the diversity management approach, and the approach of leveraging differences (Mazzei and Ravazzani, 2008). According to Mazzei and Ravazzani (2008), the diversity management model (78%) was dominant on corporate websites, with “Employee networks” and “Work-life balance” programs frequently mentioned; whereas 17% of companies leveraged diversity on their websites by indicating the awards for diversity performance and the top executive commitment.

To communicate about diversity on websites, various tools are used. These instruments include language, images (e.g. photographs), symbols (e.g. awards and recognition), statistics (e.g. the proportion of female employees and leaders) etc. In a study analyzing the website communication of diversity, it has been revealed that photographs were most frequently used, followed by awards and recognition, as well as statistics (Uysal, 2013). In terms of the use of images related to gender and ethnicity, a quarter of companies adopted one photograph on their websites, while a lower number of companies used two or more photographs (Singh & Point, 2006).

Diversity statements tend to be included in categories such as careers, HR, and people pages, CSR menu, or About Company menu (Uysal, 2013). On these pages, various subjects may be discussed, including job advertisements, institutional policies and

structure, career development projects (e.g. mentoring, networking, involvement of women at board level) etc. In the IT sector, several subjects are most frequently included on websites of the Top European companies: employee involvement, partnership in terms of cultural activities, and educational commitments (Singh & Point, 2006).

Importantly, diversity statements may also reinforce the existing gender stereotypes. In a study investigating the diversity discourse of 241 top European companies, it has been indicated that, the stereotypes against women are sometimes reinforced, particularly through symbols (e.g. photographs) on diversity web pages (Singh & Point, 2006). Communication can affect the social construction of gender (Robertson et al., 2001). To understand the gender relations on websites, it is crucial to examine the communication processes.

2.3.2. Corporate Communication Strategies of Diversity

As far as the communication strategies are concerned, previous studies on marketing have concluded two kinds of associations: corporate ability associations (CAB associations) and corporate social responsibility associations (CSR associations). Corporate associations are the attitudes of an individual towards an organization, which leads to different reactions to the company and its business (Brown & Dacin, 1997). CAB associations focus on the expertise and abilities in terms of the products and services of a company, while CSR associations are related to customers' perceptions of an organization's social commitment (Kim & Rader, 2010). Positive corporate associations are important to manage public relations. As mentioned earlier, there are two main rationales for the diversity enhancement at an institutional level, namely the requisite variety and corporate social responsibility (CSR). Based on these rationales, Kim and Rader (2010) have identified three strategies to communicate about diversity: (1) CAB-focused strategy; (2) CSR-focused strategy; and (3) hybrid strategy, which combines the two former strategies.

Convincing evidence has shown that the CAB strategy is the most prevalent. According to a content analysis of the Fortune 500's websites, most of the companies adopted the CAB strategy and attempted to showcase their expertise in business (Kim & Rader, 2010). Uysal (2013) has confirmed this finding and indicated that the majority of the companies investigated perceived diversity as a requisite variety on their websites. The UK has been unraveled to be ahead of other European countries in stating diversity as a competitive advantage (Singh & Point, 2006). In the IT industry, the CAB-focused strategy is also widely adopted. Kim and Rader (2010) have argued that technical expertise is so important in the IT that companies are more likely to adopt the CAB strategy in the website communication. It is noteworthy that the IT sector shows the highest rate of the CSR strategy (Kim & Rader, 2010).

When it comes to large companies, potential social consequences are seriously considered. On the websites of the top 100 companies among the Fortune 500, it has been found that the CSR and the hybrid strategy were mainly used (Kim & Rader, 2010). Now that larger companies tend to be recognized as competent in providing products

and services, their commitment to addressing social issues is highly expected by the public (e.g. the media and consumers). That is why large-scale enterprises pay more attention to their social roles.

2.4. Language and Sexism

Different use of language may lead to different gender status. In an analysis of sexism in English, it has been revealed that sexism still exists in language. According to Fasold (1990), the linguistic discrimination against women works in two ways: (1) from the language learning; and (2) from the use of language to refer to women. The gender inequality in language is closely connected to the gender imbalance in society. He (2010) has argued that, to eliminate the sexism in language, it is crucial to deal with the gender disparities in society.

Previous literature has been pointed out that the sexism in language is embedded in the grammar, which includes the morphological features and syntactic features (He, 2010; Menegatti et al., 2017). Morphological features include the derivation and compound words. In sexist language, to form a word for women, affix is usually added to the corresponding masculine term, including suffixes such as “-ess” and “-ette” (He, 2010). Compound is another way to create a word by combining a lexis referring to women, such as “women lawyer” and “madame chairman” (He, 2010). Sexism exists in the word-formation because some feminine words are formed based on the masculine words, which leads to a lower social status of women. In particular, linguistic discrimination usually occurs in job titles. Gender role stereotypes tend to indicate men with a higher social status. Feminine titles deriving from terms referring to professions traditionally held by men are likely to make women to be seen as less qualified than men (He, 2010). Concerning the syntactic features, generic pronouns (e.g. “he”, “his”, and “himself”) and nouns (e.g. “man”) could be used to include women in language (Menegatti et al., 2017). The problem in this practice is that it tends to ignore the representation of women and treat man as the referent group for all human beings (Menegatti et al., 2017). Therefore, the unequal status of women is perceived. In addition, linguistic sexism may also stem from lexical choices. Menegatti et al. (2017) have indicated that there is a lack of equivalent terms to refer to different genders in English. The lexical gap is salient in work-related terms, particularly those words ending with man (e.g. “chairman”, “policemen”).

Gender inequality can also be attributed to the use of language abstraction. Reid and Ng (1999) have argued that language abstraction is a subtle means that is used by men to discriminate against women. As a result, abstract statements tend to decrease female applicants’ aspiration for the career. Menegatti et al. (2017) have revealed that, when male recruiters negatively judge female candidates, they tend to use abstract terms. Women are found to be more willing to apply for “masculine” positions that are described with concrete and behavioral terms rather than with nouns and adjectives (Born & Taris, 2010). It is important to avoid using imprecise words to reduce the level of abstraction in language, including: (1) descriptive action verbs (e.g. “to kick”, “to hug”); (2) interpretative action verbs (e.g. “to help”); (3) state verbs (e.g. “to love”);

and (4) adjectives (e.g. “kind”) (Semin & Fiedler, 1988). It is better to associate adjectives with proper description because the unequal treatment against female candidates mainly lies in the use of adjectives (Menegatti et al., 2017).

Gender-inclusive forms could be helpful to reduce the gender biases in language. There are various means to form gender-fair expressions, such as pairing words (e.g. “Sportler /Sportlerinnen”), splitting forms (e.g. “s/he”, “she/he”), and neutralizations (e.g. “spokesperson” instead of “spokesman”, “police officer” instead of “policeman”) (Desprez-Bouanchaud et al., 1999; Menegatti et al., 2017). To eliminate linguistic sexism, a guideline was published by the UNESCO. It has concluded the common linguistic discriminations in the form of examples and suggested gender-neutral alternatives. According to this handbook, three categories of problems in statements should be considered: the increase of ambiguity due to the use of “he/man” language, the stereotyping in phrases, as well as titles and forms of address (Desprez-Bouanchaud et al., 1999).

2.5. Women Empowerment

To investigate the extent to which IT companies boost gender equality, it is fundamental to understand gender relations and the measurement of status. The term “women empowerment” has been used to describe the processes of empowering women by redefining the female roles in being and doing (Mosedale, 2005). This definition emphasizes the possibilities of changing social norms and female roles by creating an equitable environment. The uneven constraints on women are subject to change.

The empowerment of women reflects the changes in power relations. The concept of power is often used to discuss gender relations. In the literature, different models of power have been established. The notion of *power over* is created to describe the situation where one can oblige another one to do something (Mosedale, 2005). In this regard, the conflict between the two relevant parts is obvious, because one’s gain results in another one’s loss. Nevertheless, one part’s gain does not necessarily lead to the loss of another part. Other models of power have been suggested, such as *power within*, *power to*, and *power with* (Hayward, 2000). First, *power within* refers to the self-evaluation of an individual (e.g. self-esteem and self-confidence). Second, *power with* focuses on the impact of collective behaviors, such as the gathering of women with similar experience. Third, *power to* represents the “power which increases the boundaries of what is achievable for one person without necessarily tightening the boundaries of what is achievable for another party”, such as the learning of skills (Mosedale, 2005: 250). In short, the enhancement of women’s power reflects the changes of relations at both individual and collective levels and, does not mean the decrease of men’s power.

As a matter of fact, women empowerment implies different socio-political aspects ranging from cognition and psychology to economy and politics (Stromquist, 1995). It is of great significance to take into consideration the holistic picture of gender issues and different protagonists. In this respect, three levels of women empowerment have been summarized: (1) the micro-level, including individual beliefs and actions; (2) the

meso-level, referring to beliefs and actions related to others; (3) the macro-level, concerning the impact on society (Huis et al., 2017).

To entitle women to equal opportunities in economic development, Kabeer (1999) has highlighted three fundamental elements that enable women to make choices on their own: (1) resources, including material and immaterial assets that can be allocated; (2) agency, referring to the capability or the assumptions of the capability to set objectives and find means to obtain desirable results; (3) achievement, referring to the positive outcomes resulting from specific behaviors. Importantly, women empowerment is not immutable, but is a process that evolves across time (Rowlands, 1997). It is essential to focus on a specific situation or social context to understand gender relations.

Huis et al. (2017) have established a Three-Dimension Model of women empowerment. This framework is based on three categories of empowerment, namely personal empowerment, relational empowerment, and societal empowerment. Personal empowerment refers to the micro-level that includes self-esteem, self-control, self-confidence, self-efficacy etc. Relational empowerment is associated with relevant others, which includes the roles in family, the freedom of mobility, bargaining power, social networks, and the enrollment in collective activities etc. Societal empowerment refers to the beliefs and practices in society (e.g. the proportion of women in education and workplace). Few studies have investigated the enhancement of gender parity on corporate websites in a specific sector, particularly in the IT field. In this dissertation, the status of women in IT companies will be examined based on the websites.

Chapter 3 Methodology and Data

3.1. Research Objectives

As the Fourth Industrial Revolution is increasingly changing the digital economy, the Information Technology industry has witnessed the rapid development. However, the improvement of the IT occupational culture does not keep pace with the novel changes in technology. The male-dominated culture tends to resist and still prevents women from actively embarking on IT careers. While the emergence of new skills and job opportunities unlocks more possibilities for women, this new tendency may also widen the gender gap if the long-lasting gender disparities are not addressed properly. Boosting gender diversity will both benefit IT corporations and women in IT fields. In addition, due to the development of Internet usage, new patterns of social communication have emerged, such as websites, social media. These channels are increasingly considered by organizations to manage public relations and shore up a competent and dedicated corporate image. As diversity is more and more stressed by governments and the public, relevant processes are initiated and communicated to value equality of gender, age, ethnicity, etc.

In the IT sector, women encounter more obstructions from societal and organizational factors rather than personal factors. As IT companies are as the major actors to shape the industry's beliefs and practices, it is crucial to examine the institutional level to understand the status of female professionals. While women are more likely to be indirectly excluded from IT careers, diversity programs should be designed to avoid subtle discrimination. Not only do the projects embracing gender differences matter, but the ways in which IT companies disclose their diversity efforts are also of great significance.

