An investigation of gendered institutions and the ideal worker narrative in the Scottish ICT industry.

RILEY, L.

2020

An Investigation of Gendered Institutions and the Ideal Worker Narrative in the Scottish ICT Industry

Riley, L.

A thesis submitted in partial fulfilment of the requirements of the Robert Gordon University for the degree of Doctor of Philosophy

December 2020

Declaration

The author hereby declares that this thesis is entirely my own work, except where explicit acknowledgement is made to the contribution of others, and this thesis has not been submitted for any other degree at the Robert Gordon University or any other institution.

Lauren Riley
11 December 2020

Acknowledgements

I would like to express my profound admiration and gratitude for all of the amazing individuals I have met throughout this journey, both on the page and in person, who have informed and inspired my way forward.

First and foremost, I would like to thank my supervisor, Dr. Emmanuelle Rey-Marmonier. Your expertise, support and care throughout the past few years have helped me immeasurably and I cannot thank you enough. I would also like to thank my secondary supervisor Professor Elizabeth Gammie. Your guidance has challenged me to strive for excellence in all my academic endeavours.

My heartfelt thanks is also owed to Equate Scotland and specifically Sayana Coulson for introducing me to the Scottish STEM community as well as Emma Hollywood at Skills Development Scotland for her thoughtful mentorship during my time with the research team. Without the opportunities, mentorships and friendships you both offered freely, I would not have grown nearly as much as a feminist researcher.

I would also like to thank my family and friends for their endless support, no matter what. Thank you to those amazing women: Kelsey Brown, Liz Janson, Jen Burn, Rebecca Raymond and Amanda Reed. I would especially like to thank my mom, Michele Brown, the strongest woman I know and the best role model (and editor!) I could have asked for.

Finally, I would like to thank my partner in crime, Mark. You have supported me in every moment of self-doubt and made every day an adventure.

Abstract: An Investigation of Gendered Institutions and the Ideal Worker Narrative in the Scottish ICT Industry

Submitted for consideration of the degree of Doctor of Philosophy by Lauren Riley

This study critically investigates gendered organisational barriers in the Scottish technology industry in an effort to understand the impact on gender-minority workers and the most effective ways to support those workers at the firm level. Aspects of organisational culture, gendered discourses between workers and horizontal and vertical job divisions are considered in the formulation of an ideal worker narrative which privileges some workers and marginalises others. The Scottish ICT sector presented opportunities for the study of this phenomena both as a region increasingly reliant on skilled technical workers and the ICT sector for their contributions to the economy as well as a sector which has long been an area of gender divisions and a focus for equalities work in Westernized countries.

The empirical research undertaken in this study adopts a multiple case study approach wherein three ICT firms are investigated. Qualitative data collection was undertaken to include semi-structured interviews along with documentation analysis. Through the application of multiple methods, differing perspectives were collected to inform the description of the ideal worker narrative to include the firm, male and female workers. In total 46 interviews were included, 23 with male employees and 23 with female employees, as well as 188 artefacts evidencing firm policy, employer branding and external assessments were included across case study firms. Thematic analysis was used to describe the ways in which gendered substructures persist within each organisation and findings across firms were synthesised to identify wider industry trends.

Key findings from this study illustrate that whilst progress has been made in the efforts of Scottish ICT firms to attract, support and retain female workers, there remains a significant difference in the experiences, aspirations, pay and self-efficacy of men and women in the sector. Moreover, these gendered differences favour male workers and continue to marginalise female workers. These disparities, in the context of firms considered to be at the forefront of gender equality in the sector, indicate that there is a disconnect between EDI policies and their implementation. The findings additionally indicate that workers are more likely to consider a firm culture as inclusive if there is clear evidence that efforts are being taken and supported at the leadership level and there is transparency regarding the progress of these efforts. As such, it was concluded that firms should encourage the use of EDI initiatives at the leadership level,

provide data regarding the firm's progress towards EDI goals and seek regular feedback from workers to better capture the efficacy of EDI efforts.

This study also contributes to the shift in academic discourses of gender and the decoupling of personality, characteristics and skillsets from biological sex though the application of an updated theoretical framework. Specifically, firm-level influences on the preferred traits and demographics of workers is explored along with the impact on traditionally marginalised workers. Adding to contemporary academic discourses on gender diversity within the ICT sector, this study builds upon an evaluation of equality work undertaken by case study firms to inform organisations of the current experiences of male and female workers in the field and the most effective ways to support and retain historically marginalised workers.

Keywords: gender diversity, gendered organisation, ICT sector, ideal worker narrative, role congruity

Table of Contents

List of Figures

List of Tables

Abbreviations

BME	Black, minority and ethnic
EDI	Equality, diversity and inclusion
ICT	Information and communications technology
GVA	Gross value added
DDI	Data-Driven Innovation Initiative
STEM	Science, technology, engineering and maths
SET	Science, engineering and maths
CSR	Corporate social responsibility
SME	Small and medium sized enterprises
STEM-F	Science, technology, engineering, maths and finance
KCM	Kaleidoscope career model
SQA	Scottish Qualifications Authority

Chapter One: Introduction

1.0 Introduction

In this chapter, the context of the study is established in regards to contemporary trends impacting the technology sector as well as the wider equality, diversity and inclusion (EDI) landscape. Next, the rationale for this research is expanded upon and the aim, objectives and research questions are established. Following, the methodological approach is introduced in summary along with key delimitations of the study. The chapter will conclude by outlining the structure for the remainder of the thesis.

1.1 The Information, communication and technology sector

The 21st Century has ushered in the fourth industrial revolution with key advancements in the sharing of data and automation of labour, signalling a transition from the Information Age to the era of Industry 4.0 (Schwab 2017). This heightened focus on the global sharing of data has established an emergent niche for a myriad of information and communications technology (ICT) firms, a category used to broadly describe companies producing products and services in telecommunications, digital communications, enterprise software, data storage and transmission (Melody et al. 1987, OECD 2017). In 2019, ICT firms accounted for four out of the five most successful companies in the world by market capitalisation and seven of the top ten (Morningstar 2019).

Unsurprisingly, this trend extends to the job market where workers trained in technical positions remain amongst the most sought after both by firms operating within the ICT sector as well as the wider market (OECD 2017, Felstead et al. 2017, SDS 2019). The table below is adapted from the International Standard Classification of Occupations and provides an overview of professional and technical positions associated with the field.

ICT professional and technical positions		
Professionals	ICT professionals	Software and applications developers and analysts
		Database and network professionals
Technicians/Associate Professionals	ICT technicians	ICT operations and user support technicians
		Telecommunication and broadcasting technicians
Managers	Managers: production and service	ICT managers

Table 1 source: UNCTAD 2014

As such, the classification 'ICT worker' is widespread and covers a range of work related to electronic and telephonic communications.

Parallel to the growth of ICT is increased social and legislative scrutiny, particularly in westernized countries, of persistent workforce inequalities framed by a homogenous and implicit definition of the ideal worker. Despite an increase in research to investigate gendered barriers to workforce inclusion, particularly in STEM fields, differences in male and female worker experiences still persist within many organisations, often disadvantaging women professionally and obstructing their career trajectories. A particular area of focus for this phenomenon is the ICT sector which is categorised as a highly masculinized workforce (Woodfield 2000) with a strong and distinct perception of the ideal worker extending beyond gender to wider demographics and personality traits (Acker 1990, Britton 2000). This contributes to the further disadvantage of marginalised workers who are either unable to, or not rewarded for, aligning themselves with the ideal worker narrative (Eagly and Karau 2002). As an area of strong job growth, and skilled workers shortage, there is a need to widen participation in ICT through the attraction and retention of historically marginalised workers (Graham et al. 2016, Woodfield 2000, Kelan 2007, Hicks 2017, ScotlandIS 2018). As such, it is important to understand the wider context of the ICT workforce in Westernized countries and the impact of professionalization efforts on the continuing gender disparity within the field.

1.1.1 The western landscape of the ICT workforce

Women have remained underrepresented in the technology sector of most westernized countries, with the number continuing to decline in recent years (Kelan 2007, Ashcraft, McLain and Eger 2016). Major technology companies such as Microsoft, Google, Facebook, Uber and Twitter report that less than 20% of their technology roles were filled by women in 2017 whilst Apple reported marginally better results at 23% and Netflix topped the list at 28% (Clement

2019). In Westernized countries at the top of the United Nation's ICT Development Index, the percentage of women working in ICT ranges from 12.1% in Luxembourg to 28% in Australia (Dillinger 2017). The table presented below outlines the percentage of women in ICT for Westernised countries in the top 20 of the ICT Development Index, an annual report which compares ICT developments by country.

Women in ICT by country	
Country	**Percentage of women working in ICT in 2018**
Australia	28.0%
United States	25.0%
Sweden	20.9%
Norway	20.3%
Finland	20.3%
New Zealand	20.0%
Denmark	19.3%
Germany	16.8%
Netherlands	16.6%
United Kingdom	16.3%
Iceland	15.4%
Switzerland	15.3%
Luxembourg	12.1%

Table 2 source: Dillinger 2017, Eurostat 2018, ACIS 2018, New Zealand Government 2018, Clement 2019

Most notable for this research is the United Kingdom's positioning as the fourth most gender disparate country for Westernized countries represented on the International ICT Development Index, with women representing 16.3 percent of the ICT workforce. This statistic has remained relatively stagnant since 2011 (Dillinger 2017).

There is also a gendered difference in retention rates for the tech sector, although data is more difficult to ascertain on this statistic. Ashcraft, McLain and Eger (2016) report that the turnover rate in tech is twice as high for women whilst Perez (2019) reports that women are 23% more likely than their male counterparts to leave a career in the tech industry after ten years. A study of tech leavers found that worker demographics influenced the reasons ICT workers report leaving their jobs, with women, particularly women of colour, reporting sexual harassment and being passed over for promotions as primary motivators for industry exit (Scott, Klein and Onovakpuri 2017).

Common barriers across westernized countries are cited in the attraction and retention of women in ICT such as limited access to flexible working, incidences of sexual harassment, and a lack of access to networking opportunities with 'in-groups' (Iacuone 2005, Ryan and Kossek 2008, Brass 2017). Flexible working is of heightened importance due to social norms wherein the distribution of labour in the home often falls disproportionally to women, impacting their ability to participate in long or unstructured hours (McClintock-Comeaux 2013), a characteristic often cited as important in ICT work (Woodfield 2000). Whilst technological advancements in the organisation of work has led to an increase in flexible working policies such as telecommuting, job sharing and altered work hours, there is a down side. Specifically, research suggests that flexible working policies do not necessarily allow for greater work/life balance and can negatively impact career progression (Ryan and Kossek 2008). Furthermore, due to the fast-paced changes in the technology industry, women who take career breaks such as maternity leave often find barriers to re-entry in the form of dated skills and a need to participate in additional professional development (Graham et al. 2016). Thus, organisational barriers such as these contribute to the implicit construction of the ideal worker narrative, particularly in regards to gender.

Likewise, studies suggest that those working within male-dominated industries are more likely to experience sexual harassment (Iacuone 2005). Hypermasculine work cultures can institutionalise sexism, heightening the probability that both male and female workers who do not conform will become targets of harassment (Cortina and Wasti 2005). This presents a considerable barrier to the retention of women working in ICT, as those who experience harassment in the workplace often report disruptions to career progression and lateral career moves to seek a more inclusive environment (Salman, Adbullah and Saleem 2016, Sarkar 2017, McLaughlin, Uggen and Blackstone 2017). In fact, Scott, Klein and Onovakpuri (2017) reported in their tech job leavers study that one in ten female participants had experienced unwanted sexual attention in the workplace. As such, the data suggests that ICT organisations should increase initiatives which target formal reporting of harassment and discrimination in order to retain skilled female ICT workers.

Finally, marginalised workers often report a lack of access to informal networking opportunities which traditionally assist in building key relationships necessary for career progression (Hill, Corbett and St. Rose 2010, Graham et al. 2016, Brass 2017). To combat this, firms often look to create formal spaces which allow marginalised workers to network with one another (Friedman and Holtom 2002). However, studies suggest the impact of such initiatives may not adequately address the problem (Kalev, Dobbin and Kelly 2006). Whilst these issues are commonly cited as heightened barriers to inclusion for women in ICT, a myriad of factors have been identified and debated in the literature. As such, barriers to inclusion for women in ICT will be further investigated in the literature review following this chapter.

1.1.2 Scotland's Silicon Glen

As technology firms began to establish themselves and grow in Scotland, the term 'Silicon Glen' was coined. This is used to refer to the central belt, Dundee, Inverclyde, Edinburgh, Glasgow, Stirling and Fife, where the majority of the country's tech community is concentrated. At its inception in the 1940s, Silicon Glen was primarily populated by high-tech electronic manufacturers such as IBM and Honeywell. This focus widened in the 1960s, following international industry trends which introduced major firms specialising in semiconductor design to the Glen (Henderson 1987). At its peak, Scotland was responsible for the production of 30% of Europe's personal computers and 80% of professional computers specialised in technical and scientific applications. The decline of high-tech manufacturing in the 2000s ushered Silicon Glen into the era of ICT, as it exists presently.

Silicon Glen has experienced considerable growth in recent years and has demonstrated a strong potential to contribute to the country's economy and employment prospects for skilled job seekers. In fact, the number of digital technology firms in Scotland has grown 60% since 2010 and the sector contributed 5.9 billion pounds, or 4%, of the total gross value added (GVA) to the Scottish economy in 2016 (ScotlandIS 2018). More recently, Skills Development Scotland reports that the digital technology sector, which encompasses a subsection of ICT firms which does not include telecommunications, has shown growth at a rate one and a half times greater than Scotland overall, contributing 4.9 billion pounds and almost 100,000 jobs to the local economy (SDS 2019). The most recent available data published by the International Telecommunications Union (2017) report that the UK is the 5th most attractive country for ICT companies while Edinburgh have been named the second-best city after London in the UK for tech companies, boasting the fastest growth of any city in the UK and hosting offices for major international ICT organisations as well as several successful Scottish start-ups (Ismail 2018). The promising trends reported for the industry, coupled with a history of success in cultivating a community for the tech industry, positions Silicon Glen well for future growth.

Indeed, the digital technologies sector is predicted to continue to flourish into the next decade, growing 38% by 2024, compared to a growth prediction of 17.5% for the overall economy (ScotlandIS 2018). This marked success for the industry is supported by Scotland's government, academia and not-for-profit sector. Most significantly, a partnership between several universities and national and local governments has established the Data-Driven Innovation Initiative (DDI) to foster the growth of ICT within the country (Fransman 2008, DDI 2019). The primary goal of the initiative is to make Edinburgh the data capital of Europe, with significant investments currently underway to build an infrastructure to support this aim. On its own, the DDI initiative is expected to bring approximately 3,000 new jobs to the Scottish workforce. Silicon Glen is further supported by the wider community through a robust academic

infrastructure which graduates 15,000 skilled technical graduates annually (ScotlandIS 2018); fast-track technical certification programmes (Code Clan 2019); the largest technology start-up incubator in the United Kingdom (Codebase 2019); an annual conference connecting ICT investors and entrepreneurs (EIE 2020); and Equate Scotland, a not-for-profit which connects STEM businesses with marginalised workforces (Equate Scotland 2019).

1.1.3 Silicon Glen's labour landscape

As presented earlier, ICT has been classified as a growth sector by the Scottish Government (2018) and has led to an increase in job opportunities for skilled technology workers (SDS 2019). To provide some context regarding the size of the industry and its impact on Scotland's job market, the following table provides an overview of key statistics compiled from time series data published by the Scottish government regarding the ICT industry from 2008 to 2016.

Key statistics: Scotland's information and communication technologies sector

Year	Number of companies	Workers Employed	Total expenditures (£m)	GVA (£m)	Output (£m)	GVA per worker (£)
2008	6,897	51,700	4,837.7	4,122.8	6,768.1	76,077
2009	6,676	50,400	4,280.9	3,933.4	5,950.2	74,314
2010	6,923	55,300	6,205.7	3,185.1	5,940.6	56,603
2011	7,631	50,600	5,878.5	3,351.4	6,323.6	65,307
2012	7,888	53,200	5,320.4	3,627.0	6,260.4	67,757
2013	8,381	56,100	5,417.9	4,369.1	7,256.4	77,467
2014	8,757	56,100	4,978.2	4,477.4	7,043.4	79,217
2015	9,584	59,200	4,823.1	5,116.9	7,539.3	85,853
2016	10,083	61,600	4,867.3	5,234.0	7,448.6	84,333

Table 3 source: Scottish Government 2018

Whilst sector growth has led to increased demand for skilled technical workers, this has not necessarily translated into higher salaries, with the gross wages and salaries statistic remaining relatively stable for the industry between 2008 and 2017 (Scottish Government 2018). Still, the average salary in ICT is well above the average salary in Scotland (Aiton 2018). Driven by trends in sector growth, ICT provides a strong job market for skilled technical workers.

This need for such workers is further exemplified in the annual survey conducted by ScotlandIS (2018) which indicates that in 2018, 80% of the technology firms surveyed forecasted a need to grow their employee base, up 2% from 2017 and 14% from 2016. The remaining 20% of firms predicted their employee base would remain at its current level, with no firms planning to reduce their workforce. Moreover, 70% of firms indicated a preference in recruiting workers already based in Scotland, 45% of respondents listed recruitment and retention of skilled employees as a key challenge (Ibid.). These statistics support the idea that there is some tightness in the job market, providing more competitive opportunities for those with highly

sought-after skills and a need to widen workforce participation through the attraction and retention of populations which historically have been marginalised in the sector.

For this study on the gendered barriers to inclusion in ICT, Silicon Glen is a prime area for examination. Considerable gender imbalances are present in the workforce both horizontally and vertically and is combined with a significant need for skilled workers (ScotlandIS 2018). Women represent 48% of the overall workforce, 39% of skilled occupations and just 18% of the ICT workforce in Scotland (Graham et al. 2016). Gender inequalities become increasingly pronounced at the leadership level, with women representing just 10% of Scottish senior management positions in ICT (Davidson 2016). Thus, there is a business case for identifying the barriers which reinforce the perpetuation of a homogenous technology workforce as a means of making the industry more appealing to a wider set of potential job applicants.