The IT industry is growing faster in some countries than in others. In the UK, dramatic growth in IT related fields has been witnessed for some decades following a boost in market scale and turnover for IT companies (Panteli et al., 1999). UK corporations have also been highly involved in efforts to achieve a diverse workforce. Among the 50 Top UK companies, 38 corporations have engaged in diversity management and disclosed diversity statements on their websites (Singh & Point, 2006). In a 2006 publication, the UK was found to be far ahead of other European countries in promoting gender parity, which is demonstrated by the number of women appointed at board level (Singh & Point, 2006). To some extent, the leading organizations in a specific field can reflect the trends in this sector. To understand the status of women in the IT industry, this dissertation sets out to investigate top British IT companies. The data for this analysis has been collected from three IT companies headquartered in the UK.

This dissertation seeks to answer the following questions:

How and to what extent do British IT companies communicate discursively (texts) and visually (images) about their gender diversity commitment on their corporate website? In other words, is the companies' gender diversity commitment mentioned and are

women visible on the websites of these traditionally male-dominated organizations?

3.2. Methodology: Content Analysis

This dissertation aims to explore the place given to women on IT companies' websites by examining the extent to which three top companies communicate about gender parity on their corporate websites. The content analysis method is used to analyze the data.

Content analysis is a qualitative research technique that can be used to investigate the content of communication in an objective and systematic manner (Kim & Rader, 2010; Vasavada-Oza & Bhattacharjee, 2016). This method examines data focusing on certain themes and categories. In this research, based on a framework developed for this dissertation, the content of the websites was analyzed to identify the companies' gender diversity communication. The spotlight in our analysis was on the current and future female workforce of the IT companies under study, including female workers at all levels and future female candidates. Importantly, our focus was on the initiatives that the IT companies report on to enhance female professionals' status. The focus was not on stakeholders' perception of the corporation. In this study, the place of women means the space devoted by companies on their websites to enhancing the status of women through various gender-related practices

3.2.1. Multimodal Discourse Approach

In order to conduct a systematic examination of the place of women on the websites of three British IT companies, in addition to content analysis, discourse analysis was also used. Critical discourse analysis emphasizes the relationship between discourse and other elements of social interaction (Fairclough, 2013). Gender diversity discourse is arguably framed by social conventions in a specific time and space. Concerning the social elements, critical analysis makes it possible to investigate the discursive elements, and social practices that change and are changed by the statements. Even if discourse analysis is not limited to texts, important consideration is given to the linguistic elements of discourse.

It is important to note that a variety of discursive tools have been employed on websites these days. A multimodal discourse approach is crucial to carry out a dynamic investigation of gender diversity communication on websites. The multimodal discourse method emerged in the 1990s and concerns the analysis process combining textual elements and other resources, such as sound and visual images (O'Halloran, 2011). It is a valuable research approach that provides multiple perspectives on discursive practices by IT corporations when it comes to gender endorsement. In this research, we focused on the textual and visual elements on the websites that conveyed companies' efforts in the enhancement of gender difference. Linguistic devices mainly concern lexical and grammatical choices. The visual analysis focuses on the design features of web pages and the use of symbolic depictions.

3.2.2. Content Analysis Framework

In this research, the content analysis method was combined with the multimodal

discourse approach. A specific framework was developed for the analysis in this dissertation. The analysis matrix was structured as follows (Table 1):

	Personal factors	Relational factors	Societal factors
Text analysis			
Visual analysis			

Table 1 The analysis matrix

The framework is based on a Three-Dimension Model of women's empowerment, which considers the status of women at personal, relational and societal levels (Huis et al., 2017). The salient factors connected with each dimension have been adapted to the IT sector. First, concerning individual beliefs and behavior, **personal factors** include self-confidence, self-esteem, self-efficacy, and career aspiration. Second, **relational factors** refer to decision-making processes, collective action involvement (e.g. participation in collective activities, social networks), institutional practices (e.g. performance appraisals, promotion, flexible working etc.), mentoring relationships and, role models. Third, **societal factors** reflect on efforts to change the occupational culture and practices in a broader context. Since our investigation concentrated on companies, relational and societal factors were taken into consideration in our analysis.

The textual analysis examined the following elements: (1) **lexical choices**, such as nouns, pronouns and adjectives. Where relevant, the frequency of words was considered with the help of an online analysis tool, namely wordcounter.net; (2) **grammatical choices**, including verb tense, degree of simplicity, generic expressions; (3) other **special elements**, including statistics, references and examples, employee testimonials, mention of association, badges and awards etc. The visual analysis mainly focused on the **design features** of web pages and the **images** included. The web design features include color, wallpaper, font size, navigation bars, URL etc. Images include the photographs, graphs, videos etc. Table 2 includes the detailed framework of analysis used in this dissertation.

Research Aspects	General Categories	Sub-categories
Status of Women	Personal Factors	<ol style="list-style-type: none"> 1. Self-confident 2. Self-esteem 3. Self-efficacy 4. Career aspiration
	Relational Factors	<ol style="list-style-type: none"> 1. Decision making processes: e.g. women in senior position 2. Collective action involvement: e.g. activities, training, networking 3. Institutional practices: e.g. recruiting, evaluation, promotion, flexible working, workplace culture 4. Mentoring

		5. Role modeling
	Societal Factors	E.g. sector-wide cooperation, partnership, external gender diversity commitment
Website Communication	Text Analysis	1. Lexical choices: e.g. nouns, pronouns and adjectives 2. Grammatical choices: e.g. verb tense, degree of simplicity, generic expressions 3. Other special elements: e.g. statistics, references, examples, employee testimonials, mention of association, badges and awards
	Visual Analysis	1. Website design: e.g. color, wallpaper, font size, navigation bars, URL, web pages 2. Images: e.g. photographs, graphs, videos

Table 2 The analysis framework

3.3. The Three UK IT Companies

Our web-based analysis focused on three leading IT companies in the UK. To identify the top corporations in the UK, a list of the UK 300 most popular employers published by the 2019 Trendence UK Graduate Survey² was consulted. The UK 300 reflects students' opinions on future employers and graduate careers across a variety of sectors, including engineering, IT and technology, finance, law etc. This annual survey was conducted by a leading UK graduate recruitment site called TARGETjobs, which provides job information and career advice to students, particularly graduates.

The 2019 investigation was based on the 74,746 samples collected over a period of four months, namely from September 2018 to January 2019. Firstly, the respondents were asked to deselect the employers they knew little about from a provided list. This process indicated their knowledge to about and awareness of certain organizations. They then ranked the remaining employers in terms of their interest, from which the top three emerged. In this survey, the attractiveness of different UK companies as employers appears to be affected not only by their business competence, but also by their efforts in handling social issues. The results of the 2019 Trendence UK Graduate Survey can be seen as reliable because the data collected was balanced with consideration of the size of the universities based on statistics from the Higher Education Statistic Agency's (HESA's).

Based on the ranking of the UK 300, the three top companies in IT and technology headquartered in the UK were identified: SKY, Jagex, Softwire. All these British IT companies use websites as a communication channel. To give an overview of the investigated companies, we summarized in the following sections the information collected from their corporate websites and other official sources, such as LinkedIn. Table 3 introduces briefly the three companies under study.

² <https://targetjobs.co.uk/uk300>

Name	Ranking in the UK 300	Year of creation	Number of employees	Core business
Sky ³	46 th	1989	32,000	Entertainment and broadcasting products and services: channels, original programmes, telecommunication devices etc.
Jagex ⁴	160 th	2001	More than 360	Living games on PCs and mobiles: RuneScape and Old School RuneScape.
Softwire ⁵	280 th	2000	More than 150	Provider of software solutions: from design to implementation and ongoing phrases.

Table 3 An overview of the three companies investigated

3.3.1. SKY

Founded in 1989, SKY is a British group specializing in media and telecommunications. It is owned by ComcastNBCUniversal and headquarters in London. With 32,000 employees, Sky's businesses concentrate in Europe, and spread across nine countries, including the United Kingdom, Ireland, Germany, Austria, Switzerland, Italy, Belgium, Portugal and Spain.

As Europe's leading broadcasting company, Sky offers a set of entertainment and communications products and services to 24 million households in four main dimensions: (1) Sky Media, representing seven of Sky's channels and ten channels of other renowned broadcasters, which can be reached via TV, online and on the go; (2) Sky for Business, supporting business of live events, such as Sky sports; (3) Sky Startup Investment & Partnerships, creating opportunities for start-ups by establishing investment and commercial deals; (4) Sky Studios, dedicated to producing and funding original programmes, including the channels Sky originals, Sky comedy, Sky documentaries etc.

The 2019 Trendence UK Graduate Survey ranked Sky 8th among all the investigated IT companies, following Bloomberg, IBM, Apple, Samsung, Microsoft, Amazon, and Google.

3.3.2. Jagex

Established in 2001, Jagex is one of the largest video game developers and publishers. With more than 360 employees, the company is based at the Cambridge Science Park in England. Specializing in producing top-quality Javagames for webpages, Jagex has

³ <https://www.skygroup.sky/>

⁴ <https://www.jagex.com/en-GB/>

⁵ <https://www.softwire.com/>

become a leader in living games on PCs and mobiles.

Jagex is famous for its flagship massively multiplayer online games (MMOs), namely RuneScape and Old School RuneScape, which are among the Top 10 Games on Twitch (a world's leading live streaming platform for gamers). Based on more than 18 years' expertise in improving the experience and satisfaction of players, the adventure games created by Jagex are used by 260 million people and created a \$1bn franchise revenue. Advocating social interaction and relationship both inside and outside of the gaming world, Jagex is also highly engaged in charity activities.

3.3.3. Softwire

Founded in 2000, Softwire is a privately owned software development company based in London. The company employs more than 150 staffs, while male and female workers account respectively for 75% and 25% of the workforce.

With a rich experience in markets and technologies, Softwire is a specialist in software consultancy, bespoke software solutions and software development training. Its businesses cover various processes of software development, from consultancy and design to implementation and ongoing phrases. More specifically, Softwire mainly provides six categories of services: custom-built software development processes and approaches, improving digital services in the government and public sector, data and AI services, design and innovation of digital products and services, consultancy for digital transformation, as well as mobile and application development.

Softwire also offers services to various famed organizations, such as the BBC, the Royal Opera House, David Lloyd Clubs, YUDU media etc. The company is also recognized as a Microsoft Gold-Certified Partner. In order to provide competitive services to clients, Softwire pays considerable attention to the quality of staff, which is reflected by the rigorous recruitment process to identify the most capable applicants.

Chapter 4 Results and Discussion

4.1. Corporate Website as A Channel for Diversity Communication

Given that websites have become a major channel of corporate communication, various subjects feature on companies' web pages, ranging from financial information to corporate social responsibility. In our research, all the three IT companies investigated disclose gender diversity statements on their corporate websites, but in different degrees. The analysis shows that the company Sky appears to be more committed to gender diversity communication. Based on the general analysis and a comparison of the targeted websites, several factors are identified as salient in visibly revealing the importance attached by organizations to diversity statements on their websites.

The conception and design of the home page play a role in showing different degree of attention to gender parity. In general, the home page is divided into several sections: (1) logo of the company, navigation bar and slogan; (2) core business in brief; (3) careers related information, such as their people and working environment; and (4) other content which varies according to the organization, such as successful partnerships, values, news etc.

The subjects that feature on the navigation bar arguably reveal the issues that concern the company the most. Firstly, it is common that the terms in relation with the companies' core business are presented in the navigation bar, using general terms such as "services", "work" and "products", or more specific terms such as "Sky Studios" and "Living Games" (see Figures 1, 2 and 3). As commercial benefits are essential for for-profit corporations, a major function of corporate websites is to maintain the loyalty of existing customers and to attract potential business. Particularly, for IT companies, the ability to provide technology solutions is crucial for them to be competitive in the marketplace. Moreover, another two items are systematically included on the navigation bar, namely "News" and "Careers".

Home Newsroom Sky Studios Sky Zero Bigger Picture Careers

Figure 1 The navigation bar on Sky's website

NEWS LIVING GAMES CAREERS PRODUCTS PARTNERS CHARITY

Figure 2 The navigation bar on Jagex's website

Our services Our work Our people Careers Softwire insights Contact us

Figure 3 The navigation bar on Softwire's website

It is noteworthy that none of the three companies investigated place diversity as a separate category on the navigation bar on their home page, but two of them have sub-sections committed to diversity discourse, namely Sky and Softwire. To some extent, the lexis on the navigation bar reflects the values of the company. Sky suggests how

inclusive its culture is and how it celebrates diversity under the category of *Bigger Picture*, which focuses on the company’s social commitments (see Figure 4); while Softwire uses “Diversity and inclusion” and “Women in tech” as sub-sections on the page of *Softwire Insights* (Figure 5), which consists of articles shared and programmes conducted by employees. As a result, even though diversity does not feature on the navigation bar, related subjects can lead visitors to sub-categories that include gender diversity. By contrast, Jagex has no dedicated sections for inclusion statements, which results in lower accessibility of this type of content.

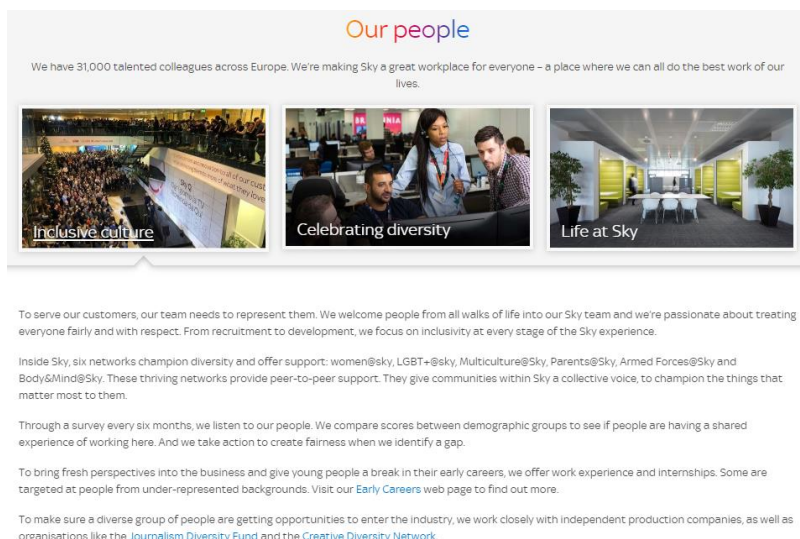


Figure 4 Diversity as a sub-section on Sky’s website (under the Bigger Picture section)

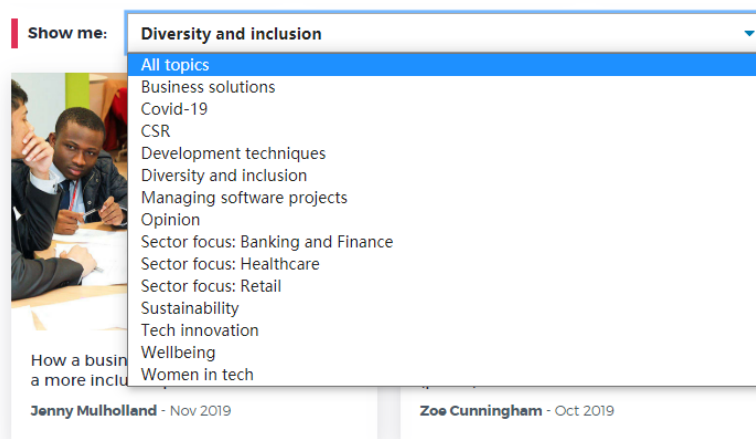


Figure 5 Diversity as a sub-section on Softwire’s website (under the Softwire Insights section)

The volume of information related to gender diversity commitments may be taken to indicate how importantly a company values diversity. The investigated companies disclose information about gender equality to different degrees. Sky can be seen to communicate quite extensively its gender diversity practices through explicit statements on several pages, including the sub-pages under the *Bigger Picture* and *Careers* categories, as well as annual reports and policy documents on this topic. On the other hand, information about gender parity on the website of the gaming company

Jagex is much more difficult to find, because related information can only be found in a few articles on the *News* pages and at the end of the pages of vacancy adverts.

While information technology remains a male-dominated industry, the information about women in the organization accessible on companies' websites can be taken as an indication of the importance attached to gender parity and any efforts connected to it by the company. As a result, the status of women can be perceived differently.

4.2. Communication Strategy of Gender Diversity on Websites

The IT companies in this research communicate about diversity awareness and programmes on their websites. Even though diversity may refer to aspects such as ethnicity and race, gender is always included on this topic on the websites under study. We find that business success as a rationale is easily identified through a number of statements. It is commonly believed that including female talent into the workforce contributes to better business performance and increases competitive advantage. Kim and Rader (2010) have identified three communication strategies used in public relations, namely corporate ability (CAb) strategy, corporate social responsibility (CSR) strategy, and a hybrid strategy combining the features of the two former strategies. In this research, the CAb and hybrid strategy are recognized as major communication strategies on companies' websites.

Two of the investigated IT companies, namely Sky and Jagex, use a hybrid strategy to communicate about gender diversity on their websites. On the corporate website of Sky, the connection is made between diversity and business success as well as corporate social responsibility. For example, Extract 1 shows one of the statements focusing on corporate ability associations.

Extract 1 *“We celebrate diversity because different people, with different perspectives make Sky a better business. Our customers are incredibly diverse, so we should be, too.”*

Gender differences are viewed as critical to be creative and reach wider markets, which contributes to business growth and success. This echoes the finding that the gender composition of the customer base is strongly correlated with the gender make-up of the workforce (World Economic Forum, 2016). Sky also appears to highly value its roles in leading positive social changes (see Extracts 2 and 3).

Extract 2 *“There is a lack of diversity in the creative industries and we want to change that.”*

Extract 3 *“We believe that a company of our scale has a responsibility that goes beyond our business, and into the community.”*

When it comes to Jagex's website, traces of arguments in favor of gender diversity are much less conspicuous but they can still be identified. A diverse workforce is believed to be beneficial for better business performance (see Extract 4).

Extract 4 *“At Jagex, we believe that higher levels of diversity and inclusivity*

has a positive impact on both our working culture and the games we make.”

Jagex also highlights its social responsibility to make the games industry more inclusive to women. This rationale is included when Jagex reflects upon its role as a *Women in Games Corporate Ambassador* and when it supports diversity programmes (see Extracts 5 and 6).

Extract 5 *“This closer relationship will help us both drive cultural change and create a more diverse and inclusive games industry.”*

Extract 6 *“Jagex is supporting #RaisetheGame, a collaborative and high-impact pledge to improve diversity and inclusion across the games industry.”*

Concerning the website communication of Sky and Jagex, the rationale for gender diversity as both corporate ability and corporate social responsibility is in line with the finding that larger companies seem to give important weight to their social influence. As a result, the CSR and hybrid strategy are arguably more likely to be employed in these corporations (Kim & Rader, 2010).

The CAb strategy is mainly adopted to communicate about gender diversity on the Softwire’s website. Indirect signals indicate that gender balance is critical to have the best people and maintain a competitive talent pool (see Extract 7).

Extract 7 *“Not every organisation wants to prioritise balancing the gender split within their team, despite knowing that gender and ethnic diversity correlates with profitability.”*

This statement acknowledges the positive effects on commercial benefits resulting from a diverse workforce. According to some statements, the best people lead to satisfied customers, which subsequently contributes to repeat business and recommendation to others. What’s more, an inclusive workplace is perceived to be correlated to better work performance, which enables the company to develop more competitive business offers (see Extract 8).

Extract 8 *“The working environment has a real impact on people’s mood and motivation: be reflected in the work they do”.*

This CAb strategy of diversity communication is also supported by the emphasis on the competitive services and talented people of the company. Kim and Rader (2020) have found that the CAb-focused strategy is prevalent in Information Technology, compared with other sectors. Given that the expertise in technology is essential in the IT field, gender diversity tends to be presented as beneficial for the competitive advantage of the organizations.

4.3. Cases Analysis: Communication Practices

In this section, the corporate websites of the three investigated IT companies were analyzed based on the textual and visual elements presented in the method section. The

pages focusing on diversity, people and careers are examined in greater detail.

4.3.1. Sky

As a corporation with 32,000 employees, Sky appears to take its social responsibility seriously, especially regarding the environmental aspects, such as its net zero carbon and free single-use plastic commitment. Under the big picture of social responsibility, Sky aims to lead a better world through providing better business, which includes its efforts to achieve gender parity. The commitment is displayed in various sections on the corporate website

4.3.1.1. Textual Analysis

Firstly, generic pronouns and nouns do not appear to be used on Sky's website. In generic grammar, masculine pronouns and nouns are usually used to include women and make them ignored, such as "he" or "his", and "man" (Menegatti et al., 2017). Instead of using "he/man" language, collective pronouns and nouns are largely adopted. To refer to a group of people in the company, collective pronouns are used, for example "we", "our" and "us". While addressing to the people outside of the organization (e.g. job applicants, suppliers, customers etc.), the pronouns "you", "your", and "their" are employed. Nouns denoting several people are also used, including "team", "people", "group". To refer to a single person, various pronouns and nouns are employed, including "everyone", "anyone", "member", "employee", "colleague". The use of collective language helps to avoid using masculine nouns and pronouns and make the statements inclusive to different groups of people.

When it comes to job titles, little few gendered expressions can be found. As a matter of fact, all the job titles have the same form without any distinction of gender when describing the profession of both the employees and vacancies, such as "data engineer", "developer", "analyst", "designer", "master" etc. In sexist English language, words derived from masculine terms are often adopted to refer to female professionals, particularly to those women in positions traditionally perceived as masculine (Menegatti et al., 2017). Feminine suffix and sex-paired words are used in some titles, such as "ambadress", "duchess", "woman lawyer", "madam chairman" etc. (He, 2010). In this respect, the stereotypes of professions based on gender differences are reinforced, and women tend to be perceived to have lower status even though they play the same role in occupation as men. Hence, the use of the gender-neutral forms in job titles helps to indicate that the position is equally available for both men and women.