1.2 Historical trends for UK sector

In addition to the increased attention to gender imbalance in the technology industries in westernized countries and the growing importance of the technology industry to the Scottish economy, the historical trends in gendered job division in the industry is of particular academic interest. Significantly, the historical progression of the tech worker presents a rare opportunity to investigate a sector which has rebalanced from a female-dominated industry to a male-dominated one. Hicks (2017 p.6) argues that “the British case provides an indispensable example for extending the work on women and gender, and on technology and power, by showing how gender changes the core historical narrative of computerization just as it did the history of industrialization”. Whilst recently there has been a concentration of efforts in the United Kingdom to encourage more girls to pursue computing degrees and initiatives to support women working in STEM, it is important to note that early on this was not the case.

Generally thought to have begun in the 1950s, advancements in computing during this time period is often referred to as the digital revolution wherein women were heavily involved in both the creation and operation of digital technologies (Hicks 2017). Several factors contributed to this trend, including the impact of World War II on the heightened need for women to enter the workforce and the industrialisation movement (Hall 1992). As women began to enter into white-collar office jobs, the gendering of work was rapidly established, with a hierarchy of labour which deskilled work assigned to women (Ashcraft and Mumby 2003). Computing work was classified as decidedly feminine and a natural extension to clerical work where women were rapidly replacing a male workforce. Programming was seen as tedious, detail-oriented work and therefore strongly aligned with feminine strengths (Gürer 1995). Moreover, the industrial revolution which aligned women with factory work created a preconceived alignment between women and complex machinery (Hicks 2017). Thus, women

populated the majority of early users of computing machinery and computing work was assigned a feminine gendering.

Women's work in computing was of particular importance in the United Kingdom in the 1940s during World War II. Perhaps consequently, at this time and extending into the early 1970s, Britain was considered at the forefront of computing advancements. Women represented 75% of the workforce at Bletchley Park, the site of British cryptoanalysis efforts where computing played a central role in decoding and translating enemy intelligence (Lendl 2012). Whilst high-level work and management positions were reserved for men, women were highly involved in the operation, maintenance of machinery and the analysis of data. Women were also well-represented in computing work undertaken by the public sector, making critical advancements in programming which allowed the government to service citizens (Hicks 2018). In the private sector, computer manufacturers markedly measured the manufacturing of computers in girl hours, rather than man hours, as women, who were paid less, were the majority of the workforce which assembled the product (Garber 2013).

Equally important to their statistical representation, women are responsible for several significant advancements in computing and technology, even during moments in history when they were side-lined from participating in educational opportunities and careers (Gürer 1995, McDonnell and Morley 2015). Recent historical studies on women in tech have reiterated the importance of elevating key female contributors to computing who have not been well-represented historically (Hicks 2017). Notably, Ada Lovelace began a partnership with Charles Babbage in 1833 wherein she lent her mathematical background to his invention of the "Analytical Machine", creating a code which would allow it, in theory, to compute. Commonly referred to as the first programmer, Ada Lovelace's contribution to computing has indeed pioneered the way for modern programming language (Gürer 1995).

Over 100 years later in 1951, Rear Admiral Grace Hopper contributed to several advancements, both commercial and military, in the field of computing. Hopper is responsible for the first automatic program compiler, which automatically translated instructions from human programmers into code (Ensmenger 2015). Her expertise led to her being recalled back into military duty after the end of her service contract to assist in standardizing the United States navy computing languages (Hicks 2009). Today, she is considered one of the most influential female technologists.

Hedy Lamarr, an actress and inventor, had no formal technical training. However, in 1942 Lamarr conceived of an idea which would allow the United States military to reduce the effectiveness of radio-controlled torpedoes. Working in tandem with pianist George Anthell, Lamarr was granted a patent in 1942 for a frequency-hopping signal which could derail torpedoes (Kahn 1984). Whilst the technology was not immediately used by the military, her work was adapted in the 1960s and used by the American Navy.

These women are oft-cited, high-profile examples of the ways in which women contributed not only to the bulk of the early work in programming and computing but led the way on several key innovations in the field. Such historical data provides a key argument against the idea that men are more intellectually suited for work in the technology arena (Hill, Corbett and St. Rose 2010). Rather, the gendered shift in the composition of the technology workforce was primarily the result of the professionalization of technology work and targeted efforts to increase the number of men in the sector (Hicks 2017).

The United Kingdom technology industry was strategically and systematically masculinized through a series of recruitment and professionalization efforts led by the government (Abbate 2012, Ensmenger 2015, Hicks 2017). Notably, this debunks the argument that the gender shift of technology workers was the result of computing work becoming more complex and intellectually rigorous, nor did it reflect a shift in interest based on gender (Ensmenger 2015). Computer programming and maintenance was predominantly performed by women into the late 1960s, with women constituting 70% of programmers in the UK around this time (McDonnell and Morely 2015).

In the mid to late 1960s, a targeted campaign encouraged and trained men to fill the growing need for technology workers. This was spurred by the growing demand for skilled programmers and technology-savvy managers, resulting in the elevation of technology work and thus a push for men into the trade (Ibid.). Whilst women had comprised the majority of the programming workforce in the past, they were given the title “Computer Operators”, precluding them from the power, prestige and pay that professionalisation efforts worked to ascribe to programmers (Hicks 2017). Often, women were asked to train new male recruits who were then given positions of management and raises whilst the women themselves were precluded from such advancements (Ensmenger 2015, Hicks 2017). This concentrated effort of professionalisation and the close alignment to a gendered shift in the workforce provides an interesting parallel to contemporary, less effective, efforts to increase the number of women in tech and a unique locus for understanding the purposeful masculinization of an industry.

1.2.1 Professionalization of the ICT worker

Occupational professionalisation is the process in which workers undertake purposeful branding to elevate the status of their profession and to establish criteria of excellence within the field (Hoyle 2001). Such efforts allow a professional body to attract and train new entrants through social cohesion and a collective identity (Levine and Bell 2015). Ashcraft and Mumby (2003) demonstrate the gendered impact of occupational branding, wherein roles with high levels of power, prestige and pay are correlated with masculine characteristics. Moreover, this is often to the exclusion of black, minority and ethnic (BME) male workers as well (Smith 2012, Williams 2013).

ICT is an area of particular focus for academic discourses regarding gendered implications of occupational professionalisation as it is a sector where, paralleled with the statistical reality of the male ICT worker, the professionalism of the role is decidedly gendered (Weizenbaum 1976, Woodfield 2000, Acker 2004, Kelan 2010). This description varies in context to some extent amongst notable academics but maintains a thematic alignment with masculine traits and characteristics. As early as 1976, Weizenbaum (p116) describes the typical tech worker as “bright young men of dishevelled appearance, often with sunken glowing eyes…They exist, at least when so engaged, only through and for the computers”. Similarly, Sproull, Kiesler and Zubrow (1984 p.34) describes “’true’ members of computing culture [as] always working on their machines regardless of whether it is day or night and happily go without sleep, nutritious food, cleanliness, or time spent in alternative pursuits”. Woodfield (2000) builds upon these descriptions of workers as dedicated, above all, to their work, and further aligns the profession with characteristics of arrogance and competition. Acker (2004 p.32) described ICT in-groups as demonstrating “forms of masculinity that exclude women and emphasize obsessive concentration and/or violence and self-absorption”. Most recently, Kelan (2010 p 127) underscores the importance of studying the nuanced impact of the ideal worker in ICT "where the heterogeneity of women is more often than not disregarded, with serious consequences, as there is strong evidence that both gender and ethnicity act as barriers to entering the SET [science, engineering and maths] sector”. As such, the depiction of the typical worker is highly documented and discussed amongst gender and work researchers over several decades, often attributing masculinized characteristics to the role even as progress is made in other sectors (McClintock-Comeaux 2013, Hicks 2017).

Central to this description is gender itself, which plays a large part in the implicit construction of an ideal worker in ICT (Carter and Silva 2011). This term can be used to describe the demographic characteristics which are commonly shared by the majority of those chosen for promotable activities, management-track programmes and ultimately senior leadership positions (Kelly et al. 2010, Reid 2015). Moreover, it incorporates worker characteristics as described above, which have been aligned with success; implicitly characterising those who do not fit the mould as difficult or unsuited for the job (Kelan 2010, Carter and Silva 2011).

1.3 Business case for diversity

The heightened focus on workforce diversity in Silicon Glen is in part due to the business case for diverse workforces. Increasingly, large organisations have shifted to a corporate social responsibility (CSR) model wherein they aim to contribute positively to wider social concerns in addition to providing returns to corporate shareholders (Crane, Matten and Spence 2008). This is often expressed as the “triple bottom line”, wherein firms gauge success not only by

financial returns to shareholders but through their social and environmental impacts as well (Spreckley 1981). Pressing social and legislative movements to challenge gender stereotypes, particularly in regards to STEM occupations, lends itself naturally to an alignment of CSR with organisational efforts to increase the number of women, particularly in technical positions.

Evidence suggests that along with the social argument for workforce diversity, there is a business case for widening workforce participation (Roberson 2013). Specifically, organisations working with complex challenges benefit from cognitive diversity wherein workers have varied perspectives, approaches to problem solving and technical prowess (Page 2017). Further research suggests that a strong approach to achieving cognitive diversity is through attention to identity diversity, or demographic characteristics such as gender, race and class (Orive 1988, Gaither et al. 2018). The body of research concerning organisational diversity focuses on an investigation of the direct financial benefits as well as the operational benefits, both of which will be expanded upon in the following subsections.

1.3.1 Financial

Contemporary research suggests that gender diverse boards can have a positive impact on firm performance under the proper circumstances (Erhardt, Werbel and Shrader 2003, Green and Homroy 2018). That is to say, a positive correlation is found for small and medium sized enterprises (SMEs), organisations in emerging markets, and large corporations wherein there is at least a 70:30 gender ratio of men to women (Schrand, Ascherl and Schaefers 2018). Wiley and Monllor-Tormos (2018) demonstrate this in their study of STEM-F (science, technology, engineering, maths and finance) firms on the Fortune 500 which found that board gender diversity had a positive impact on firm performance when at least 30% of the board is female. Alternative research suggests that the benefit of board diversity is indirect yet present nonetheless, particularly through the reduction of firm risk and advancement of ethical and communal decision making (Nielson and Huse 2010, Galbreath 2018). Research which adopts Tobin's Q, the value used to represent firm market value divided by its assets, as an indicator of financial performance presents mixed results regarding the impact, or lack thereof, of gender board diversity on firm performance (Carter, Simkins and Simpson 2003, Sanan 2016, Ionascu et al. 2018). However, regardless of the findings, it must be noted that methodological barriers to conducting rigorous research in this area are persistent due to the lack of extant diversity on corporate boards (Ionascu et al. 2018). Thus, this is an area of increasing and continued importance as boards become increasingly diverse in the future.

In addition to research regarding board and leadership diversity, financial benefits have also been linked to workforce diversity. Studies have shown a positive correlation between diversity and workforce retention which in turn provides substantial savings in productivity and employee turnover (McKay et al. 2007, Herring 2009). Savings in employee retention can be

considerable as demonstrated in a study by Annabi and Lebovitz (2018 p 1050) on the American ICT sector where employee attrition costs are estimated at $64 billion (£55.4 billion) a year for corporate America, “with IT shouldering a higher share of those costs due to the complex and tacit organizational knowledge requirements”. In this regard, there is a clear alignment between the financial and social arguments for workforce diversity (Dex and Smith 2001). Conversely, firms with problematic or ineffective approaches to equality, diversity and inclusion face an increased risk of costs related to legal action and poor brand perception (Wooten and James 2004, Kalev, Dobbin and Kelly 2006).

Some studies additionally link client retention and customer base diversity to workforce diversity (Sudhoff and Griffin 2004). A case study presented by Thomas (2004) on the technology giant IBM illustrated their adoption of a diversity-based market strategy to capture under-served client markets. Significant financial gains were made through targeting SMEs, “a niche well populated with minority and female buyers” and through consulting disabled employees to increase product accessibility (Thomas 2004 p 99). In addition to an increase in SME clients, the strategy produced new large-scale contracts with the Federal Government and a $290 million increase in sales. Similar findings were published in a study conducted by Hewlett, Marshall and Sherbin (2013) which found that teams with workers who share similar demographics to the target client are more likely to understand their needs and wants and are 152% more likely to win their contract. Studies such as this underscore the importance of workforce diversity, particularly for firms in competitive markets with underserved populations.

1.3.2 Operational

Academic discourse has also presented an argument for organisational benefits which can be reaped through fostering a diverse workforce. Specifically, businesses with a critical mass of diversity within their workforce see higher levels of innovative thinking, worker well-being and employee engagement and retention (Pérotin et al. 2003, Monks 2007, Machado and Davin 2017, Gaither et al. 2018). Whilst such benefits do not directly correlate to the financial bottom line, there is a competitive benefit, particularly in the ICT sector which relies heavily on innovative practices and faces high levels of competition for skilled workers.

Recent studies suggest that organisations with strong equality policies often report lower levels of employee stress (O’Connell and Russell 2005, Salas, Goodwin and Burke 2009). More specifically, research regarding flexible working opportunities suggest some positive impacts on those who take it up including reduced employee absenteeism and sickness (O’Connell and Russel 2005). Accordingly, firms who support a diverse workforce with strong flexible working policies see a positive correlation between flexible working and worker well-being. Moreover, research shows a positive correlation between diversity practices and employee engagement levels. For example, a study conducted by Downey et al. (2014) on the healthcare

industry found that organisations with strong diversity practices reported high levels of employee engagement as well as higher levels of employee-employer trust. More recently, Luu, Rowley and Vo (2019 p 303) found that diversity-oriented HR practices contribute to a workplace diversity culture which in turn contributes to higher levels of “employees' active harnessing of their personal resources toward work roles and …perform(ing) behaviors within and beyond their roles”. Across these studies, employee wellbeing is tied to higher levels of engagement and productivity within firms, suggesting that well-executed diversity policies can have positive benefits for organisations through a happier and healthier workforce.

Parallel to the reduction of worker stress is an increase in worker innovation and calculated risk-taking (Carson, Mosley and Boyar 2004, Monks 2007). Research on psychological safety, the shared belief that individuals are allowed and encouraged to make unique or outside the box suggestions and risk failure within a team, “helps people overcome the defensiveness, or ‘learning anxiety’ - which occurs when people are faced with change, ambiguity and uncertainty in their work environment” (Salas, Goodwin and Burke 2009 p 187). The engendering of such a culture allows workers to focus on team and organisational goals rather than self-preservation and promotes innovative ideas which might otherwise be suppressed. Moreover, identity diverse teams decrease levels of group think, or the phenomenon of individuals seeking harmony within a group at the cost of expressing dissent (Meissner, Schubert and Wulf 2018). As established earlier in the chapter, innovation is of elevated importance in ICT industries where fast-paced advancements continuously impact the day-to-day operations of firms.

The range of positive outcomes, both financial and operational, reported in studies of diverse workforces suggests that firms who take a positive approach to equality and diversity in their policy and culture will experience returns for their efforts exceeding the costs. Thus, it can be argued that there is an opportunity cost for firms who do not actively foster workforce diversity. This research project leverages the business case for diversity to investigate a decidedly homogenous sector and the impact on marginalised workers. The remainder of this chapter will provide an overview of this study’s aims and objectives and the methods used to achieve them.

1.4 Thesis Aim and Objectives

The aim of this study is to critically investigate gendered organisational barriers in the Scottish technology industry in an effort to understand the impact on workers who fall outside of the ideal worker narrative and find effective methods for firms to retain a diverse workforce. This will be accomplished through the exploration of the following research objectives.

RO 1: To establish the validity of claims that gender differentially influences the experiences of workers in technology firms in Scotland through an updated framework for the analysis of those potential differences in a contemporary context.

Key to this study is the understanding that well-established theories used to examine the experiences of workers from a gendered lens must be re-evaluated to determine the relevancy to firms in a modern-day context, specifically within the Scottish technology industry. While the industry remains dominated by male workers, it is imperative to analyse the applicability of the chosen model, informed by Acker's (1990) gendered institutions theory and ideal worker narrative and Eagly and Karau's (2002) role congruity theory, and provide insight into any areas which may suggest a change is warranted. The outcomes of this research objective seek to provide an updated theoretical model which builds upon the strong framework established by previous researchers.

RO 2: To assess to what extent there are specific expectations of an ideal worker with preferred qualities, demographics and characteristics in Scottish technology firms.

Many firms have a preconceived, often implicit, notion of what an ideal worker might look like for specific positions within their firm based on company culture, policies and stereotypes from the media and popular culture (Martin 2001, Vickery and Everbach 2018). These assumptions can negatively impact workers who fall outside of this narrative regardless of their work history, abilities and commitment to the firm (Kricheli-Katz 2013). While gender is largely a demographic assumed for the ideal worker, personality traits and characteristics are also ascribed and have gendered impacts on the narrative.

RO 3: To evaluate the extent to which the gendered substructures of a firm can affect worker behaviours, aspirations and success in the context of the Scottish technology industry.

Nuances between gendered job divisions and company culture can influence and affect individual behaviours and accepted informal communication between workers. This can lead to gender differences in worker self-efficacy, or the perceived gap between an individual's resources, such as their abilities and influence, and their constraints, such as requests for accommodation or feelings of marginalisation (Munsch 2016). This often extends to leadership positions, an area in which women are under-represented within the technology industry. As such, this objective seeks to examine the extent to which the gendering of an organisation might affect an individual's career motivations and their ability to achieve promotions. In an industry setting where there is a high level of competition for skilled workers, firms must differentiate themselves as an employer of choice. The outcomes of this research objective

can better inform firms looking to diversify their potential workforce, particularly in key areas female workers identify as inauspicious or counterproductive to their personal success.