Focusing on vacancy adverts, the ads for twenty positions from eight different divisions have been analyzed. The structure of these job adverts is quite similar, consisting of a brief introduction of the company, a job overview, key responsibilities, job requirements, and additional statements used to brand the company as a good employer (e.g. benefits, flexible working, people focused). Firstly, a set of verbs are mainly used to describe the key responsibilities. For instance, "work with", "lead", "support", "maintain", "manage", "help" are used more frequently. Even though these words refer to actions, they tend to be rather abstract. To introduce the job requirements, abstract

nouns are largely used to begin the sentences, such as “experience of”, “understanding/knowledge of”, “ability to do something”, “passion for”, “sense of” etc. These nouns are usually accompanied by adjectives to express different degrees. For example, the noun “experience” can be preceded with “proven”, “demonstrable”, “previous” and “recent”; skills are labelled as “excellent”, “exceptional”, “good”, “strong”, “great” and “refined”; understanding is qualified as “in depth”, “broad”, “thorough”, “sound” and “strong”. The use of abstract verbs, nouns and adjectives may increase the level of language abstraction. Without clear definition, these terms could be subject to change based on different interpretations. Menegatti et al. (2017) have found that women tend to apply for typically masculine professions described with concrete and behavioral terms, rather than nouns or adjectives. We argue that, as subtle biases exist in the IT industry, the frequently present structure of abstract noun with adjective in job ads may discourage women from applying for the positions. In addition, inclusion is mentioned in only two out of the twenty adverts analyzed, concerning senior roles (“Senior Sale Manager” and “Business Sales Executive”) (see Extract 9). However, there is no specific mention of recruitment processes that enhance gender inclusion.

Extract 9 *“We work hard to be an inclusive employer, so everyone at Sky can be their best. That means we don’t just look at your CV. We’re more focused on who you are and the potential you’ll bring to Sky”.*

Concerning the statements on gender diversity, the present tense is mostly used, while some other verb tenses are also employed. When talking about the attitudes and what they do, verbs are generally in the present tense (see Extracts 10, 11 and 12).

Extract 10 *“We celebrate diversity.”*

Extract 11 *“We focus on inclusivity at every stage of the Sky experience.”*

Extract 12 *“We have targets and dedicated programmes to address underrepresentation and know our ‘try before you apply’ programmes like Women in Home service work well.”*

With the help the present tense of verbs, the actions are more likely to be believed as enduring and regular. Moreover, in the gender pay gap report published on Sky’s website, while listing the measures taken in the past, the simple past is mainly adopted to stress the facts. Additionally, the present progressive is utilized in a few sentences to accentuate the ongoing efforts of the company (see Extracts 13, 14 and 15).

Extract 13 *“We’re increasing our investment in original, locally-produced content on TV, to make sure the lives of people in all our markets are reflected on-screen.”*

Extract 14 *“We’re doing this in all our systems, policies and processes, so that we improve inclusion not just in recruitment, but in every aspect of life at Sky.”*

Extract 15 “We’re closing the gap.”

In order to illustrate the situations more concretely, figures are included in many sections. On the one hand, data is used to justify the significant impact that could be made by the company on society. For example, figures of years of experience in the industry, employees, customers and suppliers are provided to show the influential power of the organization. On the other hand, statistics are set out clearly and methodically in the form of diagrams (see Figures 6 and 7). The display of statistics makes it possible not only to highlight the progress achieved, but also to increase the objectivity of the diversity statements and make them more credible.

Employee diversity	2017/18				2019			
	Number		%		Number		%	
Black, Asian and Minority Ethnic employees (UK&I only ²)	2,996		13		3,386		13	
Disabled employees	1,639		5		1,963		6	

Gender Diversity (A)	2017/18				2019			
	Male		Female		Male		Female	
	Number	%	Number	%	Number	%	Number	%
Senior managers ³	241	73	88	27	317 ^(A)	70 ^(A)	137 ^(A)	30 ^(A)
All employees	19,128	62	11,481	38	20,245 ^(A)	62 ^(A)	12,351 ^(A)	38 ^(A)

Figure 6 Diagrams in the 2019 Bigger Picture Impact Report on Sky’s website

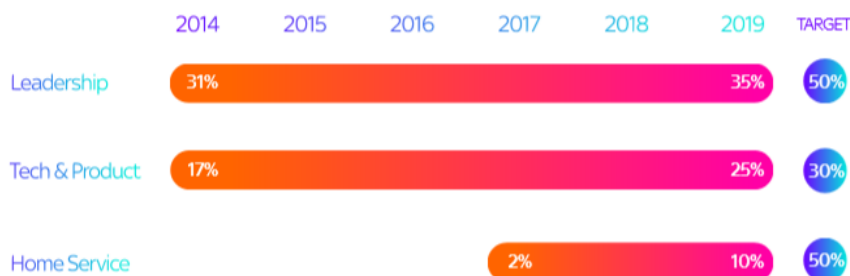


Figure 7 A diagram in the 2019 Gender Pay Gap Report on Sky’s website

Numerous female exemplars are mentioned throughout the website. When introducing different teams and their functions, employee stories are often shared to illustrate relevant occupations. In the *2019 Bigger Picture Impact Report*, talking about the *MAMA Youth Project* dedicated to addressing the lack of diversity in the industry, both a male and a female exemplar are included. Specifically, on the pages of *Our Team* under the *Careers* category, eight teams are presented. In the section, a total of 70 stories of professionals are available, and female experience is introduced at the same level as male experience, representing respectively nine and eight stories. Concerning the technology division, the experience of the same number (three) of men and women is included. For the “Corporate” and “B2B sales” divisions, more female stories are shared. However, female exemplars are absent in some statements, such as when presenting the “Content & Production” team and the “Now TV” team. Given that women are still under-represented in senior and technical roles in the corporation, the absence of female exemplars in some situations may result from the lack of female professionals. In short, it appears that the company is actively trying to give women a

voice, and as a result, female employees can be seen to gain significant visibility on this external communication channel.

4.3.1.2. Visual Analysis

Visual elements are another important part of the content investigated to attempt to understand the status of women in the company. The analysis shows that Sky seems to make a conscious effort to include women on its website. One important example is the video on the *Home* page presenting their people. The number of individual women featuring on their own is slightly higher more than men, accounting respectively for 10 person-time and 8 person-time. Moreover, regarding the frequency of occurrence, women as individuals (35 times) appear nearly twice as frequently as men (18 times). More women are included in the video, and they also appear more frequently than men. It appears that women play a more important role.

On the other hand, in scenes that show women in a collective way, they also play an important role in the interaction even though they sometimes act as listeners (see Figures 8, 9 and 10). It seems that the company pays attention to leverage the representation of women in visual materials. This can also be exemplified by the cover images on pages introducing seven early career development programmes operated by Sky. Most of the cover pictures involve at least one female professional, while more than half of the pictures display the same number of men and women or more women than men.



Figure 8 A scene of the video on Sky's Home page



Figure 9 A scene of the video on Sky's Home page

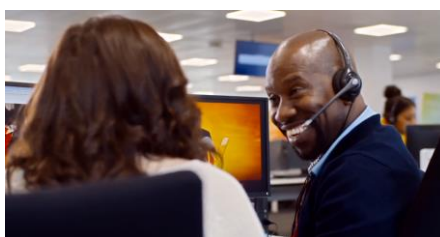


Figure 10 A scene of the video on Sky's Home page

It is important to note that, social media windows are embedded in the Sky web pages (see Figure 11). In the careers section, at the end of pages presenting the teams, career development projects and working environment, small squares are designed to get to the social media pages of the company, such as LinkedIn, Facebook and Twitter. This facilitates access to social media and encourages interactions with the visitors. As Sky has various social media accounts dedicated to different subjects, such as *Life at Sky* and *Sky Early Careers*, programmes contributing to gender diversity and the experience of female professionals are shared on these online communication platforms. Uysal (2013) has pointed out that many companies are unable to gather feedback on their corporate website. The small windows leading to social media help to disrupt the one-way communication on websites, and make the processes leveraging gender diversity more interactive.

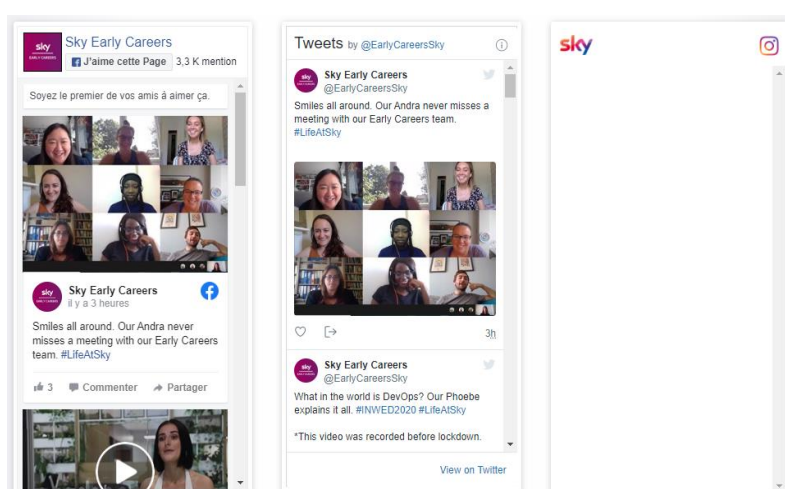


Figure 11 Small windows leading to social media on Sky's website

Additionally, links to other pages are often used to showcase the programmes and awards for diversity commitment. Sector-wide programmes (e.g. *Mama Youth*) and the cooperation with other organizations (e.g. the *Creative Diversity Network*) are mentioned on the page introducing the inclusive culture under the menu *Bigger Picture*. The relevant terms are accompanied by hyperlinks for future information. For instance, after clicking on *Mama Youth*, the page dedicated to this project appears (see Figure 12)



Figure 12 The webpage of the *Mama Youth* project

The discussion of awards received by the company also features URLs to external

webpages, such as *The Inclusive Top 50* (see Figure 13). The use of external links arguably raises the authenticity of the honor obtained and the active efforts made.

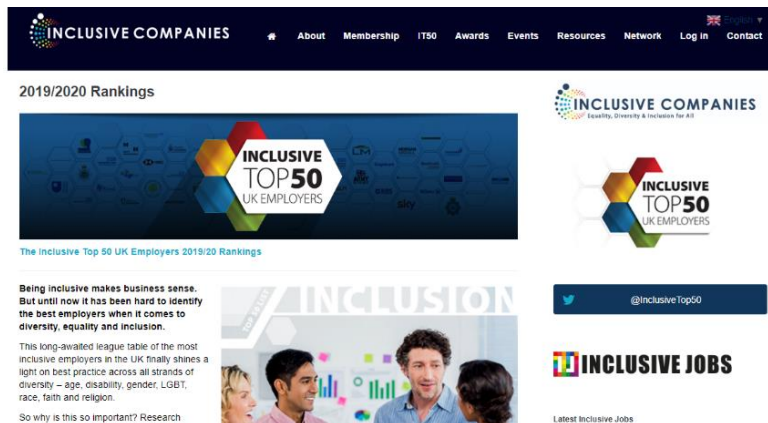


Figure 13 The website of the 2019/2020 rankings of The Inclusive Top 50

However, gender stereotypes may be reinforced because of some visual elements. First, some colors are traditionally associated with different genders: blue is usually for boys, whereas pink for girls. These gendered color associations are created and reinforced in socialization processes, which allows color stereotypes to be activated in certain situations (Cunningham & Macrae, 2011). According to the color analysis of the website, we find that pink is usually used in statements concerning women. For instance, in the video on Sky’s *Home* page, each employee speaking is in front of a backdrop of three main colors, including blue, pink and orange. While women are displayed in front of an orange backdrop at a similar frequency to men, a distinct difference can be identified regarding the blue and pink colored backdrop use. Women are more than seven times more likely to be presented with a pink background, and four times less likely to be presented in front of a blue backdrop (see Figure 14).

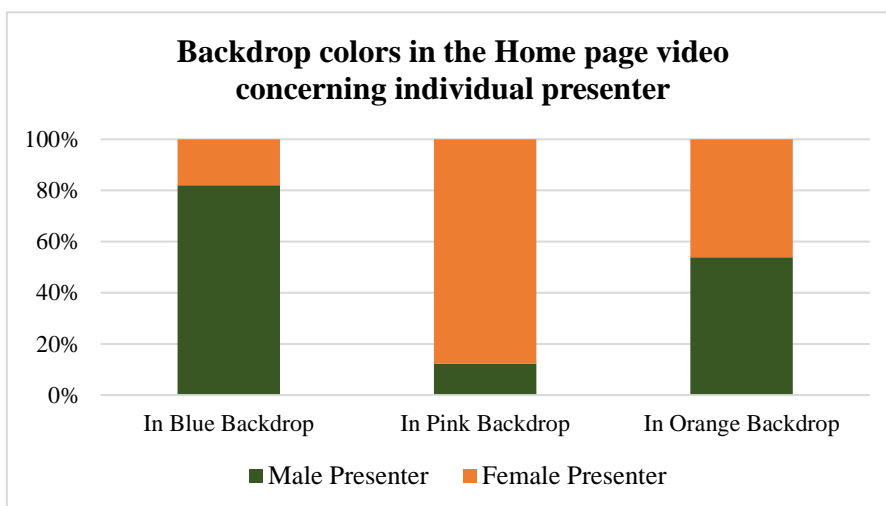


Figure 14 Backdrop colors in the Home page video concerning individual presenter

In the *2019 Gender Pay Gap Report*, women tend to be represented by figures in pink-orange, and men in blue-purple (see Figure 15).

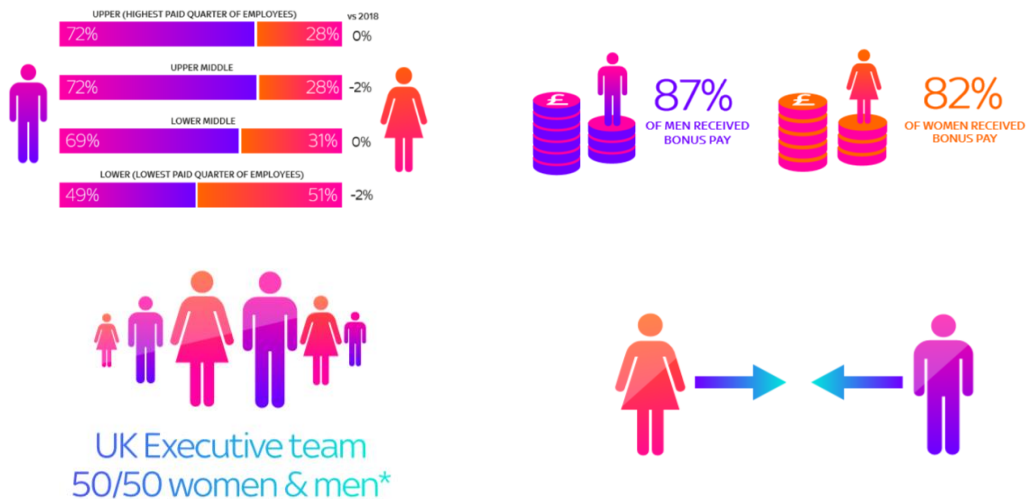


Figure 15 Colors used to represent people on Sky’s website

Interestingly, a few awkward image-text pairings were identified in the analysis. A significant example concerns the presentation of different teams on the main page under the careers section. When presenting the staff in Home Service, a female professional is present individually in the cover image. But together with this picture, there is a description of the function saying, “No technical expertise required” (see Figure 16).

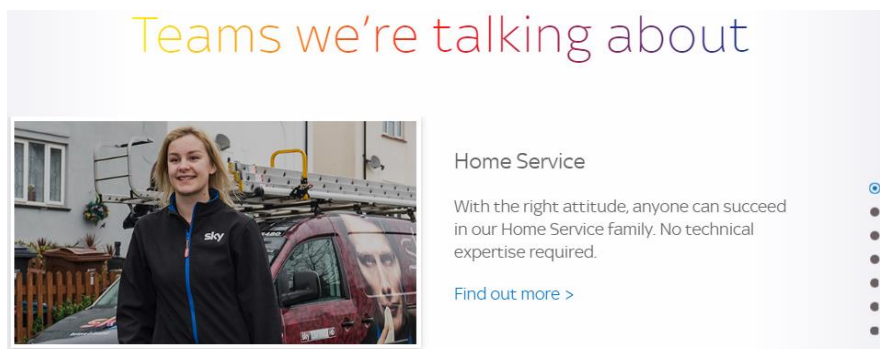


Figure 16 Brief introduction of the Home Service team

On the other hand, while introducing the tech team, an image of a male professional is displayed, accompanied by a paragraph with technical terms, such as “Seamless Sky Go” and “AR” (see Figure 17).

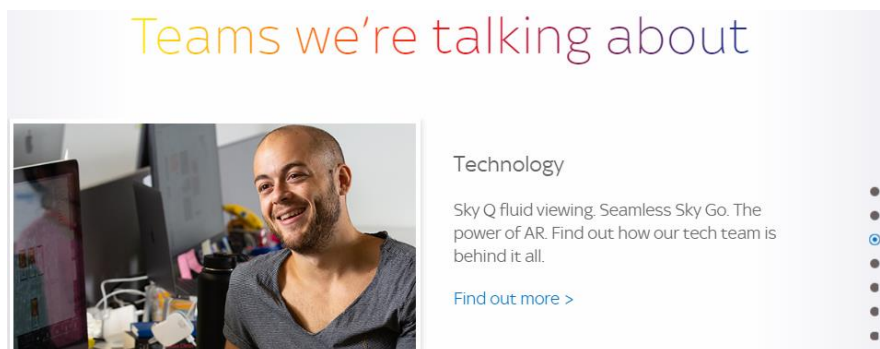


Figure 17 Brief introduction of the Technology team

Given that the IT industry is generally male-dominated and women tend to be under-represented in technical positions, the combination of the image of a women and sentences stating that technology skills do not matter, may lead to the perception that women tend to go for non-technical jobs, which could strengthen the gender stereotypes in occupations.

4.3.2. Jagex

Jagex is a gaming corporation strongly committed to charities supporting the mental health and wellbeing of young people. Even though the company appears to be aware of the gender imbalance in the industry and makes conscious efforts to change, content related to gender diversity is less present than the previously investigated company Sky and is less obvious. This may result from the fact that the scale of Jagex is much smaller than Sky, which affects the amount of resources devoted to online communication. However, the enhancement of women and discussion about gender disparities can be found on the corporate website.

4.3.2.1. Textual Analysis

Jagex is famous for its two living games, namely RuneScape and Old School RuneScape. In the RunFest 2019 announcements, a novel scenario is highlighted to attract players (see Extract 16).

Extract 16 *“A new city, quest, and boss in Morytania; plus Clans and Group Ironman”, “see players tackling Ironman content on the continent of Zeah”, and “compete with other clans, plus a new Group Ironman mode”.*

It seems that the game is more likely to welcome male players rather than female. The term “Ironman” is a compound word of “Iron” and “man”. There are two possible interpretations of this word, namely referring to men only, or referring to both men and women. “Man” can be used to refer to the whole human race in the English language. Nevertheless, this linguistic use tends to treat men as the center of the world and set them as norms to evaluate women, which tends to result in gender inequalities (He, 2010). No matter what the lexis “Ironman” is taken to mean by the company, the word arguably still puts the spotlight on men. The designs of the games reflect the features of the customer base. Focusing on community and experience, the players of the games developed by Jagex are more likely to be male-dominated, which is revealed in the pictures of events organized for gamers with many men and little women (see Figures 18 and 19).

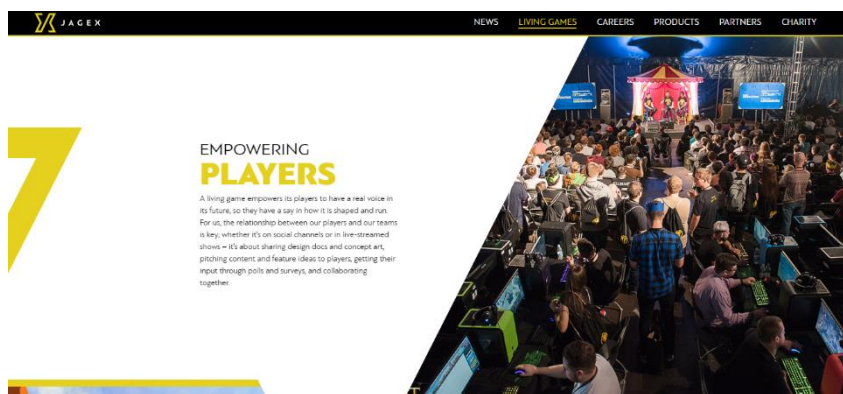


Figure 18 An image of the events organized by Jagex for players

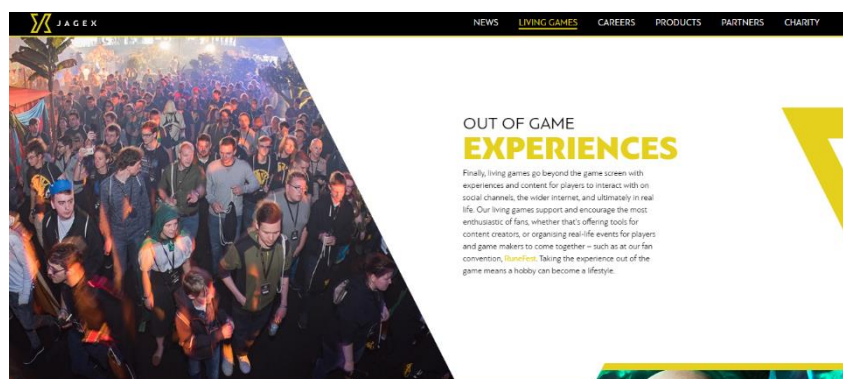


Figure 19 An image of the events organized by Jagex for players

In comparison with the Sky website, Jagex has some similar communicative practices. When discussing the positions, the job titles on Jagex’s website are in unique form, such as “technical animator”, “UI artist” and “legal counsel”. Moreover, Jagex seems to use gender-inclusive terms to avoid using generic pronouns and nouns when mentioning their people, such as “we”, “they”, “you”, “everyone”, “community”, “peers”, etc.

When it comes to the vacancy advertisements, signs of language abstraction are caught. The job adverts include information about changes in recruitment processes, company introduction, job overview, key duties, essential requirements, benefits and additional statements. Like Sky, verbs are mainly used to describe job duties, whereas nouns and adjectives are used in requirement descriptions. Abstract nouns (e.g. experience, understanding, skills) usually co-occur with adjective to indicate different degrees. Interestingly, in the same job advert on Jagex’s website, a noun may be repeated several times with adjectives representing different levels. For instance, in clarifying the essential requirements for the position of “DevOps Engineer”, the noun “understanding” is associated respectively with “very good”, “good”, and “basic” to mention various degrees of desirable competence in connection with different fields (see Figure 20).