RO4: To establish how firms are currently working to create more equitable workplace cultures for men and women in the technology industry.

Essential to the contemporary aim of this research is the consideration that societal and political changes have impacted firms, encouraging and, in some cases, mandating due diligence around workforce diversity and inclusion. This objective reflects on this reality to investigate the efforts of case study firms to address external pressures to appear as a diverse employer and redress existing gendered substructures within their practices.

RO5: To provide recommendations on effective strategies a firm can employ to recruit and retain a skilled, diverse workforce.

Whilst most firms have policies and initiatives regarding equal opportunities and the promotion of a diverse workforce, this research objective considers the most effective methods of engendering a diverse workforce through an examination of worker experience under current policies and procedures. Recommendations will be formulated based on the data collected from this study for firms looking to reduce gendered barriers to workforce inclusion.

1.5 Research Questions

Aligned with the aim of this study, the main research question is, “to what extent do the gendered substructures of an organisation affect the ability of those outside of the ideal worker narrative to succeed in the workplace”? To best answer this question, the following sub-research questions must also be given attention:

1. Do firms in the Scottish technology sector exhibit signs of gendered barriers to workforce participation? (RO1)
2. How can the term ‘ideal worker’ be defined within a particular firm in the Scottish technology industry? (RO2)
3. How does the gendered substructure of a gendered organisation affect the behaviours of men and women within the organisation? (RO3)
4. How can the term ‘ideal worker’ be described within a particular firm in the Scottish ICT industry? (RO3)
5. What steps are firms currently taking to create equitable opportunities for both men and women? (RO4)
6. What can organisations in the Scottish technology sector do to become a more gender-inclusive environment? (RO5)

1.6 Study design and methodological approach

This study was approached from a social constructivist epistemological positioning wherein reality is considered to be related from an individual's viewpoint which is influenced by their past experiences and interpretation of phenomena. As such, a qualitative case study approach was chosen to gather data from the firm perspective, male worker perspective and female worker perspective. Data was primarily analysed deductively as the aim and objectives of this study are rooted in a theoretical framework.

1.6.1 Defining the site for exploration

Based on a rigorous exploration of current literature regarding gender and organisational research, as well as an understanding of the current landscape of gender research in ICT, this research project was developed to contribute to the gap in academic knowledge of gendered experiences in Scottish technology firms. For the purpose of this study, 'technology firm' must be clearly defined as it is widely used to describe firms across a range of sectors as well as a term of distinction in the selection of firms for this study. Specifically, the term will be defined and limited to the ICT sector. Previous literature on technology firms as well as professional bodies which report on the Scottish ICT industry were used to assist in defining the term for this study (ScotlandIS 2018). Though a consistent definition has not been agreed upon amongst scholars, some key themes came to bear. Hall (1992) purported that a firm has a high level of technological output if they are a large employer of workers trained in technology-driven and scientific skillsets. Other scholars focused on the output of the firm as well as their investment in innovation and research and development (Medcof 1999, Grinstein and Goldman 2006). Through the assimilation of these resources, 'technology firm' is defined in this context of this study as any company across a range of information and communication technology products and services who (1) consider their primary offering to be technology-driven, (2) emphasizes innovative practices, (3) has a strategic focus on research and development and (4) is a major employer of skilled computing and technology workers in Scotland.

1.6.2 Multi-case study

The case study format selected for this study wherein the site of exploration is the organisation allows for a depth of knowledge of worker and institutional perspectives for each firm which cannot be singularly collected using alternative data collection methods across a wider pool of firms (Yin 2018). As such, purposeful sampling was applied to the selection of case study firms, wherein preference was given to those who had established themselves as best-practice firms for EDI within the Scottish ICT sector. Whilst a variety of definitions of 'best practice' have been

suggested, this paper will use the term in the general sense put forth by the Cambridge English Business Dictionary (2011 p 70) as “a working method or set of working methods that is officially accepted as being the best to use in a particular business or industry, usually described formally and in detail”. The selection of firms was limited by a set of prescriptive criteria using a replication strategy which allowed for the investigation of the same phenomena in more than one population to increase the overall study rigor and generalisability of the findings (Hak and Dul 2010).

1.6.3 Methods of data collection

The applicability of the selected theoretical framework is determined through a review of externally facing employer branding materials, third-party employer reviews and subsequently through conducting semi-structured interviews with members of firm leadership. Individual worker experiences are then gathered through interview sessions with male and female workers across a range of departments, roles, and age ranges. Data was collected, transcribed and analysed using thematic analysis by the researcher. A hybrid inductive-deductive approach was employed to the coding process to ensure that all valuable information was captured during the process.

Due to the sensitive and the somewhat subjective nature of data needed to adequately respond to the aim and objectives, it is necessary to employ a method which allows participants to share their experiences based on their individual perceptions rather than seeking a singular reality from a preponderance of workers (Bloomberg and Volpe 2016). Thus, interviews with both male and female workers in each case study firm were conducted. Soliciting data from both male and female workers in ICT firms allows the analysis “to set women's discourse alongside the more hegemonic standpoint reflected in men's discourse” (Kelan 2007 p 501).

In addition to the perspective of the worker, it is necessary to gather data on the firm perspective as well. This is primarily done through a document analysis and is supplemented by interviews with members of senior leadership. Bown (2009) highlights that documentation published by a firm, both digitally and in print, can provide rich insight into a firm as cultural artefacts. Thus, the collection and analysis of documents provided significantly to the data collection process to enhance understanding of the firm perspective.

1.7 Study Significance

The aim of this study is to critically investigate gendered organisational barriers in the Scottish technology industry in an effort to understand the impact on workers who fall outside of the ideal worker narrative and find effective methods for firms to retain a diverse workforce. This study is of particular significance in an era where equality and diversity have been given greater

attention socially and politically (Equality Act 2010, Zacharek, Dockterman and Sweetland Edwards 2017). Whilst it is commonplace for large organisations to have CSR plans which include actions to promote workplace inclusion, inequalities theorised by past scholars persist (Acker 1990). Moreover, the wider influences of social expectations, cultural norms and legislation dictate a need for gender research in ICT which extends beyond the US market. By defining the ideal worker narratives and investigating the gendered aspects of firms in the Scottish technology industry as well as their impact on workers, this thesis applies an updated theoretical framework to the analysis of a specific industry bounded by a location with a unified culture. Thus, the contribution to knowledge is two-fold, wherein the findings of this study contribute to the wider academic conversation regarding gendered organisational theory as well as practical implications for the Scottish ICT industry.

1.7.1 Theoretical Contribution

Literature regarding gender and work have advanced significantly since the introduction of the three critical concepts applied to this study: gendered institutions, role congruity and the ideal worker (Acker 1990, Eagly and Karau 2002). Yet, these concepts are engrained in contemporary academic discourse, with statistics showing Acker's work reaching over 22,000 citations, 43% of which occur in articles published after 2013 (Google Scholar 2019). Whilst Acker's gendered institutions model is often cited, few studies adopt the model in its entirety, resulting in a call for research to do so at the organisational level (Dye and Mills 2012, Nkomo and Rodriguez 2019).

Similarly, Eagly and Karau's (2002) article on role congruity theory alone has been cited by over 5,000 publications, 62% of which are dated post 2013 (Google Scholar 2019). Thus, this study endeavours to answer the call for an updated framework which may provide greater accuracy for the modern dynamic and challenge single access thinking (Nkomo and Rodriguez 2019, Jones, Martinez Dy and Vershinina 2019). This is undertaken in two main aspects of the application of the theoretical framework. First, the gendered institutions model (Acker 1990) is applied in a contemporary context to investigate the applicability of the model thirty years after its publication. In particular, the model is applied to firms in a male-dominated sector where considerable social attention has been paid to increase the number of women in the field.

Second, the model seeks to more fully incorporate the ideal worker narrative in gender research as a tool with which to acknowledge the decoupling of gender and behaviours, the shift from the gender binary to the gender spectrum, and the discourse of privilege and marginalisation within gender studies. In this way, the concept of the ideal worker narrative allows for a more nuanced understanding of marginalised workers through establishing a profile of sought-after traits and demographics and then seeking to understand the gendered implications of such ideals rather than assuming uniformity in the categories of 'men' and

‘women’ respectively and that workers are explicitly discriminated against due to their gender. The complexity of integrating the current needs of gender research in this approach is demonstrated in the following figure.

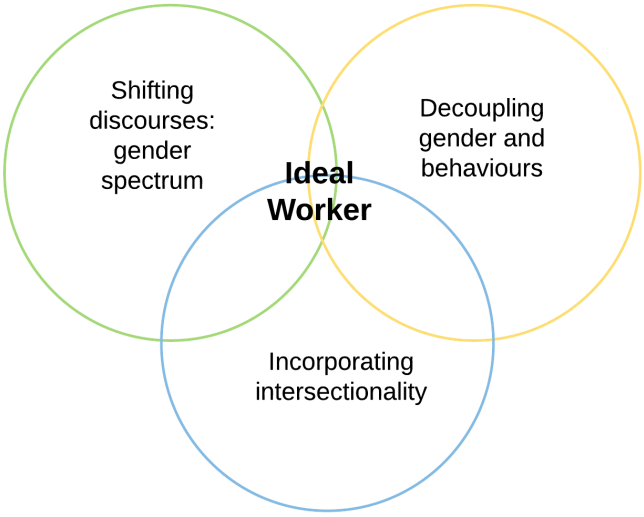

Figure 1 source: adapted from Acker 1990

Critically, it must be stated that this approach is not meant to replace or circumvent the importance of studies which highlight differences in female experiences based on additional demographics (such as studies which focus specifically at the intersection of one race, gender and/or class), but rather to heighten awareness of such differences in studies, such as this one, which are unable to provide robust findings related to the intersection of gender, race and class known most commonly as intersectionality (Crenshaw 1989, Bell and Nkomo 2001).

1.7.2 Practical Contribution

A preponderance of current literature regarding the technology industry focuses on the United States and thereby lacks a focus on the distinct cultural and political landscape technology firms and workers navigate out with that specific sphere of influence (Acker 2008). Moreover, contemporary research on gender in ICT firms is often bounded by a singular culture (Kelan 2009). As outlined earlier in this chapter, the United Kingdom has an interesting relationship regarding gender and tech work, offering a rich area of exploration in a culture where women once comprised the majority of tech workers. Further, the focus has been placed on the Scottish technology industry as an underexamined culture with high levels of opportunity for skilled workers and a relative economic dependence on the sector. Thus, the industry and location add to the significance of this piece, as the technology industry has been noted as a promising vehicle for revenue and job creation for Scotland and is often touted as providing opportunities for its workforce which are less readily provided in other industries.

The fifth research objective of this study specifically sets out to identify the most effective equality, diversity and inclusion methods for firms in the Scottish ICT sector. The findings from

this study work to provide in-depth insights to firms looking to attract and retain a diverse workforce as well as organisations who provide EDI training and services to the sector.

1.8 Study Delimitations

Some aspects of this study, such as the research subjects and theoretical framework, have been designed in order to provide boundaries commonly known as delimitations. Simon (2011 p 2) defines research delimitations as “characteristics that limit the scope and define the boundaries of your study”. Specifically, boundaries were used to limit sampling based on the case study replication method and as a means of providing greater potential for transferable findings. Moreover, the subject under investigation is guided by the theoretical framework as individual firms rather than a wider industry approach which necessitated higher levels of confidentiality so as to protect participants from any negative consequences. Finally, the case study approach itself provides some methodological limitations to generalisability. Each delimitation will be detailed in the following paragraphs.

1.8.1 Sampling boundaries

In Scotland, 8% of the technology workforce represents an ethnic minority which, whilst representative of Scotland’s overall ethnic minority population, did not lend itself to a strong sampling within specific firms (BCS 2017). Additionally, there are 8,800 technology firms registered in Scotland as of 2015, with approximately 95% of firms with ten or less employees which rendered them ineligible for this study due to insufficient worker samples (SDS 2019). A further 7% of technology firms with offices in Scotland did not have their head office located within the United Kingdom and could not be considered. The importance of limiting deviance between social and cultural factors external to the firm necessitate the imposition of this criteria however reduce the identity diversity of the worker population. Whilst the literature review for this study has identified nuances between how individuals experience barriers in the workplace which extend beyond gender, the selection of firms as a case unit led to a lack of data on the collective impact of factors such as race and class in addition to gender to responsibly identify and report on those commonalities. Thus, this study is limited to the analysis of gender and experience in the workplace rather than an incorporation of several demographical characteristics suggested to alter the experiences of both men and women such as race and class (ScotlandIS 2018). Future studies which centre data collection on the intersecting effects of race and gender for Scottish technology workers would be a valuable continuation of this work and provide valuable insights for firms looking to create an equitable and diverse workplace.

Sampling limitations additionally affect the scope of this research which extends solely to medium to large sized firms operating within the Scottish technology industry. Findings should not be generalized to apply to small firms within the technology sector as they operate under considerably different circumstances. Small and boutique firms were omitted from the study to ensure an adequate number of both male and female worker interview participants working within the firm. Moreover, the opportunity for public information on gender diversity, pay gap and firm culture is limited as small firms are not subjected to equality and diversity laws as rigidly as larger firms. Finally, internal evidence regarding firm policy and procedure is generally less formal and thus would not allow for a comparison between firm establishment and worker experience of culture.

1.8.2 Participant Protection

Furthermore, the need to protect firm confidentiality lent itself to limitations around the collection and reporting of data which might lead to firm identification. Scotland's technology industry is fairly insular, with large firms often having unique offices and open spaces where workers across the industry are invited for networking events. This precludes the collection and analysis of data such as photographic representations and researcher observations of firm office space. Additionally, some data, such as location or publicly available data have been omitted or anonymised.

1.8.3 Case study boundaries

Though the case study method of data collection allows for a robust description and understanding of a particular subject, it constricts the wider applicability of the findings out with the study. This has been mitigated through the adoption of a multi-case study analysis and a focus on replication through purposive sampling. It is essential to note that the conclusions and recommendations from this study are limited by firm size, industry and location. Whilst quantitative studies aim for generalizability, "qualitative researchers contend that because the nature and purpose of the quantitative and qualitative traditions are different, it is erroneous to apply the same criteria of worthiness or merit" (Krefting 1991 p 214). Rather, this study strives for transferability which places the evaluation on the reader regarding the applicability to their purposes.

1.9 Limitations

Limitations are factors which impact a study but are not in control of the researcher (Simon 2011). Specific to this study, the small number of medium to large technology firms both established and currently operating in Scotland restricted the ability to exclude firms with

international offices. For this reason, firms with head offices within the United Kingdom were considered. Ultimately, firms were selected based on their overall presence in the Scottish technology industry, while allowing for head offices located elsewhere in the UK or for firms to have strong presence overseas. It is conceded that firm operations outside of Scotland will have a limited influence on the culture and practices of Scottish offices, however this has been limited through purposeful sampling methods.

1.10 Thesis Structure

This chapter introduced the scope and background of the research undertaken for this thesis and the rationale behind the subject and industry selection. The following chapters will describe in detail the relevant literature, research design, methodology, results and implications drawn from the research. Chapter two will map the wider academic landscape regarding feminist theory and organisational theory and go on to focus more specifically on research conducted on the experiences of women in the workplace, barriers to progression, gendered differences in work experience and equality measures undertaken at the firm level to attract and retain a diverse workforce. Additionally, the chapter will address current research regarding gender differences in the technology sector and key research which applies similar frameworks in this way. The thesis will go on in chapter three to establish the methodology and methods chosen for the research and the rationale which guided its adoption. The data collection, management and analysis process will be described in detail to provide credibility to the results ultimately derived from the process. Finally, the chapter will introduce the case study participants. Chapters four, five and six will then go on to present the findings from this study. Specifically, chapter four will detail the organisational-level findings of gendered barriers to inclusion, chapter five will go on to present the construction of the ideal worker narratives for each firm and chapter six will conclude the findings across case studies of gendered differences in impact on worker careers and aspirations. Similarities across case study firms are presented in each chapter and related back to findings from current academic literature. Finally, chapter seven provides a conclusion to the study and recommendations for the practical application of findings are presented to assist organisations seeking to foster a gender-inclusive working environment.

Chapter Two: Literature Review

2.0 Chapter two introduction

The purpose of this chapter is to present literature which has informed the formation of the aim and objectives for this study. First, the academic landscape is established through an introduction of gender and business discourses, focusing on feminist theories of gender and work which emerged in the third wave of feminism. The chapter goes on to discuss critical theories regarding gender and work which focus on factors at the macro (society), meso (organisation) and micro (individual) levels. Barriers to gender equality in work are examined across each level and studies of gender and work in ICT are included to more fully understand competing dialogues related to the sector. Finally, the chapter concludes by establishing the theoretical framework for this study, justifying the relevance of the theoretical lens selected against the wider academic landscape. For clarity, the following figure presents an overview of the main topics covered in this chapter.