- A very good understanding of Linux Operating Systems
- A good understanding of Computer Networks
- A good understanding of Information Security
- A good understanding of Database Administration
- A good understanding of Storage Area Networks
- A good understanding of Computer Science, or Software Development Processes
- A basic understanding of AWS and/or Terraform

Figure 20 The essential requirements for the position of “DevOps Engineer”

As discussed earlier, the less concrete description of job requirements could lead to different interpretations. This may reduce the transparency of recruitment information. Unequal practices are likely to occur because of the implicit and biased criteria. We argue that explicit statements in vacancy adverts make it possible to encourage women to apply for the job, because they have been suffering from invisible discrimination in the IT industry. To make the requirements more concrete and reduce the uncertainty, additional complements are sometimes added in the statements with abstract nouns on Jagex’s website, such as certification, precise aspects, particular degree etc. For instance, while mentioning “excellent communication skills”, the specific preferred degree is included (see Extract 17).

Extract 17 *“You will be expected to present at C level.”*

In addition to the required essential skills, additional and special skills are also listed as bonus for selection. Although this can be seen to add flexibility, it adds more uncertainty as well. At the end of each job advert, Jagex argues that it is flexible and opened enough to greet applicants with other abilities not mentioned, and it is an inclusive employer providing equal opportunities for different groups of people (age, gender, race, religion and so on) (see Figure 21). However, like Sky, Jagex does not provide detailed information about the recruitment processes to ensure objectivity and parity in selection on the websites.



Feel like you fit this role, but don't meet all the requirements? We strive for fresh perspectives, so as long as you can demonstrate how your attitude and other abilities might make up for any gaps we would welcome your application!

Jagex are an equal opportunities employer and positively encourages applications from suitably qualified and eligible candidates regardless of sex, race, disability, age, sexual orientation, gender reassignment, marriage or civil partnership, pregnancy or maternity, religion or belief.

APPLY FOR THIS JOB

Figure 21 Statements in the job adverts on Jagex’s website

4.3.2.2. Visual Analysis

Generally, our findings indicate that women are underrepresented on the Jagex website. First, while the home page of a corporation usually reflects its main concerns, women are less invisible than men in this section of the website. On the homepage, their people are not largely presented. They appear only in the subsection inviting talent to join the team and in the video presenting its commitment to charity (see Figures 22 and 23). Five male employees are involved in the picture and in the video, whereas only one female employee is included. In addition, Figure 22 shows the website features the image of male professionals working and a female game character right next to them. This is could in fact activate the stereotypical perception of gender roles.

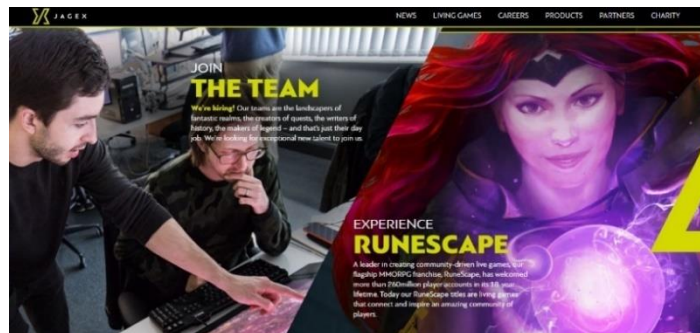


Figure 22 A subsection on the homepage of Jagex's website



Figure 23 The video on the homepage of Jagex's website

Analyzing all the images depicting people and game characters with clear physical indications of gender, there is a lack of representation of women. On the Jagex website, there are 35 images include people, and they have been analyzed. As is shown in Figure 24, most of these images are male dominant. In our research, male-focused image refers to the pictorial materials in which men are largely dominated or women are absent.

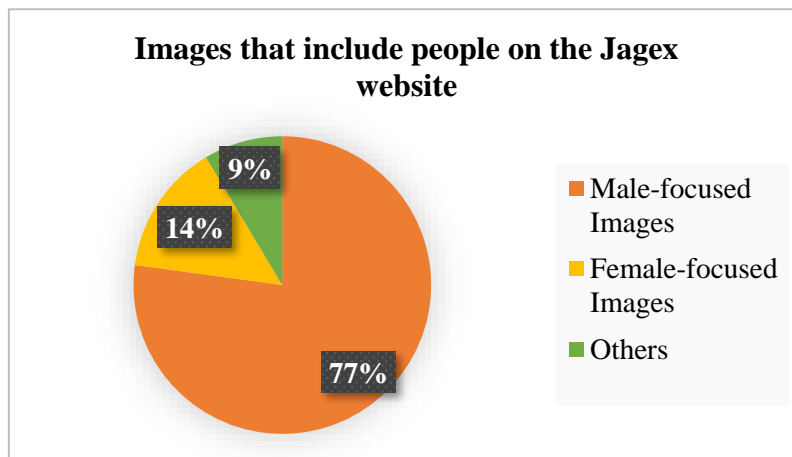


Figure 24 Images that include people on the Jagex website

The under-representation of women on Jagex's website is confirmed in the image under the section about workplace wellbeing under the careers section. In this section, a number of portraits of employees are displayed (see Figure 25). Among the total 75 portraits, only 21 of them are of women. This suggests a lack of female talents in the company. Under the *News* section, 4 out of the 25 articles are dedicated to introducing the new talents joining the team. Among the 14 new members, only 2 of them are female.



Figure 25 An image of Jagex's people (under the careers section)

However, as a corporation with competitive products and conscious to its corporate social responsibility, Jagex can be seen to communicate about its effort to include women in its workforce. For example, on the careers page, while mentioning that the company is a nice place to work, a picture of a harmonious discussion between male and female employees is displayed (see Figure 26).

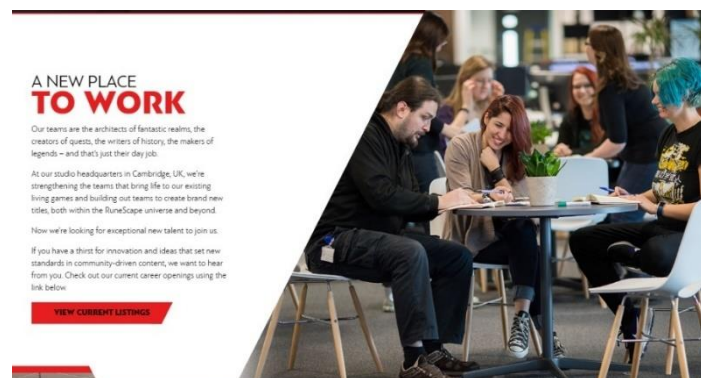


Figure 26 An image under the careers section on Jagex's website

What's more, there are three articles published under the *News* section to demonstrate the commitment of the company to diversity and gender balance. In these textual materials, the diversity programmes implemented by the company and the partnerships with other organizations are accompanied by URLs, such as *Corporate Ambassador for Women in Games*, *European Women Games Conference*, and *Reddit AMA*. This makes it possible to increase the credibility of the information.

Like on Sky's website, pink is used in statements concerning social solidarity and diversity. For instance, pink is the theme color of the menu "Charity" for the mental health and wellbeing of young people, whereas charitable activities tend to be associated with female roles. Concerning the articles entitled "diversity", the cover image is embedded in pink background, and the links to gender diversity programmes in the content are also in pink. This indirect connection between a color typically associated with women and charity work and diversity could arguably activate and reinforce gender stereotypes.

4.3.3. Softwire

Softwire is a tech company emphasizing the connection between business growth and its people. Like the former two IT corporations, Softwire adopts discourse with collective pronouns and nouns, and it use unique form of job titles for both women and men. The web is designed in basic colors of blue, pink and orange, which is similar to the media and entertainment corporation Sky.

4.3.3.1. Textual Analysis

On the website of Softwire, there is a page dedicated to the opinions and concepts of the company and their employees, namely *Softwire insights*. The topics addressed focus not only on their views on technology and their core business, but also on their concerns related to social issues. The articles and podcasts included there were made by the staff. Three of the themes used to organize the content on this web page are mostly relevant to gender diversity, including *CSR*, *Diversity and inclusion*, and *Women in tech*. The textual analysis focused mainly on statements in eight articles in these sub-categories. These articles are written by four authors. Yet only one article was written by male staff member, and it is entitled "*Unearthing Untapped STEM Talent*". Considering the function of these employees, they appear to share their opinions on the topic they chose because they are involved in related work. This suggests that female professionals play a significant role in gender diversity practices, even greater than their male colleagues. Among the three female authors, two of them were given awards because of their career achievements, such as *Business Leader* award and *Graduate of the year*. The female staff who received the *Business Leader* award is also one of the directors of Softwire, and she wrote an article entitled "The importance of awards for promoting diversity" on the website (see Extract 18). Committed to increasing diversity in the tech workplace, Softwire seems to intend to make these two successful female professionals more visible, so that they can serve as role models to inspire other women to get involved in

the sector.

Extract 18 *“When it comes to inspiring women, in particular, I think that the most effective solution that we have seen is role-modeling. If you can’t see someone who looks like you doing the job, then you don’t think it’s for you. That’s why award bodies such as this one are so important, they show how many career opportunities there are available.”*

Unlike the Sky and Jagex job advertising section, Softwire’s gives more details about its efforts for equal and unbiased recruitment processes. It is not limited to sentences indicating its diversity commitment (Extract 19).

Extract 19 *“Softwire is an equal opportunity employer and does not discriminate on the basis of ... gender including gender reassignment, marriage and civil partnership, pregnancy and maternity, ...sex, sexual orientation, or any other protected status.”*

Softwire uses considerable space to explain training opportunities for career development and the application process. On the webpages of job advertisements, information about training and the application process is provided (see Figures 27 and 28). In particular, two articles are dedicated to explaining how the company makes the recruitment more inclusive. In those articles, precise practices are described, such as those conceived to neutralize the selection processes and adapt to different roles, as well as to tackle unconscious bias with a diverse recruiting team. By clarifying the stages of application, the recruitment processes are more transparent to candidates and remain less uncertain.

Training

At Softwire, we invest heavily in the personal development of our employees and have a strong focus on training and mentoring. As a new starter, you will be enrolled on our graduate scheme and receive two months of dedicated training in software development. We'll then start to introduce you to client projects but give you plenty of opportunity for on-project training and further general training sessions and personal development. We will teach you how to be a great developer and a valuable member of any team.

Almost all the members of our delivery teams started out as graduate software developers. Whatever role you decide to move into later on in your career, you'll benefit hugely from the solid grounding in the fundamentals of software development that our graduate scheme provides.

Figure 27 A subsection of the job advertising pages on Softwire’s website

Application Process

We pride ourselves on our responsiveness and the quality of our customer service, and that extends to the way we treat you as an applicant.

- ▶ We respond to 95% of applications within one working day (99%+ within two days) and will resolve any queries you have just as quickly.
- ▶ At every stage in the process it typically takes less than two working days for you to receive results.
- ▶ Interviews can be arranged as soon as you wish, subject to availability and two business days' notice.

We also pride ourselves on hiring people with the greatest potential, rather than just those with prior experience, and we do all we can to bring out the best from you in the interviews by making them as relaxed as possible. We value your time, and we don't ask you to answer unnecessary questions on application forms or spend hours on preparation. Our recruitment process consists of three straightforward stages.