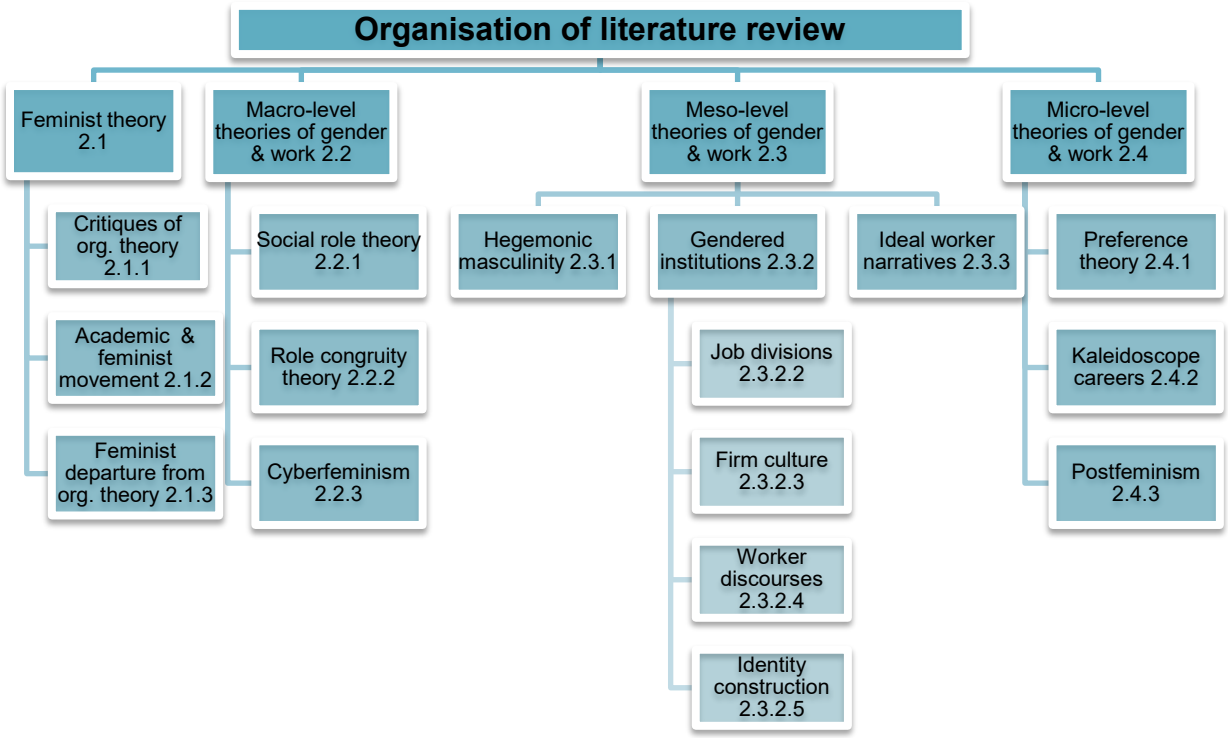

Figure 2 source: author generated

2.1 Mapping feminist and organisational theories

Whilst this study is primarily positioned within the context of feminist organisational theory, it is important to establish the wider feminist and organisational theoretical contributions which have led to this specific area of study. Indeed, organisational theory establishes the ways in which historical production and ways of organising impact female workers both through small

inconveniences, such as commuting patterns (Sang, O'Kelly and Kwan 2010) and office temperatures (Maykot, Rupp and Ghisi 2018) which favour male norms, and larger issues of institutionalised discrimination which prevent women from progressing into positions of leadership (Mills and Tancred 1992). Similarly, academic theories of gender and work are predicated on key feminist theories which lie outside the workplace and must be introduced in order to fully understand the ways in which feminist arguments critique existing theories of work. Thus, a gendered understanding of worker experiences rests at an intersection of feminist and organisational theory and, as such, key aspects of both discourses are introduced in this section. The following figure demonstrates the way in which this chapter builds upon wider theories of feminism and organisation and progresses to establish the specific theoretical framework utilised for this study.

Presentation of literature in feminist and organisational theory

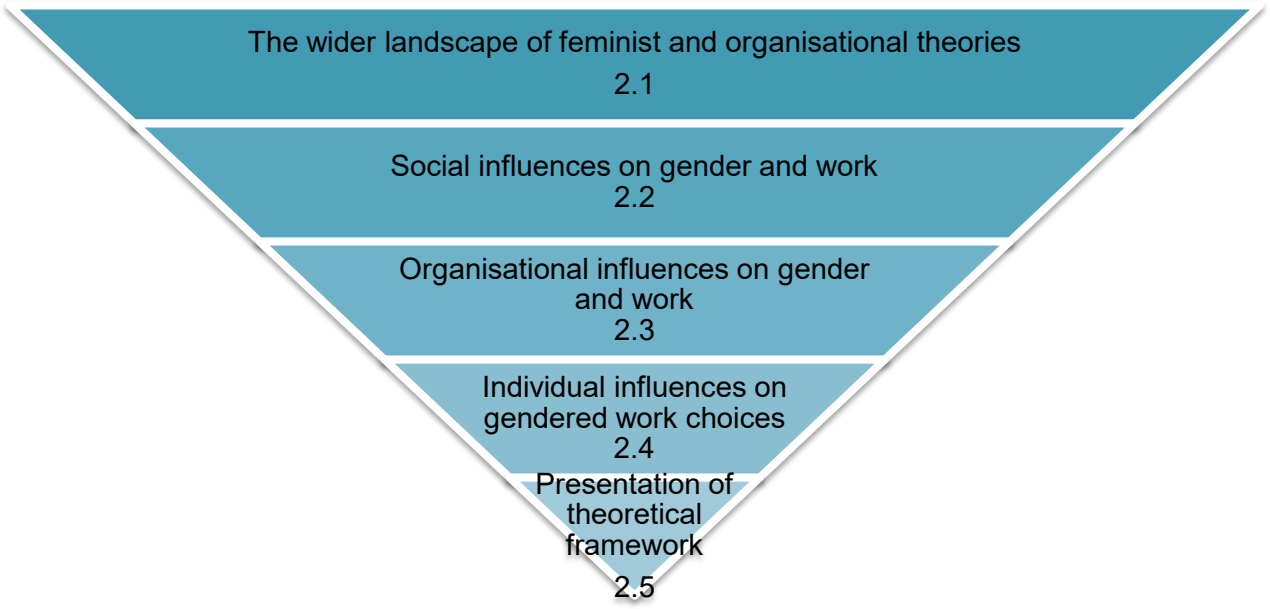

Figure 3 source: author generated

2.1.1 Key feminist frameworks

It is generally understood that research and societal interest regarding gender equality has ebbed and flowed through time. This is often referred to colloquially as the 'waves of feminism'. Whilst the idea of waves is contested by some (Bailey 2008, Hewitt 2010), the metaphor acts as a useful tool for the purpose of this literature review and as a means of placing major feminist theoretical contributions in the wider context of the feminist movement.

The first wave of feminism is generally associated with the suffragist movement and gender equality through political channels (Gamble 2001). Moreover, as women represented less than 1% of non-domestic labour force participation in the UK prior to World War I, the first wave of feminism inherently focused on the inclusion rather than the equality of women in a workforce

(Chiripanhura and Wolf 2019). Whilst a critical precursor to academic discourses of gender equality and inclusion in the professional realm, the first wave is generally focused on the importance of increasing female workforce participation and the rebuttal of gender stereotypes which prevent such participation.

Introduced post second world war, the second wave of feminism consisted of a wide range of movements aimed at building upon the rights won during the first wave as well as increased work opportunities as a result of the war (Disch and Hawkesworth 2016). Some academic research during this time focused on the differences between women and men in the workplace, however feminist research was considered a niche area of study and generally not included in wider research strains (Swinth 2018). Still, a foothold was established wherein consideration of gender and discriminatory practices towards women in the workplace began to come to the fore.

The crux of literature which contributes directly to a gendered understanding of organisational behaviour was introduced as part of the third wave of feminism beginning roughly in the early 1990's. During this time, an emphasis was placed on creating equal opportunities for women in the workplace and associated political issues around equal pay and reproductive rights (Gillis, Howie and Munford 2007). Critical contributions from feminist academics such as Judith Butler, Raewyn Connell and Kimberlé Crenshaw shifted the understanding of gender analysis from a singular dichotomy wherein all women were assumed to have similar experiences, to a call for greater nuance in the examination of gender inequalities (Crenshaw 1989, Butler 1990, Connell 1995). These key theories are expanded upon shortly.

Emerging currently, a fourth wave of feminism is in its infancy. Some argue the current wave is defined by social movements, elevated through the use of social media, to hold men accountable for abuses of power as well as an unprecedented number of women participating in political elections (Rivers 2017). Roughly agreed to begin in the early 2010's, renewed efforts in feminist academic contributions are coming to the fore and will most likely lead to advancements in feminist organisational theories. For clarity, a simplified timeline of the feminist movement is included below.

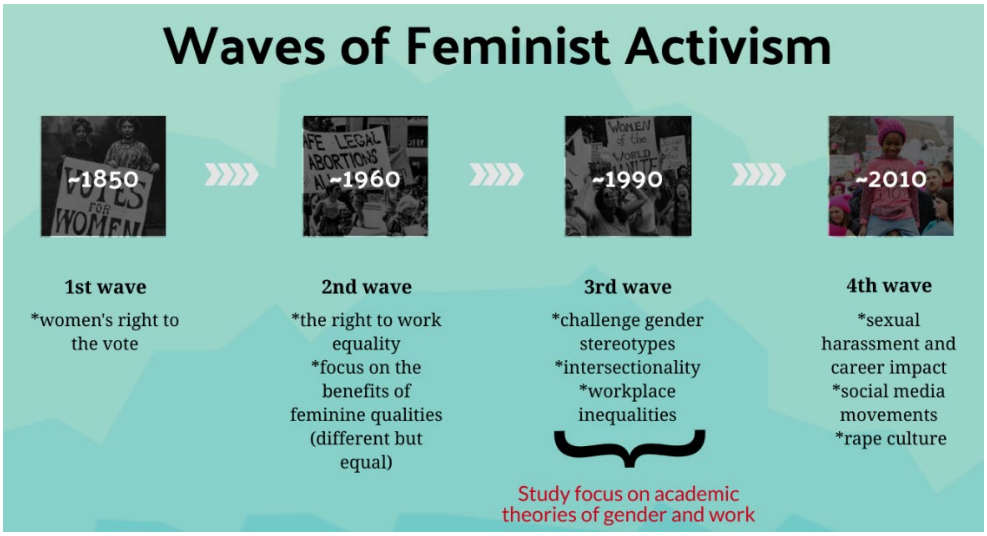

Figure 4 source: author generated

It must be noted that there are two primary objections to the application of the wave metaphor in the feminist movement. First, some researchers suggest that through establishing and defining a new wave one must establish a departure from earlier movements, alienating and perhaps redefining the work of earlier feminists (Gillis, Howie and Munford 2007, Disch and Hawkesworth 2016). Secondly, the waves of feminism often do not recognise feminist movements led by minority women or those outside of a western context. This is famously articulated by Sojourner Truth in 1851:

> *That man over there says that women need to be helped into carriages, and lifted over ditches, and to have the best place everywhere. Nobody ever helps me into carriages, or over mud-puddles, or gives me any best place! And ain't I a woman?*
>
> *Truth 1851*

This issue persists into the current work of feminism, which has struggled to define and incorporate multiple perspectives of feminism into a singular movement (Crenshaw 1989, Martinez Dy, Martin and Marlow 2018). Nevertheless, a rough delineation of the feminist waves highlights periods of heightened academic interest and places the following literature review primarily within the 3rd wave, with this study seeking to build upon this foundation as 4th wave feminist discourses begin to take shape.

2.1.1.1 Gender construction

Along with the increased focus on the experiences of women in the workplace, a shifting understanding of gender began to emerge as part of the third wave feminist movement (Gillis, Howie and Munford 2007, Disch and Hawkesworth 2016). Wider academic research introduced the departure of gender from biological sex, allowing for a more nuanced understanding of gendered characteristics as learned and constructed rather than inherent to

men or women (West and Zimmerman 1987, Butler 1990). In particular, the theory of gender performativity was introduced by Butler (1990) wherein gender is described as a social construct, created and reinforced through the way in which an individual acts and is interacted with in the world and performativity "is not a singular act, but a repetition and a ritual, which achieves its effects through its naturalization in the context of a body, understood, in part, as a culturally sustained temporal duration" (Butler 1990 p XV). This theory of gender performativity aligned strongly with the phenomena asserted by West and Zimmerman (1987) wherein gender is something that is constructed through everyday interactions and is distinct and separate from gender. Butler further argues that the dissolution of gender as a prescribed set of behavioural traits is key to the progression of gender equality efforts:

> *That gender reality is created through sustained social performances means that the very notions of an essential sex and a true or abiding masculinity or femininity are also constituted as part of the strategy that conceals gender's performative character and the performative possibilities for proliferating gender configurations outside the restricting frames of masculinist domination and compulsory heterosexuality.*
>
> *Butler 1990 p.180*

Indeed, this idea is of particular importance in that power is often associated with masculine characteristics while femininity is relegated to care work and subordination. West and Zimmerman (1987 p.126) assert that the distinction of gender as a social construction is essential to the shift from gender limitations and stereotypes "being internal to the individual and focuses on interactional and, ultimately, institutional arenas". The theory of gender performativity is specifically applied to the understanding of women and work with researchers seeking to understand the nuances between male and female experience in the workplace and barriers to workforce participation throughout an individual's career (Mills and Tancred 1992, Alvesson and Due Billing 2009). Indeed, feminist critiques challenge the idea that men and women possessed characteristics inherent to their biological sex which predisposed them to one career or another (Eagly 1987). Rather, studies show that social messaging rewards 'gender appropriate' behaviours and punishes those who pursue careers and lifestyles out with prescribed gender norms (Morgan and Knights 1991, Spencer, Steele and Quinn 1999). Thus, Butler's (1990) theory of gender performativity, along with theorists arguing that gender differences are learned rather than inherent (Eagly 1987), has provided a strong platform which has ushered in a new paradigm for studies of gender and work.

2.1.1.2 Gender, power and prominence

Theories of gender have also explored that, along with the understanding that behavioural traits are socially aligned with a specific gender, feminist enquiries should seek "to analyze

gender power in conjunction with issues of male hierarchy, allowing for differentiation between groups of men who had different relations to one another and more or less power in relation to a dominant group" (Morrell, Jewkes and Lindegger 2012 p. 12). Connell's (1987) theory of hegemonic masculinity explores the domination and subjugation of groups through an understanding of patriarchy as consisting of a varied set of masculinities whose power is established and reinforced by a particular sub-culture. This concept distinguishes specific masculine traits as preferred and superior and furthermore legitimizes male power and privilege within a specific context. In particular, Connell (1987 p.184) describes hegemony as "a social ascendency achieved in a play of social forces that extends beyond contests of brute power into the organization of private life and cultural processes" and emphasises that the term speaks directly to the institutional norms "embedded in religious doctrine and practice, mass media content, wage structures, the design of housing, welfare/taxation policies and so forth". Hegemonic masculinity has been applied to gender and work research both to understand the experiences of women in male-dominated groups, organisations and industries as well as the impact on male behaviours in highly masculinised groups. For example, empirical studies on the construction industry delineate a specific masculinity which is accepted on the worksite associated with heterosexuality, risk tolerance and alcohol consumption (Agapiou 2002). Men who display characteristics counter to this accepted norm are given an outsider status regardless of their gender (Iacuone 2005). Hegemonic masculinity elucidates the complexities of male privilege and explains how individuals with a specific set of characteristics benefit from privilege in the workplace (Donaldson 1993; Hodges and Budig 2010). In this context, race, class and personality characteristics in addition to gender have an influence on an individual's privileged status (Iacuone 2005). This is well-documented in historical understandings of the ideal technical worker, which bucks traditional trends of masculinity, through favouring a different set of skills and characteristics (Woodfield 2000). Thus, the theory of hegemonic masculinity advances discourses of gender and power to understand, not only how women are subjugated, but also how men are influenced to adopt specific behavioural traits associated with the dominant masculinity in their sphere of influence (Messerschmidt et al. 2018).

Critiques of the theory argue that contemporary studies have misapplied the term hegemonic masculinities to instances of toxic masculinities, which confuses the role of those subjected to the phenomena (Hearn 2004, Beasley 2008). Specifically, Beasley (2008 p 88) notes that the term is consequently applied in three disparate contexts to include "its meaning as a political mechanism tied to the word hegemony—referring to cultural/moral leadership to ensure popular or mass consent to particular forms of rule—to its meaning as a descriptive word referring to dominant (most powerful and/or most widespread) versions of manhood and finally to its meaning as an empirical reference specifically to actual groups of men". Nevertheless, Connell's (1995) theory of hegemonic masculinities has been widely applied to a range of

empirical studies of male-dominated industries to elucidate the complexities of gender in relation to positions of power and dominance.

2.1.1.3 Multiple discriminations

Further explorations of feminist theory argue that individuals are not only discriminated against based on gender, but that there is a gap in knowledge wherein women who face multiple discriminations based on additional demographical factors are not adequately investigated and represented in the body of literature. This is the basis of Crenshaw's (1989) theory of intersectionality which was first posited to argue that African-American women experienced both racism and sexism which could not be wholly aligned with the experiences of African-American men nor the experiences of white women. Crenshaw's field of study first positioned intersectionality within the study of law however the theory has been expanded by current theorists to include all areas of study relating to multiple experiences of discrimination. Indeed, intersectionality has gained considerable attention, with modern applications used to highlight the multitude of inequalities which intersect and overlap to create disparities within the experiences of women themselves based on factors such as race, class, disability status, sexuality and more (Collins and Bilge 2020).

Indeed, the scope of intersectionality remains contested in contemporary academic discourses. Cho, Crenshaw and McCall (2013 p.785) sought to catalogue and define the proper utilisation of the theory into three areas of investigation, "the first consisting of applications of an intersectional framework or investigations of intersectional dynamics, the second consisting of discursive debates about the scope and content of intersectionality as a theoretical and methodological paradigm, and the third consisting of political interventions employing an intersectional lens". Whilst feminist and organisational theorists continue to debate the proper application of intersectional frameworks, there are several strong studies which demonstrate the importance of such efforts. For example, Bell and Nkomo's (2003) use intersectionality theory in a study of life history interviews to examine how twenty-eight participants constructed their professional identities in relation to their race, class and gender. The findings present stark differences between the key interventions individuals who had reached similar levels of success in their respective careers had experienced along their childhood and into their education and career and effectively shows how privilege is relative to multiple factors, producing a kaleidoscope of nuanced barriers and hardships based on one's gender, race and class (Ibid.).

Studies of intersectionality inherently face barriers to data collection based on the need for adequate representation of multiple minority groupings in qualitative studies and limited access to statistically significant sample sizes in quantitative studies. However, early intersectional

studies clearly demonstrate the nuances of the female worker experience based on additional demographical factors and thus prove value of such studies in spite of these barriers.

2.1.2 Organisational theory and the feminist critique

As this study sits at the cross-section of organisational and feminist studies, it is important to establish the way in which feminist discourses have critiqued traditional approaches to organisational theory. The organisation of labour is historically rooted in theories often posited prior to the equal inclusion of women in the workforce. In fact, prior to world war one, only 28% of women were active labour force participants, with the majority of economically active women working in domestic service (Chiripanhura and Wolf 2019). Introduced at this time was Weber's theory of bureaucracy, which has heavily influenced the way in which work is organised since its inception (Waters and Waters 2015). Decades on, bureaucracy theory remains at the centre of westernised working patterns, even as individual worker choices and career trajectories have shifted and women have become equal participants in the workforce (Sennet 2006). Whilst theories of work begin to touch upon the critical differences between male and female worker experiences (Kelan 2009), feminist perspectives remain marginalised in the progression of work patterns and norms.

Gendered views of organisational theory are often relegated to a subset of the field, precluding research which focuses on women in the workplace from mainstream academic discourse. At the forefront of feminist critiques is the argument that business research often does not represent the population as a whole, but rather a subset of the population as male, white and middle to upper class (Acker 2005, Messerschmidt et al. 2018). This then leads to the positioning of women as a minority "with a niche identity and subjective point of view" (Perez 2019 p 29). Moreover, this has an impact on contemporary business practices, with male-centric studies informing a wide range of organisational norms from small aspects such as the average temperature of an office building to the way in which workers are evaluated (Sanchez de Maradiaga and Roberts 2013).

As introduced previously, it is important to note that at the inception of organisational theory, women were not active participants in the labour workforce and were often excluded from leadership and decision-making roles (Mills and Tancred 1992). Thus, an examination of the bureaucratic framework and its implicit masculine gendering must be undertaken in order to wholly incorporate women and indeed ensure a realistic balance between production and reproduction at the societal level. Indeed, it is traditionally accepted that Max Weber's theory of bureaucracy is the basis upon which most institutions in a capitalist society have organised (Waters and Waters 2015, Kjaer 2018). Bureaucracy is an organisational structure characterized by "recorded policy and procedures, role specialization and responsibility, clear hierarchies and a formal selection process against a singular set of characteristics" (Buchanan

and Huczynski 2017 p 523). A review of published texts regarding organisational behaviour and management reinforces the notion that bureaucratic organisational structures are established as standard for medium to large firms (Holton and Turner 1989, Morrison 1995). Furthermore, bureaucratic practices are heavily reflected in organisational studies of countries with heavy industrial growth, such as the US and UK, which demonstrate a focus on maximizing productivity whilst minimizing the importance of the employee (Mills and Tancred 1992).

The division of labour and clear hierarchical structure in a traditionally bureaucratic organisation have distinctly different consequences dependant on a worker's gender and responsibilities outside of the workplace. Commonly expressed as occupational segregation, research shows that it is not uncommon to see distinct gender divides in job selection and relegation of women into feminine roles even when they have pursued a masculine profession (Bielby and Baron 1986). Researchers have progressed academic discourses regarding occupational segregation, highlighting the disadvantages associated with female dominated work and the advantages associated with male dominated work such as power, prestige and pay (Morgan and Knights 1991, Hinze 1999, Arndt and Bigelow 2005, Ashcraft 2013). Furthermore, there is a lack of gender diversity at the senior leadership level in most large firms in the US (Kapasi, Sang and Sitko 2016) and UK (Hoobler et al. 2018) which is often attributed to the lack of promotion associated with jobs given a feminine gendering (Rhode 2017) and a gendered difference in the evaluation of male and female managers (Eagly, Makhijani and Klonsky 1992).

Moreover, feminist scholars assert that the societal division between capitalism, the activity related to production, and reproduction, the activity related to household and caring responsibilities, creates dissidence for those with responsibilities in both arenas (Acker 2005). This is of particular importance as women represent approximately half of the workforce and are often responsible for the majority of reproduction work as well (Kelly et al. 2010, Sallee 2012). To explicate, Sanchez de Maradiaga and Roberts (2013) found that in heteronormative families where both partners work, women are twice as likely as men to take on the day-to-day transport of children, presenting gendered constraints on worker time and limitations on female workers seeking to engage more fully in their career. Therefore, this area of academic discourse highlights that the strict hierarchical structures and divisions of labour in a traditional bureaucratic organisation could present different obstacles and opportunities for workers based on their gender.

Indeed, criticism of the bureaucratic theory notes that rigid adherence to this structure reduces the opportunity for individual agency and consideration within an organisation which leads to a lack of worker initiative, employee frustration and conflict and a lack of firm responsiveness to employee issues (Tremblay 1999, Courpasson and Clegg 2006). An employee-centred

approach is argued as an alternative to a bureaucratic organisation which would ameliorate these effects for all workers. Consequently, a human relations approach, was introduced shortly after Weber's theory of bureaucracy. This theory emerged as a result of a series of research projects known as the Hawthorne studies (Roethlisberger and Dickson 1961). The human relations approach instigated a more employee-focused strategy to organisation and encouraged increased communication between management and workforce and employee engagement in process improvement (Acker and Van Houten 1974). Subsequent publications have revisited the Hawthorne studies, calling into question the validity of the findings in relation to the data (Jones 1990, Gale 2004, Muldoon 2017, Mannevuo 2018). However, feminist criticism of this approach argues that even through employee-centred methods, organisational studies and practices are weighted to favour male workers (Acker and Van Houten 1974, Mills and Tancred 1992, Morrison 1995, Alvesson and Due Billing 2009, Messerschmidt et al. 2018). Still, the Hawthorne studies endure as an early investigation of people-centred management (Roethlisberger and Dickson 1961). Findings from the study have had implications on management theory commonly referred to as the "Hawthorne effect", which describes "the positive reaction of research subjects resulting from their being selected out and treated as special and interesting" (Acker and Van Houten 1974 p.153). The female factory workers who participated tended to be young, reside with their families and come from a lower-working class background in a society whose sex-power differentials were reflected and multiplied in the study's factory setting whilst managers where singularly male. This, however, was not considered or investigated within the confines of the study.

Contemporary analyses critique this lack of focus on the sex power differential and the impact it most likely had on the study's outcomes and the applicability to modern-day working dynamics. Acker and Van Houten (1974) argue this to be a critical oversight in the original analysis wherein gender was a primary difference between the groups studied but not included in the analysis of the results. Specifically, higher performance levels were attributed to a motivational management rather than agentic, ignoring that those who, as prescribed by the study, 'worked as they felt' were chastised and "as soon as the experimental period began, if they did not work hard, or if they slowed down, they were reprimanded and told to work faster" (Ibid. p 154). Ultimately, women who did not comply with these directives were removed from the study, and were not included in the findings. As such, the Hawthorne studies and subsequent critiques provide demonstrative evidence of the antiquation of findings even in people-centred management research in relation to gender.

More recently, Sennett (2006) introduced his theory of new capitalism to describe key changes in careers and employer-employee relationships. Sennett (2006 p 73), highlights the lack of understanding of gender and work in his own previous theorising, explaining his analyses of blue-collar workers overlooked that "working-class women tended not to share the importance

of their work with their spouses, since to do so would challenge sex roles in the family" and thus did not adequately capture the true motivations of women. Feminist theorists similarly assert that the application of a gendered theoretical lens to organisational theory allows for a critique of the claims made by the situationally powerful through the contrast of lived experience of gender minority workers (Acker and Van Houten 1974, Mills and Tancred 1992, Connell 1995, Alvesson and Due Billing 2009, Kelan 2009, Messerschmidt et al. 2018). Thus, contemporary studies which both re-evaluate organisational and work norms based on historical theories as well as investigate present-day approaches to organisational theory through the investigation of female worker experiences are needed to inform the way forward toward workplace gender equalities.

Gender researchers have investigated the perpetuation of differences between men and women in the selection of work, career progression, motivations and experiences in the workplace from a variety of perspectives which are sometimes at odds or in concert with competing theories (Buchanan and Huczynski 2017). For the purpose of this review, theories have been categorised into three general veins which seek to encompass the primary area of investigation for each key theory. First, macro-level theories primarily address the wider social influences which impact actors based on cultural norms, legislation and stereotypes. Next, meso-level theories seek to understand the impact of cultural microcosms, such as individual organisations, on gender inequalities. Finally, micro-level theories of individual differences between men and women are presented. Gendered studies at each level have space in contemporary research, with macro, meso and micro theories working both in conjunction and in opposition to one another (Acker 1998, Festing, Kornau and Schäfer 2014, Diekman et al. 2017, Shockley and Allen 2018).

Across spheres, differences between male and female experiences of work tend to favour men, with power, prestige and pay disproportionately associated with male-dominated work (Ashcraft and Mumby 2003), faster rates of promotion for men in female-dominated positions (Hodges and Budig 2010) and linear career progressions for men more so than their female counterparts across industries (Mainiero and Sullivan 2005). Moreover, studies have shown than in Westernized countries, such as the UK, that additional demographic factors, such as race and class, also influence hierarchies within genders, with white males often most likely to benefit from gender stereotypes (Connell 1995). Thus, a gendered lens is needed to more fully understand the causes behind such disparities. Particular interest in theories which have been applied to gender and technology are included. The remainder of this chapter will delve into key theories across the macro, meso and micro landscapes and are summarised in the following figure.

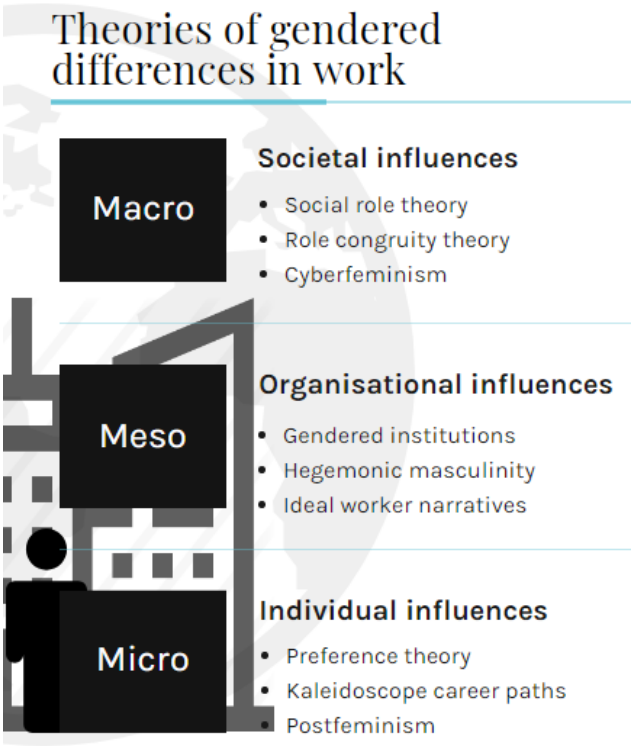

Figure 5 source: author generated

Whilst the micro, meso and macro categorizations provide general distinctions between the phenomena investigated at the individual, organisational and societal levels, it must be understood that studies often integrate explorations across realms to develop empirical evidence and theories which demonstrate the reasons for, and impact of, inequalities on men and women at work.

2.2 Macro-level theories of gender and work

Theorists have examined the gendered differences in work experience through a macro lens wherein it is understood that society creates an environment which enforces stereotypes of work, behaviour and responsibility dependant on an individual's gender. Eagly (1987) introduced the exploration of such factors in social role theory which sought to establish that social stereotypes and expectations influence gender differences more so than biological differences. Later, Eagly and Karau (2002) introduced role congruity theory, positing that social expectations based on gender permeate the workplace through differential evaluations of male and female leaders. Gender has also been an area of investigation in the exploration of technology, with feminist theorists exploring the way in which new and rapidly evolving technologies interact with feminist goals and the opportunities presented for the female voice in a time where traditional methods of work and living are constantly being streamlined and challenged (Plant 1997).

It must be noted that phenomena regarding gender stereotypes at the macro level must consider the specific culture or cultures in which they are being observed. This is true in the global ICT industry where the title of technology worker has been ascribed a masculine gendering in societies such as the United States and United Kingdom and associated with innovation and advanced technical skill whilst it has been given a more feminine gendering in India where the majority of technical roles are lower wage clerical and customer service positions associated with a safe office environment and limited power and advancement (Patel and Parmentier 2005, Taylor and Bain 2005).

Research explicates the significant impact of governmental restrictions and legislation which affect gender and the workplace differently based on location. International firms often only extend employee benefits based on their physical location in alignment with national laws. Thus, a firm with offices in both the UK and India would extend parental leave to employees only so far as they are legally required to by each country (Kelly and Dobbin 1999, Dickens 2006, Armenia, Gerstel and Wing 2013). Thus, social stereotypes regarding technology work and gender affects each society differently.

2.2.1 Social role theory

Social role theory (Eagly 1987) was originally proposed to examine the influences, both social and biological, which contribute to differences in behaviour for men and women. More recently, Eagly and Wood (2012) have shifted the application of the theory to assert that social forces definitively create and reinforce gendered expectations. Social role theory argues that at present, technological advancements have decreased the importance of physical strength in many jobs and similarly have given pregnant and lactating women the ability to participate in the workforce, two aspects which have historically predetermined the gender of workers (Ibid.). Whilst these advancements have reduced or removed the biological considerations for many gendered job divisions, the social implications remain and therefore reinforce the gendered division of work in many aspects.

This theory has particular application regarding the education of boys and girls in STEM subjects. Historically, some researchers have asserted that boys are more adept to scientific and mathematical thinking (Ceci and Williams 2010, Hicks 2017). More recent studies have dispelled this assumption, however find that social factors encourage boys to pursue STEM learning more than girls (Dweck 2007). This leads to gendered differences in human capital accrual related to science and math, with Ceci and Williams (2010) finding that gendered differences in mathematical performance only emerge at the high school and university levels. This may be explained in part by Dweck's (2007) finding that girls are less likely to develop self-efficacy when faced with learning barriers in STEM subjects and will therefore self-select out of pursuing such avenues in their careers. Thus, there is a strong connection between

theories of the self and theories of social influences which debate the core factors which contribute to the lack of women in STEM.

Macro level theories regarding gender and work such as social role theory have robust empirical evidence, specifically in westernized countries (Diekman et al. 2017, Zhao, Zhang and Foley 2019). However, there are limitations due to the nuanced effect of gendered social expectations dependant on additional factors such as race, class, marital status and sexuality. To explicate, a single mother is often assumed to take on both the primary caretaker role as well as the primary breadwinner role whilst a mother in a heteronormative marriage may be criticized if she were to prioritize career over family. Similarly, women from lower income households have historically participated in the workforce at higher levels than women in middle to upper class households (Dwyer 2014). Thus, the impetus to work and the expectation of work changes depending on class status.

2.2.2 Role congruity for women in leadership and STEM

Eagly and Karau (2002) extend the argument that social pressures inform gendered roles and preferences to describe stereotypes as a 'self-fulfilling prophecy' wherein individuals themselves are more likely to conform to social stereotypes in their behaviours, actions and choices. Empirical studies regarding group stereotypes reinforce this notion and moreover show that individuals who do not align their self-perceptions with social expectations experience stereotype threat wherein individuals modify their behaviour and aspirations to align more closely to social expectations (Morgan and Knights 1991, Spencer, Steele and Quinn 1999, Archer 2004, Heilman 2012, Koenig and Eagly 2014).

Building upon this body of research, Eagly and Karau (2002) propose role congruity theory which extends "beyond social role theory to consider the congruity between gender roles and other roles, especially leadership roles, as well as to specify key factors and processes that influence congruity perceptions and their consequences for prejudice and prejudicial behaviors" (Eagly and Karau 2002 p 575). Most often applied to studies of gender and leadership, Wood and Eagly (2015) identify that men are associated with management approaches that are described as agentic, directive, assertive and competitive, while women are expected to adopt management approaches which are communal, soft, guiding and relational. Indeed, women leaders who adopt agentic characteristics are often evaluated more harshly than men with similar characteristics or any leader, whether male or female, adopting communal characteristics (Eagly and Karau 2002). The following figure provides a simplified model depicting role congruity theory as applied to leadership roles and characteristics.

Alignment of expectations between gender and leader

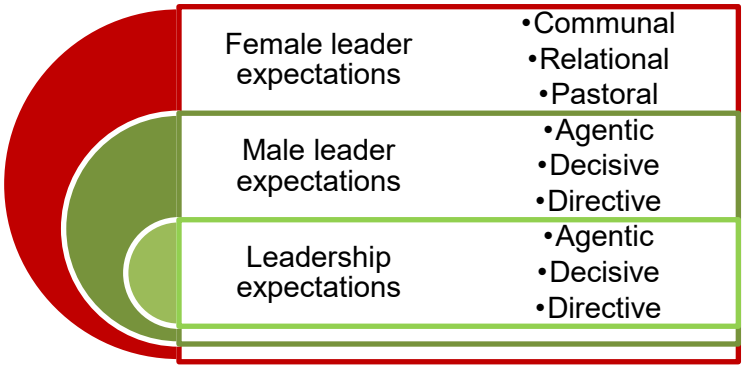

Figure 6 Source: adapted from Eagly and Karau 2002

As the figure shows, role congruity theory asserts that expectations placed on women vary from expectations placed on leaders, providing competing discourses on the way in which female leaders should compose themselves. Indeed, gender stereotypes can influence external factors through the evaluation of a woman leader's job performance. For example, employee reviews can adversely affect female worker advancement within an organisation, with women in leadership positions often reviewed harshly in comparison to their male counterparts (Lyness and Heilman 2006, Brett, Atwater and Waldman 2005, Eagly and Johannesen-Schmidt 2001, Scott and Brown 2006). Indeed, research around the gendered differences in performance evaluations in the technology industry has shown that men are more likely to see positive impacts on their career progression than their female counterparts, with negative performance evaluations more likely to trigger industry exits for women in the sector (Igbaria and Baroudi 1995, Ahuja 2002).