- ▶ Submission of your initial application.
- ▶ Completion of online tests and/or a short telephone interview.
- ▶ A second interview in our offices lasting a few hours. This consists of a number of technical and logical reasoning tests and requires no preparation.

Softwire is an equal opportunity employer and does not discriminate on the basis of age, disability, gender including gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation, or any other protected status. All matters related to employment are decided on the basis of qualifications, merit and business need.

Figure 28 A subsection of the job advertising pages on Softwire's website

Under the people section, 28 employees are introduced, with women and men making up respectively 28.6% and 71.4% of those people. Only one of the four directors and only one of the eight department heads presented are female. Women are not only under-represented in the whole workforce, but also in senior positions. While there are fewer female professionals on the teams, the number of articles created by them is larger than the number written by men. This suggests that significant weight is given to expressing the voices of female professionals even though they are underrepresented in the groups. Furthermore, out of the 41 articles written by women, 78% come from the same staff, namely one of the directors. She is committed to delivering diversity statements on the website, not only in the form of text, but also using podcasts. This shows senior management's commitment to encouraging a gender diverse workforce.

Each employee introduced under the people menu is given a specific page with a concise presentation. Our analysis indicates that sports and games are more likely to be mentioned when introducing men. 8 out of the 20 male employees are described as keen on sports, including running, cycling, swimming, badminton, rugby, sailing, motorcycling, while none of women is described with sportive activities. Only two presentations mention caring roles in the family: they both concern women. In these cases, terms such as "home", "family", "kids" and "mother" are employed. These statements on people can easily lead to the assumption that men are more suitable to be involved in the male-dominated IT workplace, whereas women are still primarily family and child carers. Based on the word frequencies in Table 4, lexis related to tech functions is more likely to be used when describing men, including "technical", "software", "technology", "code", "engineering", and "maths". When it comes to women, the tech related terms include "tech" and "code". This situation may be explained by the fact that women are less represented in technical positions, which reflects the horizontal segregation based on task divisions in IT companies. However, essentially associating technical responsibilities with men may lead to the perception of weaker female capabilities and, may in turn activate and reinforce the gender stereotypes on subjects and occupational roles.

Female employees				Male employees			
Projects	5	Code	2	People	18	Great	6
Great	5	Clients	2	Projects	12	Charity	6
Manager	5	Opportunity	2	Time	10	Developer	6
Time	5	Best	2	Technical	10	Business	6
Career	4	Smart	2	Clients	10	Problems	5
Customers	4	Social	2	Experience	9	Happy	5
Business	4	Busy	2	Customers	7	Team	5
People	4	Life	2	Solve	7	Growth	5
Tech	3	Development	2	Software	7	Client	5
Helped	3	Opportunities	2	Technology	7	Positive	5
Culture	3	Fundraising	2	Design	7	Engineering	4
Ability	2	Potential	2	Code	7	Maths	4
Environment	2			Best	6		

Table 4 Word Frequencies in the texts introducing people on Softwire's website

4.3.3.2. Visual Analysis

In the images at the top of the main pages of each menu, Softwire includes women in the visual elements, but signs of gender imbalance are present. In particular, on the pages introducing the six main services provided by the company, even though the representation of female staff is similar to that of male staff in terms of numbers, the roles exhibited differ in different aspects of business. When it comes to the divisions of *Government and public sector* and *Advisory*, the images place women in a central and dominant role (see Figure 29). When it comes to *Data and AI services* and *Design and innovation*, women act more as a listener and play a less active role (see Figure 30). The contrasting effect generated in the same menu can be taken to reflect the horizontal segregation that women face as they occupy more positions requiring soft skills rather than core technical skills (Robertson et al., 2001).

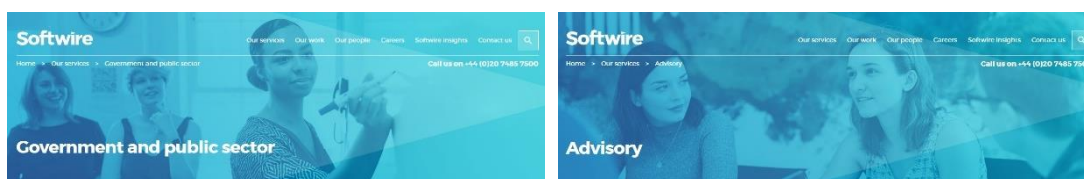


Figure 29 Cover images on Softwire's website (under the services section)

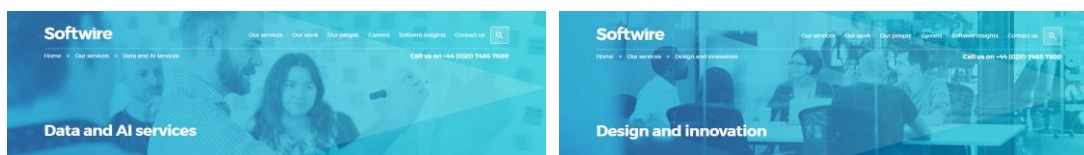


Figure 30 Cover images on Softwire's website (under the services section)

4.4. Women Empowerment on the Websites

While patterns of communicate matter, content is key to constitute the essences to deliver the complete sense of women empowerment. In this section, we focus on the

extent to which and how the communication practices and content empower women on the websites of the companies under study. The following subsections are structured based on the three aspects of factors that affect the perception of the place of women, namely **personal, relational and societal empowerment**.

4.4.1. Personal Empowerment of Women

Personal empowerment consists of individual beliefs and behaviors. On the websites of the three IT companies under study, personal empowerment of women is embedded in the organizing processes and communication patterns to empower women in relational and societal dimensions. The contextual factors have an impact on self-confident, self-esteem, career aspiration, and self-efficacy.

In the IT workplace, self-efficacy refers to the personal assumptions on the ability to fulfill job duties by employing the accessible resources. While self-efficacy influences women's self-expectation in work, they show lower levels in this respect than men, and suffer more from career anxiety, particularly in computer use (Ahuja, 2002; Ronald et al., 2006). The encouraging practices in an organization contribute to higher confidence of female professionals in the IT workplace, such as access to networks, equal recruitment processes, opened career development opportunities, and female role modeling.

The quantity and transparency of recruitment information on the websites should be considered. All the investigated companies declare that they are an inclusive and unbiased employer. However, only Softwire sets out the measures taken to insure equal practices and stages of selection and evaluation, not only in its career pages, but also in two detailed articles with details. As women are discouraged because of gendered social expectation and the male-dominated culture in IT, the transparency of hiring processes on corporate websites could help to inspire and invite female talent to apply for positions of the company. When doing so, the language abstraction should be reduced. In order to make the recruitment discourse more concrete, our study suggests that the syntactic structure of "descriptive adjective + abstract nouns" should be avoided. We propose that precise requirements should be included, such as specific aspects, certification and preferred level of language etc.

4.4.2. Relational Empowerment of Women

The literature on structural factors suggests that gender biased institutional practices impede the equal status of women in the IT industry. These practices include occupational culture, role modeling, mentoring relationships, institutional structure, the underrepresentation of women etc. The persistence of these career obstacles increases the need for IT companies to improve the situation and, the corporate website serves as a window to show the extent to which they care and what they do to lead the change.

4.4.2.1. Under-representation of Women in the IT Workplace

Women have been found to be under-represented in IT fields, particularly in senior positions and tech roles. This reflected in the companies' website communication. For

instance, on the website of the gaming company Jagex, the lack of women in pictures is remarkable and suggests, the under-representation of female employees in the company. The statistics in the annual report on gender parity on Sky's website also reveal the lower proportion of women in leadership and in tech roles (see Figure 31).

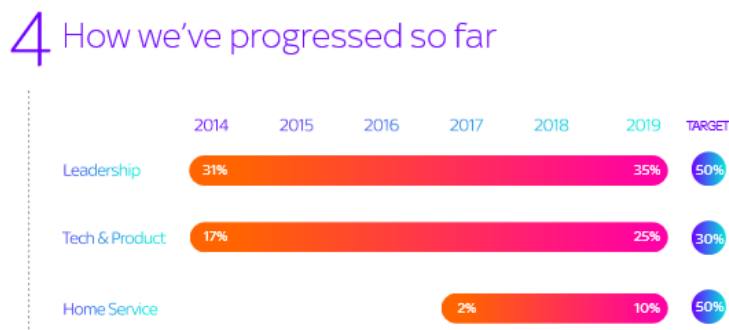


Figure 31 A diagram in the 2019 Gender Pay Gap Report on Sky's website

Moreover, considering aspects of communication, we suggest that the ways in which women are presented have an impact on the degree of representation. On the one hand, on Jagex's website, women are sometimes pictured in images of male-dominated groups. It reduces the visual attention to women and makes them invisible. By contrast, on Sky's website, the pictures that have similar proportion of both genders or the pictures of female individuals only lead to the higher visibility of women and to a valuable status. On the other hand, the role taken on by the women in the images should be taken into consideration. Gender stereotypes in the IT sector tend to position men as inventors, whereas women are only users (Ronald et al., 2006). Both the websites of Sky and Softwire display images in which women act more passively or are listeners. While women should of course not always be placed at the center, to prevent stereotypical associations from being activated, pictorial elements should be adopted after careful consideration of the correlation with other elements, including theme of the section, textual descriptions and other categories.

Although women are under-represented in the IT sector, the language used on the websites investigated can be seen to contribute to their inclusion. The three IT companies in our research show their concerns at different levels by adopting gender-inclusive forms. First, collective discourse is commonly used on the website, with collective nouns and pronouns (e.g. "we", "our", "us"; or "team", "group", "staff", "people" etc.), as well as gender-neutral singular nouns (e.g. "member", "employee" etc.). Job titles are in the same form either for men or for women (e.g. "data engineer", "developer", "analyst", "designer" etc.). Previous research on English indicates that sexism may exist in morphological features (e.g. compound words) and syntactic features (e.g. generic pronouns and nouns) (Menegatti et al., 2017). By using the same form of job title for both sexes help to avoid the usage of compound words that give women unequal status. With the help of collective pronouns and nouns, generic pronouns such as "he" are absent from the website. And the practice of using "*man*" to refer to both men and women is not obvious. The exception is, "Ironman", which is employed in game scenarios mentioned on Jagex's website. Collective discourse and

gender-neutral lexis can be seen as a means to avoid sexism in language.

It is important to note that the voices of female professionals present on the website reveal the place of women in the company. For instance, for Softwire, the percentage of publications produced by female employees is higher than that by male employees; on Sky's website, the "women@sky" network aims to champion the voice and representation of women in the company. It enables both men and women to connect, share experience, and access personal development activities. Thanks to these practices, women have a say in company issues. Their opinions and needs appear to be valued and taken into consideration. This can contribute to higher levels of engagement in the workplace, which may lead to greater job satisfaction and confidence.

4.4.2.2. Corporate Culture

The male-dominated occupational culture hinders gender equality in various ways, including individualism in work, informal interactions and performance appraisals, imbalanced perception of skills etc. Our study has identified three cultural aspects communicated on the website that arguably empower women.

First, collaborative corporate culture and practices help to interrupt individualism and lead to the perception of an inclusive workplace. On the page introducing the values on Sky's website, collaboration is presented as an important value of the company (see Extract 20).