Dissidence between social stereotypes of 'woman' and 'tech worker' have been introduced into discourses of role congruity, with studies showing that "the extent to which women perceive their gender and STEM identities as either compatible or incompatible is a critical predictor of women's STEM engagement and academic success" (Ahlqvist, London and Rosenthal 2013 p 1645). For example, Diekman et al. (2017) suggest in their exploration of role congruity for women in tech that the tendency for women to pursue communal-based careers is in direct conflict with the perception of technical work and thus women are more likely to reject tech as a fulfilling career path. Rosenthal et al. (2011) found that women pursuing degrees in STEM at the university level who felt high levels of identity compatibility and social support were more likely to also report higher levels of self-belief in their STEM abilities. Moreover, research shows that women who persist in STEM careers are more likely to experience increasing depression, decreasing levels of self-esteem and a lack of satisfaction in their ability to fulfil the roles of both 'woman' and 'STEM worker' over time (Settles, Jellison and Pratt-Hyatt 2009). Thus, empirical studies have demonstrated the negative impact of conflicting identities, particularly between women and STEM workers, at

varying points of one's career. As such, role congruity theory provides a critical lens through which to evaluate the impact of ideal worker narratives on female workers in ICT.

2.2.3 Cyberfeminism

Finally, cyberfeminism (Plant 1997) uses a gendered lens to evaluate the changing landscape of work which results from new and emerging technologies. Contemporary work patterns have begun to shift, largely due to advancements which have automated large sectors of physical production (Brussevich, Dabla-Norris and Khalid 2019), increased opportunities in service production (McCall 2001) and introduced tools which untether workers from a traditional work day in one physical location (Felstead and Henseke 2017). Plant's (1997 p 84) introduction of cyberfeminism highlights the potential of such advancements for women as "demands for speed, intelligence, and transferable, interpersonal, and communications skills" continue to rise. Current discourses of cyberfeminism explore the importance of technical literacy for the empowerment of women (Schlesselman-Tarango 2014) and how this literacy can be leveraged by feminist actors to ensure higher levels of gender equality through leveraging technologies to challenge everyday sexism (Daniels 2009) and create spaces for female discourses (Pedersen and Smithson 2013).

Some academics caution that cyberfeminism approaches can be overly optimistic of the opportunities to challenge traditional hegemonies and overlook systems of power which disadvantage women and withstand challenges made by contemporary shifts in the organisation of work (Herd 2003). Indeed, several decades since the introduction of cyberfeminist discourses, statistics show male-dominated labour pools of skilled technical workers, particularly in the highest levels of the field (Hicks 2017). This suggests that the female voice has not yet been truly incorporated into the creation of new technologies.

2.3 Meso-level theories of gender and work

Meso-level theoretical and empirical studies have focused on the workplace as a primary locus of gender performativity and the reinforcement of gendered norms. In this context, the role of the workplace is investigated as a means of controlling worker experience rather than wider social influences or individual preference. Several theories of organisational-level barriers to advancement came to the fore in the early 1990's which aimed to explain the way in which barriers were expressed by organisations (Acker 1990, Acker 1992).

Acker's (1990) theory of gendered institutions attempts to systematically encapsulate key aspects of analysis in feminist studies of organisations and is cited liberally in well-regarded studies of gender and worker experience (Benschop and Doorewaard 1998, Williams 2000, Budig and England 2001, Eagly 2007, Kelan 2010, Dye and Mills 2012, Ashcraft and Muhr

2018, Rodriguez and Ridgway 2019) and adapted as a critical lens for business research and organisational theory texts (Alvesson and Billing 2009, Mumby and Kuhn 2018). Moreover, gendered institutions theory has been applied by Acker (2004) and subsequent gender theorists (Lewis, Lang and McKay 2007, Griffiths et al. 2007, Kelan 2009, Mickey 2019) to analyse the relationship between gender and power in ICT and technology firms. More recently, explorations of gendered institutions have expressed a need to further develop the empirical application of the theory to delineate between institutions which favour men and male-dominated industries, occupations and firms (Britton 2000) and to re-evaluate the contribution to knowledge in a contemporary context (Williams, Muller and Kilanski 2012, Nkomo and Rodriguez 2019). Thus, the popularity and active application of gendered institutions theory to academic discourses of male-dominated sectors is of particular interest to this study.

2.3.2 Gendered Institutions

The theory of gendered institutions was formally posited in *Hierarchies, Jobs, Bodies: A Theory of Gendered Organisations* in 1990 wherein Acker postulated that "images of men's bodies and masculinity pervade organisational processes, marginalizing women and contributing to the maintenance of gender segregation in organisations" (Acker 1990 p. 139). Gendered organisations are born of a system which idealizes a specific figurative worker, privileging men and attributing power, prestige and pay to work that is given a masculine gendering (Patterson, Damaske and Sheroff 2017). In this lens, sexism is viewed as an institutionalised phenomenon which creates and reinforces barriers for women.

Acker's theory of gendered organisations builds upon theoretical frameworks which attempt to show the gendered effect of industrial societies through the investigation of divisions in labour, power, symbolism and emotional relationships in social systems (Kanter 1977, Burrell 1984, Cockburn 1985). Concurrently, Acker investigated traditional organisational theory frameworks and argued existing research was fundamentally flawed in understanding the gendered experience (Roethlisberger and Dickson 1961, Acker and Van Houten 1974). Specifically, Acker theorised a gap which does not address how "advantage and disadvantage, exploitation and control, action and emotion, meaning and identity, are patterned through and in terms of a distinction between male and female, masculine and feminine" (Acker 1990 p.146). Indeed, this critique has been reflected amongst feminist scholars who argue the absence of a women in both the studies and enactment of bureaucracy and people management (Acker and Van Houten 1974, Mills and Tancred 1992, Morrison 1995, Alvesson and Due Billing 2009, Messerschmidt et al. 2018). Whilst Acker acknowledged strong contributions to gender and work research by feminist researchers, she identified a need for a systematic theoretical lens which positioned the locus of investigation on the way in which institutions themselves adopt

and express masculinities (Acker 1990). Thus, a new framework was needed with the specific intent to investigate gendered practices as embedded in seemingly gender-neutral activities (Acker 1990, 1992).

Drawing upon a range of research on women and work, Acker coined the term 'gendered institutions' and posited that "gender is present in the processes, practices, images and ideologies, and distributions of power in the various sectors of social life" (Acker 1992 p.567). Indeed, this notion has been echoed by like-minded researchers and extended to include not only women in aggregate, but anyone who falls outside of the hegemony, or the social grouping with institutionalized power and dominance, as defined by a specific organisation, industry or profession (Wilson 1996, Britton 2000, Ashcraft 2013, Ashforth, Schinoff and Brickson 2018). Thus, gendered perspectives on organisational theory have increasingly gained attention in academia, with Acker's theory of gendered institutions regarded as a stalwart of gendered organisational discourses. This is evidenced by the citation of over 8,100 references to Acker's 1990 paper alone, over 38% of which were published after 2015, and special issues dedicated to her contributions including a 2012 special issue of *Equality, Diversity and Inclusion: An International Journal* (Sayce 2012) and a 2019 Special Issue of *Gender, Work and Organization* (Pullen et al. 2019).

2.3.2.1 Areas of expression for hypermasculine cultures

Acker theorised that the gendering of an organisation is expressed in several key areas of focus which collectively contribute to the gendered substructure of an organisation (Acker 1990). Gendered substructures point "to often-invisible processes in the ordinary lives of organisations in which gendered assumptions about women and men, femininity and masculinity, are embedded and reproduced, and gender inequalities perpetuated" (Acker 2012 p. 215). Acker notes that the elements of gendered substructures are both explicit and implicit as well as interconnected with the macro and micro levels wherein "processes and practices of different types can be analytically distinguished, although they are inherently connected elements in ongoing social life. Some are obvious and open; others are deeply embedded and invisible" (Acker 1992 p. 567). The theory posits several areas of focus which indicate the presence of phenomena which favour male workers to include the underlying assumptions of best practices (organisational logic), gendered separation of labour, space and accepted behaviours (job divisions), gendered social structures between workers (worker discourses), the way in which organisational cultures are introduced, expressed and reinforced (workplace culture) and finally the way in which male and female workers disparately evaluate and moderate their behaviours, self-efficacy and career aspirations based on external feedback (worker self-efficacy).

The first of the substructures is the division of labour, wherein work is segregated both horizontally and vertically within an organisation with a preponderance of male workers tasked with duties which lead to power, prestige and pay while the other is tasked with unpaid care work, both in and out of the organisational context, and relational work (Holmes and Marra 2004). The second substructure is the culture which is produced and reinforced in the workplace wherein specific masculine characteristics are attributed to alignment with organisational goals. The third substructure relates to the gendered interactions between members of an organisation to include both informal conversations amongst co-workers as well as gendered differences in discourse in a formalised setting. The fourth substructure investigates the gendered differences in organisational influence over a worker's self-efficacy, or their belief in their own ability to succeed and the way in which they moderate their behaviours to align with organisational expectations.

Finally, organisational logic is included as a fifth area of focus in the introduction of the model (1990) and subsequently removed in a later paper (Acker 1992). Acker (1990 p 147) defines organisational logic as "the underlying assumptions and practices that construct most contemporary work organizations" such as the bureaucratic systems which establish standard procedures and conduct within a firm. An area of confusion and conversation for researchers, some posit that subsequent papers published by Acker shift the paradigm to incorporate organisational logic into other aspects of the original framework or through an understanding of logic as an encompassing feature of the firm (Acker 1992, 1994, Dye and Mills 2012, Sayce 2019). The investigation of formalised policy was seemingly subsumed due to the way in which gendered regimes are expressed in practice, primarily through firm culture and worker discourse (Acker 1992). To explicate, Acker (1998) discusses an aspect first introduced as a presentation of organisational logic, job evaluations, in later publications as a more general area of gendering within an organisation. This signalled that organisational logic can be consolidated into the wider substructure model. Acker directly addresses the anomaly in the framework in a review of contemporary studies which utilise the gendered institutions theory prominently in their work:

> *I saw organizational logic as the logic of hierarchy and bureaucracy, essentially ideological or theoretical ideas. At the same time, I wanted to go beyond empty abstractions and argue that such abstractions, if they stood for actualities such as gender inequality, are based in ongoing processes or linked practices. I had already conceptualized these practices as constituting the gendered substructure: it followed that the concept "organizational logic" was repetitive, not needed.*
>
> *Acker 2012 p 211*

That said, Acker goes on to address that organisational logic perhaps should be re-examined for inclusion in the model, specifically as it is employed by Dye and Mills (2012) in a

comparative analysis of an organisation throughout time (Sayce 2012, Sayce 2019). However, Acker (2012) restates the difficulty of including organisational logic in empirical investigations of gendered organisations, suggesting a study of culture, discourse and identity construction to better understand gendered organisational logic:

> *I was influenced by Dorothy Smith whose work makes the convincing argument that "structure" is constituted in the actualities of daily practice. I think that we can use both levels of analysis, fleshing out abstract structures as well as cultural, interrelational and identity constructing processes.*
>
> *Acker 2012*

This nuanced understanding of the theory, coupled with the enormity of encompassing each of the substructures fully in a single research project, led to a variation of application by researchers adopting the model and resulted in empirical research which explored one or more of the foci under the gendered institutions lens based on study aims, objectives and constraints (Benschop and Doorewaard, 1998, Kantola 2008, Benschop and Doorewaard 2012, Dye and Mills 2012, Parsons and Mills 2012, Festing, Kornau and Schäfer 2014, Brumley 2014, Dwivedi, Joshi and Misangyi 2018, Rodriguez and Ridgway 2019). The range of application of the gendered organisation model is well presented by Nkomo and Rodriguez (2019) who highlight that some scholars invoke Acker in the conceptualisation of gender, others utilise it to explore an aspect of the model in a new context and still others apply Acker's theory in concert with other theoretical concepts to develop new frameworks. Whilst this research project is aligned with the third usage, studies which have included gendered institutions theory in their research across all categories are examined in this review of literature.

Acker later comments that in the empirical application of the model, organisational logic can provide clarity on key aspects of gendering that are unique to that foci at a given point in time as exemplified by Dye and Mills (2012) but may also be expressed in practice through firm culture, leaving it open to researcher interpretation as to the appropriate application based on the specific research goals (Acker 2012b). Indeed, Dye (2006 p 34) described organisational logic as a set of "fundamental, ongoing processes that encompass and influence the other four processes". With this understanding, organisational logic has been encompassed in this research project through the policies and practices included as indicators of organisational culture and established through a lens which recognises that location and industry can have wider cultural influences on an individual firm's representation as a gendered institution.

As the gendered substructures are key to the interpretation and analysis of gendered institutions, the following subsections will look at each of these aspects individually and draw on areas of research wherein the substructures have been expressed and evidenced. For the purpose of this investigation, the four foci model has been included in the theoretical framework, observing organisational logic primarily as the formalised way in which an

organisation establishes culture. These areas of investigation are expressed in the literature to investigate a myriad of gendered phenomena at the organisational level. These are introduced in the following figure and will be addressed in the remainder of this section.

Topics covered in gendered institutions

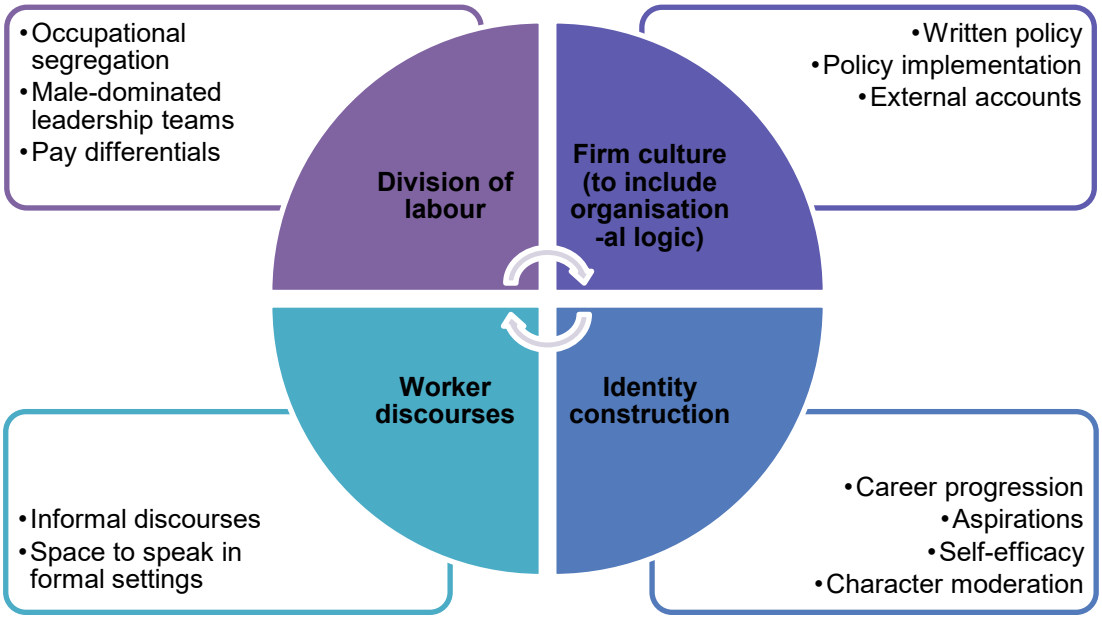

Figure 7 source: adapted from Acker 1990, 1992

2.3.2.2 Gendered divisions of labour

Acker (1990) posited that the division of work within an organisation is often motivated by a gendered ideology of who can and should perform certain tasks rather than a strategic ordering of tasks into specific roles. Laterally, this is expressed as the preponderance of women into administrative, human resources and customer-support roles while men are represented in technical and competitive departments such as sales and IT (Ashcraft 2013). Job divisions are also evidenced hierarchically, with the majority of leadership positions held by men (Singh and Vinnicombe 2004).

Job divisions are particularly pronounced in the STEM fields, where men make up the majority of technical and engineering roles. Influenced by Cockburn (1985), Acker finds that the introduction of new technology has re-established rather than abolished gendered divisions in labour which "left the technology in men's control and maintained the definition of skilled work as men's work and unskilled work as women's work" (Cockburn 1985, Acker 1990 p.146). This exemplifies that organisations consist of "ordinary organisational practices [which] produce the gender patterning of jobs, wages, and hierarchies, power and subordination" (Acker 1992 p.252).

Recent studies demonstrate the continued application of gendered institutions theory to studies of occupational segregation. For example, Sappleton and Takruri-Rizk (2008) invoke gendered institutions as one of three primary lenses applied in their review of literature regarding the organisation's role in the perpetuation of occupational segregation in science, engineering and technology professions. The application of Acker's (1990) theory in studies of gendered divisions in labour demonstrates a continuing importance to focus on the institutional factors which contribute to enduring gender inequalities.

2.3.2.2.1 Occupational segregation and horizontal job divisions

Horizontal job divisions, sometimes understood as occupational segregation, refers to the preponderance of one gender into a particular job category at the non-leadership levels of an organisation (Acker 1990, Ashcraft and Mumby 2003). Whilst most organisations do not explicitly discriminate against men or women performing certain roles, a number of authors have shown that there is often an implicit assumption that some positions are better suited for males while others are better suited for females (Patel and Parmentier 2005, Bury 2010, Haile, Emmanuel and Dzathor 2016). Devine (1992) considered the theory of gendered institutions in their case study of occupational segregation in engineering and science, particularly in the investigation of women who do opt-in to technical careers. Whilst Devine found significant evidence prior to career entrance of girls self-selecting out of technical career paths at the educational level, additional barriers were identified within the workplace, including a lack of firm consideration for those with caretaking roles.