Extract 20 *"We believe we are better when we all work together."*

The collaborative occupational culture can also be reflected in organizing processes, such as team-oriented structures and open workspace. The frequent use of terms related to "team" on the website constitutes the narrative of collectivism and cooperation. What's more, on the Softwire website, an article focusing on the construction of the working environment is published by a director. It explains that the workspace of Softwire is designed to have everyone sitting together, even with the management team. This practice leads to more accessible networks, which makes the workplace more inclusive. But on Jagex's website, the information on this topic is not evident.

Second, signs of a result-driven corporate culture are present on all three websites. The companies in this research highly emphasize the best people and business success on their website. When it comes to Sky and Softwire, it is translated into words including "action-oriented", "customer-led", "customer-oriented" and "quality-focus", whereas it is less obvious on Jagex's website. Instead of adopting terms that directly refer to result-orientation, statements emphasizing the concerns on better design for better player experience reveal the importance of the business result.

Finally, treating skills as learnable is critical to close the skills gap and break gender stereotypes. On the website of Sky and Softwire, learning is stressed and opportunities to improve technical competence are provided. For example, Extracts 21 and 22 show respectively the statements on this topic on the Softwire and Sky websites.

Extract 21 *“Learning a diverse set of technologies.”*

Extract 22 *“Learning is another critical part of the colleague experience at Sky. We’re moving away from instructor-led classroom training towards digital learning that’s available anytime, to everyone.”*

The later statement suggests that, whether they are technical or not, skills can and should be learned by everyone and not restricted to a certain group.

4.4.2.3. Supportive Workplace

Given that women face more barriers in the IT workplace, a supportive working environment is crucial to enhance female talent enrollment. In this respect, several measures are taken by IT companies to address gender disparities.

Firstly, Sky is found to be more engaged in supporting women by clearly presenting their career development programmes, as well as in supporting employees with family duties. Their career development programmes for female talent include early career projects, training, mentoring relationships etc. Flexible working is also embedded in organizing processes. They also support women to a career move through paid skills training, which explores their possibilities at work. In addition, to involve more women in leadership, Sky develops sponsorship for the future female leaders, aiming to achieve the gender balance in leadership, which is mentioned under the careers section of its website (see Extract 23). Unlike, softwire only mentions the women-only internship scheme on its website, whereas Jagex seems to not include statements on this topic.

Extract 23 *“We offer sponsorship and training for the next generation of female leaders. Our aim is for half our leaders to be women, and today we’re at 39%. We support this by making sure all vacancy shortlists have a 50/50 gender balance.”*

Secondly, remuneration and perks can be connected with employees’ level of involvement in workplace. If the gender pay gap exists in the IT industry, the awareness of the situation constitutes the first step. On Sky’s website, reports on the gender pay gap at institutional level are published annually, which shows that the company is conscious of the imbalanced situation. Furthermore, by analyzing the causes and indicating the progress in achieving the targets, the evolution of the situation becomes more transparent to the public who exert a role of supervision. This strengthens the perception of the commitment of the company to close the gender pay gap and achieve gender equality.

Thirdly, role models can be found on the corporate website of Sky and Softwire. On the Sky website, especially when presenting their teams and careers projects, employee story sharing is adopted. The experience of female employees is quite visible because their stories are numerous on the website. As role modeling is of great importance to help women to perceive how their career could be in the field, having visible female role models is crucial to encourage female talent to enter IT careers. What’s more, Softwire also indirectly shows female role models. The company has two female

professionals who have been awarded for career achievements and they express their views on the website, particularly the one who is the only woman in the board of directors. The fact that this director explains the inclusive culture and practices in the company indicates the commitment of senior management in leveraging gender diversity as well.

4.4.3. Societal Empowerment of Women

As gender disparity in the IT industry has been constructed systematically, sector-wide and societal efforts to transform the biased workplace culture are of great significance. Our research has identified three major strategies that showcase the IT company's commitment to a diverse workforce. The commitment contributes to the belief that women are equally valued in the workplace.

First, external programmes are explained to demonstrate the real determination of the corporation to support female IT practitioners at the sectorial level. On the corporate website of Sky, programmes that aim to attract women to the IT fields are introduced and repeated under different menus, including the *Software Engineering Insight Week* for female tech talent, and the *MAMA Youth Project*, which organizes training and paid placements to enable young people from under-represented groups to develop skills. When it comes to Softwire, a number of articles are included to explain how committed the company is to leading positive changes in the sector. For example, there are external projects to boost skills and give back to the communities, such as *Code First: Girls*, which provides free coding courses for women.

Second, partnerships are included to emphasize the serious regard for corporate social responsibility and the great impact the company has. It is common for the IT companies analyzed in our study to communicate about their parentships, sponsorships and ambitions to cooperate with organizations that also aim to enhance gender parity in the workplace or in society. The relevant key words are usually highlighted with colors (see Figures 32 and 33).

To make sure a diverse group of people are getting opportunities to enter the industry, we work closely with independent production companies, as well as organisations like the [Journalism Diversity Fund](#) and the [Creative Diversity Network](#).

Figure 32 Partnerships discussed on Sky's website (under the Bigger Picture section)

Other initiatives have followed, too. We sent an entourage to the [European Women in Games Conference](#) in London (which was also co-sponsored by Jagex) last autumn. Jagex also sponsored the first [Cambridge Pride](#) this month – there was even a last-minute rainbow-coloured company logo shirt that our group wore on the day.

Figure 33 Sponsorships discussed on Jagex's website (under the News section)

On the Jagex website, the statements or comments of the person in charge from the partner organization are also quoted (see Extract 24). This makes it possible to increase the credibility of the discourse on the websites concerning any partnerships for gender

equalities.

Extract 24 *“Marie-Claire Isaaman, CEO of Women in Games, says: ‘...I am therefore particularly delighted that Jagex, one of the founding pledge partners, will now be partnering with us, to promote gender equity and parity as part of that wider drive to foster and champion diversity and inclusion throughout the sector’. ”*

Awards for diversity commitments are also introduced to demonstrate the success of the efforts made. In practice, the awards of the corporation for inclusion are displayed either with images or words in URLs on Sky’s website (see Figures 34 and 35). The links provided facilitate the access to further information on the prize and make it more credible.

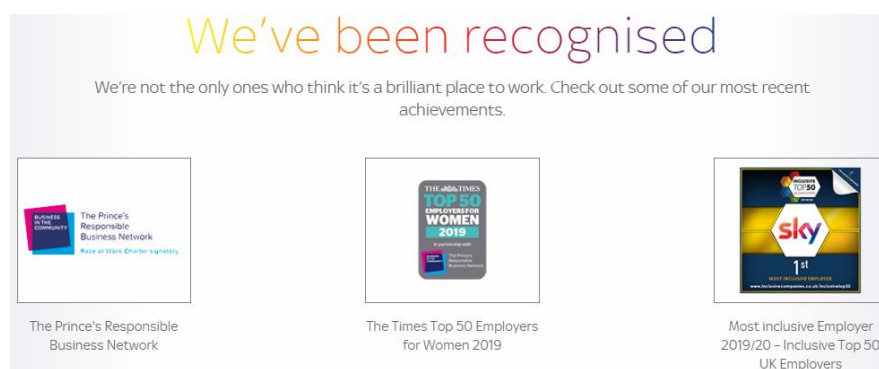


Figure 34 Awards displayed with images on Sky’s website (under the Careers section)

In 2017, we launched a vision to lead our industry in the UK and Ireland for inclusion, on screen and behind the scenes. In 2019, we were recognised at the top of the [The Inclusive Top 50](#).

Figure 35 Awards accompanied by URLs on Sky’s website (under the Bigger Picture section)

Conclusion

The present research was designed to examine the extent to which British IT companies communicate about their gender diversity commitment on their corporate websites. Data from the websites investigated reveals that women are not only under-represented in the IT workforce, but also in management teams and core roles.

Concerning the rationales for gender diversity, the corporate ability (CAb) and hybrid strategies are mainly adopted by the three IT companies in the UK. Our findings indicate that gender diversity in the IT workforce tends to be seen as crucial to the competitive advantage of the corporation. A diverse workforce is of great significance to develop the talent pool, improve the business performance, and enlarge the customer base. In addition, both Sky and Jagex mention their roles in boosting gender inclusion across the industry. Corporate social responsibility appears to be an important concern of the leading companies in the IT field.

Textual and visual tools tend to be used to include women and communicate about gender diversity on websites. When mentioning the internal and external stakeholders, our findings suggest that the use of collective pronouns and nouns helps to avoid the use of generic pronouns and nouns that would ignore women. The same form of job titles is useful to indicate that the position is equally available to women and men. Verbs are mainly in present tense, which makes the actions more enduring and regular. Employee's stories and statistics are usually used to illustrate the significant impact of the processes aiming to enhance gender equality. Regarding the visual elements, we suggest that the visual materials (e.g. images and video) representing women and their important roles in the workplace are significant to leverage the representation of women on websites. Small windows connected to social media pages could make the website communication more interactive with the visitors. Programmes, awards and partnerships related to gender parity are usually mentioned with hyperlinks to external webpages, which arguably raises the authenticity of the efforts made.

However, serious consideration should be taken to avoid the negative effects. First, concerning the job advertisements, abstract nouns and adjectives are used in the descriptions, which may lead to different interpretations and make the recruitment processes less explicit. To make the hiring information more precise, we suggest that detailed information about requirements and recruiting procedures can be provided. Second, the choice of lexis is important to not reinforce gender stereotypes, such as the connection between men and sport and games, as well as between women and family responsibilities. The use of words that put the spotlight on men (e.g. Ironman) may also contradict the intention of the company to promote gender inclusion. Third, the use of color may activate biased perceptions, such as pink for girls and blue for boys. Forth, the consistency between different communicative elements should be considered. Our analysis reveals that all the IT companies under study include image-text pairings or image-image pairings that could reinforce gender role stereotypes and lead to horizontal segregation, such as men as inventor, men in tech roles, and women in the public sector.

On the websites of IT companies, women are mainly empowered at the relational level. Female role models are advocated to inspire more women to enter the IT field and move to senior positions. Platforms are also established to present the voice of women, such as the dedicated category on corporate website and network for women. The results suggest that women seem to be supported by the occupation culture and organizing processes, including the collaborative and result-driven culture, sponsorships, the career development programmes for women, the awareness of the gender pay gap, senior management commitments etc. The empowerment of women at the institutional level contributes to the enhancement of self-confidence, self-efficacy and aspiration of women for the IT sector.

Overall, our analysis shows that the three companies under study include gender diversity discourse on their websites. Sky's website displays the highest level of women empowerment on a series of levels, whereas Jagex shows the least. We suggest that, in website communication, next to making an effort to empower women, it is also crucial not to reinforce gender stereotypes.

This present study has gone some way towards enhancing our understanding of how IT companies communicate about their concern on gender equality. The findings could be used to help IT companies to improve their website communication patterns and avoid invisible gender discrimination. The major limitation of this study lies in the fact that the focus was on the UK only and only three companies were analyzed, even though they are top companies that can provide an indication of how other IT companies may communicate about their gender diversity commitment. It is not representative of the IT field. To have a broader scope of women's place on the websites of IT companies, further studies need to be carried out to investigate more IT companies from different countries.

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