While a large proportion of organisational scholarship focuses on the imbalance of women and men in leadership positions, horizontal job segregation is equally problematic and can affect gendered differences in pay and promotions (Rickett 2014). The division of labour within firms is evidenced in research across a myriad of industries, with the effects often demonstrating gendered differences in pay, prestige and power. For example, Schultz and Shaw (2003) highlight the gendered differences in specialization in the legal field, with women often specializing in lower-pay fields such as family law, immigration and wills and men specializing in higher-pay fields such as business law, commercial litigation and tax law. In a field which has similarly seen a rise in gender equality at the entry level, research on medical doctors show that men tend to specialise in surgical areas at a higher rate than women, which contributes to gendered differences in pay (Gjerberg 2002, Fukuda and Harada 2010). Research investigating female accountant's ability to achieve partner status indicates that role specialisation in accountancy is also decidedly gendered and furthermore specialisation in fields such as taxation can lead to partnership whilst less client-facing specialisations are more difficult to achieve partnership in (Gammie and Gammie 1995, Khalifa 2013).

This is furthermore evidenced in technology firms where customer-facing, marketing and administrative support roles are often held by women and technical-heavy roles are held by men (Reskin et al. 1990, Shuttleworth 1992, Bury 2010, Ashcraft and Ashcraft 2015, Drury 2016). This trend is not singularly caused by gendered divisions in intellectual capital, with computing, coding and technology graduates often finding gendered differences in their roles as well. Specifically, women tech workers are often guided into work with 'people-centric' technology and men into roles that deal with innovative technology and programming. This is particularly problematic as masculine-gendered jobs often lead to higher rates of promotion and better salaries, while the social aspects of technology that women are relegated to are undervalued (Faulkner 2001, Bury 2010, Ahlqvist, London and Rosenthal 2013, Mihalcea, Moghe and Burzo 2015). Thus, existing research indicates that job segregation is evidenced across a range of scientific and technology fields and results in a negative influence on the worker experience for women. This has been evidenced in historical renderings of technology roles as well (Arndt and Bigelow 2005, Bury 2010, Ahlqvist, London and Rosenthal 2013).

As outlined in chapter one, the earliest technology tasks were often given as additional tasks to clerical workers who were predominantly women. However, women's' association with technical operation shifted as the work became re-skilled as decidedly technical and given higher compensation (Hicks 2017). A more recent account published by Scott-Dixon (2004) notes that women in technology roles were often given hybrid jobs which integrated office administration, communication and marketing into their role duties and did not garner the same level of compensation or prestige associated with technical roles that did not incorporate non-technical tasks.

Some research suggests through an investigation of recruitment practices that there is a deficit in qualified women for leadership positions (Eagly and Carli 2007, Gipson et al. 2017). This is due partly to the segregation of men and women at lower levels of organisational hierarchy and the lack of opportunities for women to gain access to 'promotable activity' for jobs at the leadership levels (Fitzsimmons and Callan 2016, Fischlmayr and Puchmüller 2016, Fernandez and Campero 2017). On average women with similar educational backgrounds often receive fewer promotions than their male counterparts (Landau 1995, Addison 2014, Patterson, Damaske and Sheroff 2017). Thus, horizontal job divisions can act as an acute barrier for women looking to advance into leadership positions and therefore contribute to vertical job segregation (Rickett 2014).

2.3.2.2.2 Male-dominated leadership teams

Clear evidence has shown that gendered job divisions are most prominent in the highest levels of organisational hierarchy (Dominici, Fried and Zeger 2009, Rhode 2017) with little progression made in redressing the balance (Kalev, Dobbin and Kelly 2006). This is particularly true for women in STEM sectors who face heightened barriers to career progression both in comparison to their male counterparts and women in more gender-balanced sectors (McCullough 2011).

Research shows that roles and tasks which are correlated with leadership potential are often difficult for women to obtain or accept, such as international and travel-related assignments (Casinowsky 2013, Haile, Emmanuel and Dzathor 2016, Fischlmayr and Puchmüller 2016). Furthermore, some studies have found that women are more likely to be appointed to high profile leadership roles during times of organisational uncertainty and financial difficulty, reducing the likelihood of a favourable assessment of their abilities (Ryan and Haslam 2005, Adams, Gupta and Leeth 2009). Similarly, Cook and Glass (2014) found that counter-hegemonic individuals appointed to positions of leadership are given less autonomy over their leadership strategy and are statistically replaced by Caucasian men if they fail to increase firm performance during their tenure. Thus, marginalised individuals who do obtain leadership roles often face more precarious circumstances and less agency in the position.

Interestingly, job segregation is also evidenced in organisations and professions with a preponderance of women but to a different effect. Specifically, men who represent the gender minority within, for example, the nursing profession, are often encouraged into management positions and achieve promotions at a faster rate than their female counterparts (Smith 2012). It is important to note that similar to the diversity of female worker experiences, not all men experience favouritism in female-dominated occupations. Some research indicates that additional factors such as race and citizenship are at play wherein white national males benefit from gender minority status to the greatest extent (Wingfield 2009, Price-Glynn and Radomski

2012, Williams 2013). Thus, research regarding men in female-dominated fields shows differing consequences regarding gender minority and organisational bias but follows similar trends wherein additional demographic factors can impede or increase individual's access to preference or marginalisation.

2.3.2.2.3 Gender pay gap

Recently, consequences of gendered job divisions have been investigated through the gender pay gap, wherein men continue to earn higher wages than women (Dey and Hill 2007, Beyer 2018). Gendered divisions of labour are identified as a key instigator of this phenomena, wherein female-dominated jobs net lower salaries (Lips 2013) and women are less likely to be represented in the highest levels of leadership and therefore are less likely to be represented in the highest pay quartiles (Tattersall, Keogh and Richardson 2007). Studies show that the value associated with a job is often influenced by the worker imagined for the role rather than the merit of the work and assigned greater prestige and pay if masculinized (Arndt and Bigelow 2005, Ashcraft 2013). This is true even in entry level jobs, wherein female dominated roles, such administrative work, are valued less than jobs with similar qualification levels but a preponderance of male workers (Ashcraft 2013).

Hegewisch and Hartmann (2014) demonstrate the correlation between gendered divisions in labour and the gender wage gap over time, wherein differences between male and female work is positively correlated with higher wages for men and lower wages for women. The following figure presents their findings which compare gendered segregation in work (indicated by the occupational segregation index dotted line) and the gender wage gap:

Time series data: occupational segregation and the gender wage gap

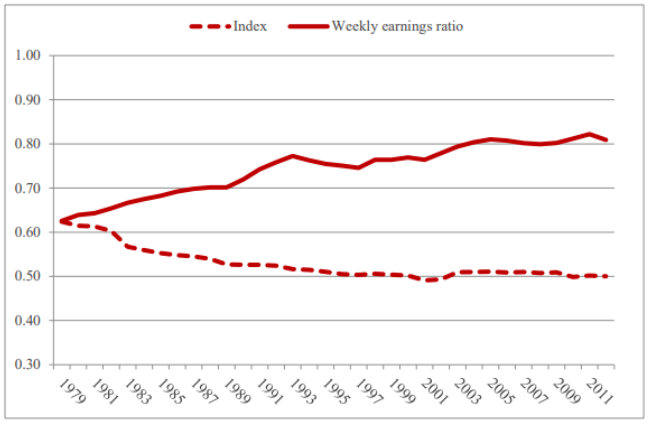

Figure 8 Source: Hegewisch and Hartmann 2014 p 14

Similarly, Belgorodskiy et al. (2012 p 107) found that despite relative "homogeneity of employees in terms of their qualifications and skill sets necessary to meet the technical requirements of the work", gender pay gaps persist. In an interesting application of gendered institutions theory, Segovia-Pérez et al. (2019) establish the role of gender stereotypes in their

quantitative assessment of pay gap data for ICT workers in Spain finding that women face unfavourable working conditions within the industry. Thus, the impact of gendered job divisions is demonstrated statistically through the gender pay gap.

2.3.2.3 Constructions of masculinity in organisational culture

Gendered institutions theory introduces the culture of an organisation as "the construction of symbols and images that explain, express, reinforce, or sometimes oppose those divisions" (Acker 1990 p. 146). This is often systematically introduced and reinforced as a means of creating a shared system of values, behaviours and goals across working groups (Horowitz 2013). Culture is the means of setting the firm apart from others in the industry both as an employer and as a brand (Edwards 2010). Culture can also be informally introduced through the behaviours and actions of workers and are positively or negatively reinforced by the rest of the team (Chernatony and Cottam 2008). Formally, firms introduce the preferred culture through hiring practices, employer branding efforts, evaluations of employee performance and behaviour and the implementation of policy and procedure. Informally, culture is reinforced through workers anthropomorphizing their organisation wherein they ascribe a set of human characteristics to the firm (Ashforth, Schinoff and Brickson 2018). This, for example, can manifest as workers describing their organisation as a rebel which bucks the trends of their industry or as a family if the culture is highly relational.

Formal policies can shape the culture of an organisation but are filtered informally through their enactment and reinforcement by line managers (McCarthy, Darcy and Grady 2010). For example, research has shown that employee work satisfaction increases when they feel they have emotional support from their line managers (Firth et al. 2004). Moreover, firm culture can impact worker experience, wherein, for example, 'family-friendly' work cultures are more likely to retain female workers (Allen 2001) whilst cultures which strongly promote 'masculine' characteristics such as aggression tend to retain homogenous workforces which align with the accepted set of behaviours and work patterns (Mennino, Rubin and Brayfield, 2005).

Acker's gendered institutions model has been used as a theoretical lens through which academics have studied the impact of culture on the marginalisation of female workers (Rutherford 2001, Liff and Ward 2001), while studies centred specifically within the ICT sector are less prevalent (Lewis and Humbert 2010). Liff and Ward (2001) adopt the gendered institutions model in their study which investigates the gendered nature of promotions and how they are communicated to female workers, often interchanging organisational structure with culture. Similarly, Rutherford (2001) focused on organisational culture through a case study using questionnaires, interviews and observation to understand the impact of management style and a culture of long hours interact with worker discourse and informal worker socialisation to create gendered differences in worker experience (Rutherford 2001). Acker's

(2004) theory of institutional barriers is also considered alongside theories of preference (Hakim 2002) by Halrynjo and Lyng (2009) in their exploration of mothers who opt-out of high-commitment careers. The findings of their study suggest that social and organisational initiatives which seek to create a more gender-neutral approach to parenting allowances have had limited success for those in careers, with participants citing that they moderated their career preferences upon becoming mothers.

Using a comparative case study approach, Dellinger's (2002) analysis of two different organisations within the journalism industry adopts Acker's framework to investigate the cultural differences between two firms. The study highlights that it is imperative to understand an individual's experience with organisational culture and the impact of that understanding on the way they construct a specific set of characteristics to progress their career as well as its effect on their career aspirations. The case studies rely on interviews as the primary data collection method to give workers the room to express their identity construction in their own terms (Dellinger 2002). Similarly, Lewis and Humbert (2010) apply gendered institutions to a case study exploration with a singular technical firm to assess how organisational culture interacted with flexible working policies to marginalise those who took them up.

For the purpose of this study, the role of workers in the creation and reinforcement of firm culture is included in the following section whilst aspects of organisational culture are explored specifically through the lens of diversity and inclusion. The following subsections will go on to detail research which evaluates the way in which organisational culture is influenced by, and in turn influences, gendered barriers to inclusion.

2.3.2.3.1 Gendered cultural implications of employer branding

One way in which a firm can attempt to control the expectation of potential employees is through the marketing of their work culture, employee benefits and firm values via employer branding efforts (Wilden, Gudergan and Lings 2010). Primarily a tool to set a firm apart from their competitors, the way in which a firm attempts to be perceived by potential applicants can affect who applies based on their gender (Sutherland, Torricelli and Karg 2002, Alnıaçık and Alnıaçık 2012). For example, technology firms have been seen as pioneers in the benefits which they adopt to retain a skilled workforce such as highly flexible work schedules and remote working opportunities, office space dedicated to relaxation and socialisation for workers and free food and beverages on-site (Coombs and Gomez-Mejia 1991, Collins and Smith 2006). However, whilst these benefits appeal to some workers, they rank lower on the list for those with caring responsibilities or, in the case of flexible working, have a negative backlash for those who take them up (Eikhof 2012). In this way, the benefits advertised by employers can have a gendered effect on who responds to job openings.

Equally important, there are gendered distinctions in retention which can, in part, be affected by organisational culture. For instance, Lewis and Humbert (2010) found in their study of flexible working policies in a STEM organisation that the use of policies meant to retain female employees were seen as a double-edged sword, with a professional cost associated with their uptake. Whilst the organisation presented liberal opportunities for flexible working, workers felt that the opportunity cost of uptake was perceived firm loyalty. In short, entrance into organisations is often policed through a gendered context and is reinforced through firm culture which can impact individual career aspirations, specifically in the technology industry.

2.3.2.3.2 External evaluations of firm culture

Acker (1992) warns that the external landscape of influences upon an organisation must be understood in the application of a gendered analysis of organisations. This is particularly true for this study as the technology industry is a site of severe gender imbalance and external social criticism and activism (Sax et al. 2017). For example, increased attention to gender disparities in STEM uptake have resulted in increased outreach to children at the primary and secondary school levels and the emergence of organisations which advocate for and support women in male-dominated fields (Equate Scotland 2019). Moreover, ICT firms have been under particular scrutiny for heightened gender pay differences and incidents of sexual harassment (Hegewisch and Hartmann 2014, O'Donnell and Sweetman 2018).

As such, ICT organisations have sought to incorporate equality initiatives as a means to produce a welcoming and diverse culture and to signal to external sources that they are cognizant of the gendered issues facing the industry. The rise of equality initiatives has mirrored the rise of women in leadership positions in technology, however research does not suggest a correlation between the two (Ashcraft and Ashcraft 2015, Drury 2016). Indeed, Ashcraft and Mumby (2003) warn that initiatives created to promote women into technology roles can only achieve the intended results if they are marginally successful in increasing the number of women in the field. That is to say that the power, prestige and pay correlated with a career in technology is directly correlated with hegemonic masculinity and thus is lost in the gender balancing of a profession (Ashcraft and Mumby 2003, Ashcraft and Ashcraft 2015).

2.3.2.4 Hypermasculinities in worker discourses

Acker's (1990) theory posits that discourse between workers acts as a key area of gendering within an organisation. Through interactions with organisational culture, communication and behaviour norms are established and concurrently reinforced, alienating some workers and accepting others based on their gender. Acker introduces worker discourse as "interactions between women and men, women and women, men and men, including all those patterns that enact dominance and submission" (Acker 1990 p. 147). Later, Acker defines "interaction

between individuals and groups [as] the medium for most institutional functioning, for decision making and image production. Here, people replicate gender" (Acker 1992 p. 568). As such, worker interactions can reinforce a highly gendered firm culture.

Whilst difficult to encapsulate in research efforts as the essence of this substructure is demonstrated in micro experiences between individuals and groups, Acker (1992) builds upon research conducted by West and Zimmerman (1987) on gender and conversation analysis to confirm that worker communicology is a key area of gendering within a workplace.

More recently, Ashcraft utilised Acker's framework to study how discourse and communicology is shaped by gender and how it is linked to the professionalization of jobs across male-dominated industries (Ashcraft and Mumby 2003, Ashcraft 2007, Ashcraft 2013, Ashcraft and Ashcraft 2015). Ashcraft's work often focuses on industries and professions as a whole, using historical data, interviews and ethnography to create a full picture of worker communicology and its impact on job professionalization (Ashcraft and Mumby 2003). For example, Ashcraft and Mumby (2003 p.146) find that professionalisation efforts taken to create the airline pilot identity utilised gender in different contexts historically, advertising the profession as 'so easy a woman could do it' when there was a need to highlight the technological advancements in the field and later shifted to a reflection of masculinity through the adoption of military garb and job titles when it was determined the lady-flyer did "little to boost aviation as a regular means of travel".

More relevant to this research project, Ashcraft and Ashcraft (2015) conducted a study of the professionalisation of the ICT worker which challenged the perceived value given recently to feminine characteristics such as 'team player' and 'communicative', finding instead that women continue to be categorized with less desirable traits such as "emotional" and "irrational" (Ashcraft and Ashcraft 2015). Ashcraft's body of work highlights the importance of understanding worker discourse through the lens of the worker in order to fully understand the gendering of an organisation and ultimately its impact on their aspirations to grow within or exit the workplace.

2.3.2.3.2.1 Informal Conversations

Informally, worker discourses have a gendered impact on the accepted topics for workplace banter and differences in communication based on the individual being addressed (Faulkner 2001). This can be evidenced by the fact that organisations with high proportions of male workers have reported higher levels of sexual harassment than those with more balanced gender ratios (Gruber and Bjorn 1982). Furthermore, those who experience sexual harassment often report interruptions in career progression after reporting incidents thus deterring future reporting and contributing to a lack of career progression for those who do (McLaughlin, Uggen and Blackstone 2017).

The definition of the worker in a masculine-dominated workplace can become highly gendered and thus subjected to a specific hegemonic masculinity which dictates how a worker should act (Connell 1995). This is often associated with aggression, competitiveness and control (Cheng 1999). Those who do not conform to the accepted strain of masculinity in a given context are relegated to the "out-group" which is "thought to be "feminine" or some kind of non-conforming, or even failed masculinity" (Cheng 1999 p 297). For example, Iacuone (2005) found in her study on the construction industry that accepted informal interactions between workers aligned with allowances of toxic masculinity, where effeminate behaviour and discourse in both men and women was highly discouraged and even punished by other workers. Thus, the reinforcement of a specific set of characteristics based on hegemonic masculinity through worker behaviour and discourse can have a negative effect on anyone, male or female, who falls into the category of non-conforming.

2.3.2.3.2.2 Formal spaces and gendered interactions

Gender can impact the way in which individuals interact in formalized meeting spaces as well as the way in which they discuss their achievements. For example, a masculine company culture may normalize self-promotion in formal settings while women are less likely to participate in such an activity, even negating their contribution to projects when they are publicly praised by others (Eagly and Wood 1991, Singh, Kumra and Vinnicombe 2002). Similarly, research shows that women are often less inclined to speak in meetings and, when they do, their ideas are often reflected back later by male attendees as their own (Van Eecke and Fernandez 2016, Karpowitz, Mendelberg and Mattioli 2015, Gu 2016).

Similarly, research suggests that women must navigate their sexuality in professional interactions carefully, suggesting a fine line between penalties of hypersexuality and prudishness (Lachover 2005, Hakim 2010). In an interesting study of female reporters in Israel, Lachover (2005) applied gendered institutions theory to a study of how they navigated discourses with male interviewees, finding that reporters often had to negotiate between setting boundaries, specifically when interviewees were flirtatious and suggestive, and engendering the level of rapport needed for quality reporting. Cumulatively, studies show ample evidence that informal discourses can create gendered differences in worker experience both through informal workplace banter as well as through the navigation of gender in a formalised setting.

2.3.2.5 Impact of gendered institutions on identity construction

The fourth substructure related to the gendered organisations theoretical framework investigates the role of the organisation on the impact of individual identity. Acker defines this as "gendered components of individual identity, which may include consciousness of the

existence of the other three aspects of gender, such as, in organisations, choice of appropriate work, language use, clothing, and presentation of self" (Acker 1990 p. 147). Later, Acker describes this as the construction of a gendered identity in relation to a particular organisation, using the example of the differences in gender construction in politics, where, for example, men are expected to act aggressively, versus religious institutions, where men are expected to act piously and graciously (Acker 1992). This requires workers to evaluate an organisation and the way in which a man or woman must construct their identity to achieve specific goals (Cockburn 1991).

An examination of this foci gives an understanding to gendered differences in how individuals are expected to act in a given context and how variance from this expectation can affect their career (Hodges and Budig 2010, Dugan et al. 2013, Cross, Linehan and Murphy 2015, Brands and Fernandez-Mateo 2016). This is demonstrated in the application of gendered institutions theory by Griffiths and Moore. (2010) in their investigation of female retention in ICT which found that women with lower levels of self-efficacy were more likely to exit to a more female-dominated sector. The following subsections will explore studies related to gendered differences in these categories and phenomena which have been observed empirically to either reinforce or ameliorate the gendered effects at an organisational level.

2.3.2.3.3.1 Worker self-efficacy

Self-efficacy is defined as an individual's belief in their own ability to work towards and succeed in a goal and is used specifically in the substructures model to describe an individual's belief that they are able to succeed in a specific organisation (Acker 1990). Self-efficacy is linked to an individual's motivations, the actions they choose to take, their resiliency in the face of setbacks and the amount of effort they invest in a goal (Bandura 2009). Studies show that workers with higher levels of self-efficacy tend to have higher levels of work satisfaction and productivity and that organisations can affect an individual's feelings of self-efficacy in a variety of ways (Staples, Hulland and Higgins 1999, Bandura 2009, Jnah, Robinson and Dowling 2015).

For example, one's self-efficacy is heavily influenced by the availability of role models and mentors, resulting in greater levels of self-efficacy for women if they have a personal connection with someone similar to themselves who has progressed into a leadership position from a similar background (Zeldin and Pajares 2000, Ibarra and Petriglieri 2007). Studies have also shown gendered differences in resilience upon rejection for leadership positions. Specifically, Brands and Fernandez-Mateo (2016) found that at a leadership level, women are less likely than men to apply for positions and employers they have been turned down for in the past as the rejection serves to reinforce the implicit belief that they are ill-suited for the position due to their gender.

In male-dominated fields, studies suggest that female workers have lower self-efficacy than their male counterparts (Zeldin and Pajares 2000, Ahlqvist, London and Rosenthal 2013). For example, in their quantitative study of over 14,000 female higher education students, Dugan et al. (2013) found that women in STEM fields have indicated lower levels of belief in their leadership abilities than women outside of STEM. When estimating levels of self-efficacy specific to technical skills, Beas and Salanova (2006) found in their study of ICT professionals that access to time for on-going training both within and without the workplace was positively associated with feelings of self-efficacy for both male and female workers. However, male ICT workers are more likely to have additional time to dedicate to professional development, which does provide some gendered differences in self-efficacy even in firms which provide professional development opportunities. More generally, both Burke et al. (2006) and Michie and Nelson (2006) found in their studies of IT occupations that men had higher levels of self-efficacy, reported higher levels of passion for technology and indicated less-positive attitudes towards the capabilities of women in their field. Thus, gendered differences in self-efficacy have been well-evidenced in the ICT profession.

2.3.2.3.3.2 Career aspirations

Discourses on the career aspirations of male and female workers often focus on gendered differences in career goals prior to entering the workforce and mid-career shifts in aspiration. For example, in their study of career aspirations and attainment over time, Schoon and Polek (2011) found that women were more ambitious than men prior to entering the workforce, however women were less likely to attain a professional job and more likely to be employed in non-skilled manual occupations. One explanation of this can be found in Correll's (2004) study which suggests that women are less likely to assess their professional abilities as high compared to men and that this, in turn, impacts their career aspirations.

Moreover, motherhood has been seen to influence an individual's career goals to seek more work/life balance instead of promotable activity. As previously introduced, external assumptions differ when male workers become fathers in comparison to female workers becoming mothers (Halrynjo and Lyng 2009, Benard and Correll 2010, Hodges and Budig 2010). This has also been investigated at the individual level where career aspirations evolve differently for mothers and fathers (Irak, Kalkışım and Yıldırım 2020). For example, Mirick and Wladkowski (2018) find that PhD students who are mothers are more likely to seek a family-friendly employer upon graduation. Thus, the role of motherhood is prominently cited across feminist and post-feminist research as a catalyst for shifting career aspirations in female workers (Hakim 2002, Fine-Davis et al. 2004, Hilbrecht et al. 2008, Craig, Powell and Cortis 2012).

Additionally, a lack of women in leadership positions within a firm can negatively affect the aspirations of women within the firm who may find this to be an indicator of incompatibility between care-taking and management-level responsibilities (Dugan et al. 2013). Other research suggests that having women in leadership will not necessarily motivate women at lower levels of the firm to pursue management roles (Cross, Linehan and Murphy 2015). Women who might initially have aspired to management and leadership roles may become dissuaded after experiencing how women within their firm who have already reached those positions have trouble balancing their home and work commitments (Ibid.). As such, negative role modelling could reinforce that women with familial responsibilities, or those of any gender with a primary caretaker role, do not have the capacity to devote the adequate time to a leadership role within their firm (Ibid.). Thus, women feel that they must choose between an adequate balance of work and family or pursuing career progression, in part, because that is the example represented by current women in positions of leadership.

2.3.2.3.3.3 Character moderation

Finally, women working in male-dominated industries and organisations often cite the need to moderate their behaviours to align with the wider workforce (Chovwen 2007, Du Plessis and Barkhuizen 2012). This assertion is supported by a multiple case study analysis of male-dominated firms conducted by Martin and Barnard (2013) that found that some female participants chose to adopt masculine characteristics, such as swearing and aggressive behaviours, while others dressed casually to avoid sexual attention.

This has been evidenced within the studies of the ICT sector, where Esser et al. (2018) found that women coming into leadership roles must be willing to be flexible and adapt to the established culture of male-dominated leadership teams in order to be accepted into the group. In contrast, Crump, Logan and McIlroy (2007) found in their study of women working in IT that necessary skills, such as negotiation, were perceived as masculine traits which did not come naturally to them and moreover did not express any attempts to align their own behaviours with the ‘male way’. Finally, Hakim (2010) adopts a postfeminist lens to assert that female technology workers have the ability to leverage their erotic capital as the industry is stereotyped as populated by ‘geeky men’. Hakim (Ibid.) argues that women are well-positioned biologically and through social pressures to both maintain their attractiveness and leverage it in the workplace similarly to the way in which men leverage social capital. The wide range of findings supported by feminist and post-feminist theorists show that women adopt various strategies to navigate their status as a gender minority and therefore reduce their marginalisation.

2.3.3 Ideal Worker Narratives

Cumulatively, the gendered substructures of an organisation can have an impact on an individual based on their perception of whom they believe the company considers an 'ideal worker'. Ideal worker narratives are phenomena "that define assumptions and expectations around the kinds of people who can most successfully become members of an occupation" (Anteby, Chan and DiBenigno 2016 p 196). Specifically, Acker (1990 p 150) states that, "the concept of a universal worker excludes and marginalizes women who cannot, almost by definition, achieve the qualities of a real worker because to do so is to become like a man".

Earlier, hegemonic masculinity was introduced as a macro-level social concept which influences gender performativity, marginalisation and idealisation. These ideas are essential to the notion of the ideal worker, who is further defined within the specific context of an organisation and informed by firm culture, policy, management and worker discourses. That said, the 'ideal worker' construct does not limit success solely by gender, but also based on additional factors such as race, class and familial status (Reid 2015). Consequently men, too, can fall outside ideal worker status.

Whilst organisational, industry and cultural norms have a distinct impact on the nuances of the ideal worker narrative, some general characteristics have been posited in academic discourses. The ideal worker is often visually present for extended hours in the workplace and easily reached outside of work hours (Brumley 2014). Similarly, the ideal worker is able to travel often for work, accept international assignments and relocate for promotions (Heppner 2013). Specific to the ICT sector, workers are often valued for self-promoting and trailblazing, maintaining a singular focus and a love for the code (Ensmenger 2015, Fisher and Jenson 2016). Informal conversations often revolve around shared interests in computer-based activities and gaming (Alfrey and Winddance Twine 2017).

The perceived ideal worker is also informed by industry and occupation professionalization efforts which attempt to reinforce an identity which aligns with the recruiting and standardization of technical roles. As established in chapter one, this professionalization work can be historically accounted for within the technology industry, wherein technical roles were initially assumed by women, with several key contributions to technological advancements (Hicks 2009). More recently, women were heavily involved in the design of Web 2.0, which relies heavily on redefining digital communication (Bury 2010). This is not necessarily depicted in historical accounts of tech workers which more often than not align with contemporary masculine notions, disadvantaging individuals who do not fit the depiction of the body imagined for the role (Ashcraft and Ashcraft 2015).

The concept of the ideal worker combines organisational and societal theories, suggesting that it is inherently more difficult for women to achieve and succeed in leadership roles due to

stereotypes regarding how women should act and how leaders should act as informed by role congruity theory (Eagly and Karau 2002). This idea under the paradigm of the masculine organisation highlights the interaction and influence of both realms on one another and provides the context needed to effectively understand the experiences of women working in the technology industry and their ability, or inability, to thrive in a particular work environment.

Contemporary studies of the ideal worker narrative have further investigated the way in which gender interacts with worker identities in the ICT sector (Whitehouse and Preston 2005, Kelan 2009). Acker (2004 p 32) herself applies the theory to technical workers to explain that one cause of the perpetuation of computers as a male space is “the identification of computer work with forms of masculinity that exclude women and emphasize obsessive concentration and/or violence and self-absorption”.

Notably, Kelan (2009) uses a case study ethnographic approach to conceptualise the ideal worker narrative from the perspective of workers in a specific firm and subsequently how workers position themselves in relation to this narrative. Kelan (2009 p 113) found that individuals with ‘ideal’ attributes, such as social competence, were evaluated based on their gender “where men are able to enact social competence as an atypical behaviour, they are valued for their gender flexibility and they thus come closer to the ideal worker. Women, in contrast, do not get special credit for enacting social competence but are constructed as women”. This finding aligns with Eagly and Karau’s (2002) role congruity theory which suggest a similar phenomenon for women in leadership positions.

Finally, Whitehouse and Preston (2005) adopt a quantitative case study approach to compare census data for computing professionals to more gender-equal professions over time in a departure from previous explorations of ideal worker narratives in the sector. In this study, the prevalence of ideal worker norms in ICT is tested through a quantitative assessment of census data and supplemented through case study enquiries regarding how firms have worked to demarginalize non-ideal workers (Ibid). In their findings, Whitehouse and Preston (2005) present that ICT work continues to create barriers for women through a lack of flexibility and difficulty returning from career breaks. However, the study also found that the industry accommodates women to some extent through the ability to select into less-intensive technical roles, allowing them to balance competing responsibilities (Ibid).

As demonstrated in previous studies, the ICT sector has proven a rich area of analysis wherein the ideal worker narrative can be investigated, identified and challenged. As such, the theory is well-placed as a key aspect of the theoretical framework for this study.

2.4 Micro-level theories of gender and work

Finally, some aspects of feminist theory investigate the role of the individual on the wider social phenomenon evidenced around gender and work. For example, micro-level theories examine the differences between men and women at an individual level to include biological, social and individual preferences regarding occupational choices, aptitudes and career outcomes. It is also extended, for the purpose of this review, to theories which examine the family as a singular unit and the navigation and allocation of unpaid household and care work between men and women.

2.4.1 Preference theory

A notable contribution to micro-level theories regarding gender and work is Hakim's (2002) preference theory which posits that in a modern westernized society, occupational segregation and gendered differences in career patterns are primarily caused by women's choices to prioritize familial and reproductive duties over career progression. In this sense, Hakim (Ibid.) argues organisational endeavours to attract and retain women are misplaced. Four main pillars are used to support this argument.

First, preference theory posits that contemporary labour markets are poised for equal entry for all, specifically in Westernised countries such as the United Kingdom. Key to equal access for both men and women to the labour market is a woman's access to birth control and the prevalence of choice to put off or reject having children, political legislation prohibiting discrimination based on sex, the expansion of service sector and white-collar jobs, an increase in part-time and flexible job opportunities and a social shift in attitudes towards lifestyle choices (Hakim 2002). Here it is evident that theories of the self are intricately intertwined with theories on the meso and macro level as personal choice is only accessed through social and organisational advancements. Second, it is theorised that women, given the opportunity and choice to prioritise work and family to varying degrees, will make similar choices for their employment patterns based on their gender. Third, in contradiction to most feminist theories regarding work, preference theory suggests that, in fact, some women, given the option, prefer to retain control over caretaking and primary household management whilst allowing men to control the workplace domain and primary breadwinner role (Hakim 2002). Finally, it is understood that policy and legislation around women and workforce participation is informed by an incomplete understanding of women's preference and perspective and thus an incorporation of preference theory would ameliorate this oversight (Ibid.).

Critiques of preference theory suggest two key flaws in this theoretical lens: (1) limitations persist to the medical and legislative advancements which have aimed to provide women with social equality and increased body autonomy and (2) a lack of recognition of the social

pressures placed upon women to act in ways that might be counterproductive to a successful career. Perez (2019 p.77) suggests a lack of agency exists "when [there is] no realistic option other than the children not being cared for and the housework not getting done". For example, a heteronormative couple having their first child will experience the impact of this on their careers differently as social norms ascribe caretaking to women, thus presuming increased restraints on their time, whilst men are more likely to be expected to increase their dedication to the firm as they seek to increase their income to adequately cover the rising costs of their household (Hodges and Budig 2010, Berdahl and Moon 2013). As such, these assumptions can negatively impact the career prospects for female workers once they become mothers as it is presumed that they will have less dedication to the firm.

2.4.2 Kaleidoscope career models

Similarly, some theorists posit that measuring career success through power, pay and prestige is a decidedly masculine metric and does not necessarily measure what an individual woman might consider a success for their career (Sullivan and Baruch, 2009). Mainiero and Sullivan (2005 p 362) introduced the kaleidoscope career model (KCM) which seeks to account for gendered differences in “(1) how discontinuous work impacts one’s career over the life span; (2) how gender, identity, and culture impact career decision-making; (3) how career transitions combine into a coherent whole of a career; and (4) how midlife impacts career development in a changing career landscape”. In this light, it is understood that women place a greater emphasis on benefits which allow them to balance their responsibilities outside of the workplace with their career and thus might adopt a kaleidoscope career pattern rather than a linear progression and indeed consider themselves successful. This is articulated through an assessment of one’s career as appropriately challenging, flexible and authentic to one’s values and aligning to their perception of self (Mainiero and Gibson 2017). Through this assessment, gendered differences are identified throughout worker career stages. Mainiero and Gibson (2017) found key differences between men and women at the midcareer stage, with women more focused on balance and authenticity and a decline in the importance of challenge for both men and women. Similar to aspects of preference theory, some critiques of kaleidoscope career models argue that shifting the narrative to redefine success based on gender does not adequately address that the social expectations placed on men and women have a strong influence on career choices and aspirations (Messerschmidt et al. 2018).

2.4.3 Postfeminism

More generally, some aspects of postfeminist discourses also theorize on gendered differences in work. Whilst the definition and use of postfeminism is contested amongst scholars (Banet-Weiser, Gill and Rottenberg 2019), a general understanding positions the

approach as an investigation of self-moderation tactics that can be utilised by women to overcome traditional barriers in the workplace (Rottenberg 2014). For example, Gill and Orgad (2018) highlight the increased importance of resilience for women whilst Hakim (2010) challenges traditional feminist discourses to assert that women possess erotic capital which can be used for influence in their career. In parallel, neoliberal feminist theory is articulated by Rottenberg (2014 p 420) as the elevation of a modern woman who "disavows the social, cultural and economic forces producing this inequality, but also because she accepts full responsibility for her own well-being and self-care, which is increasingly predicated on crafting a felicitous work–family balance based on a cost-benefit calculus". Such discourses place the onus of investigation and change with the individual rather than at a societal level.

As such, theories of the self are generally dependant on the assumption that men and women are equally welcome to take on either the caretaker or breadwinner role, however criticisms of such theories argue this is not necessarily the case. Indeed, gender expectations can have a negative impact on both men and women who do not align their career goals with the male-breadwinner female-homemaker paradigm. For example, Pedersen (2015) found in an exploration of a popular online parent support forum called Mumsnet that men experience 'gatekeeping' tactics from others within the community and therefore do not always disclose that they are male. The trend of negative reinforcement and barriers to acceptance for fathers wishing to take on a greater role in parenting extends to benefits awarded by the government which provides mothers with fifty-two weeks of leave while new fathers are entitled to two weeks (MyGovScot 2019). Some provisions exist for partners to transfer their leave entitlement; however, this does not ameliorate the issue of equal access for mothers and fathers. Thus, the way in which parental leave is legislated reinforces the role of the mother as primary caretaker, which studies show is a catalyst for gender disparities in labour participation rates and pay (Hardill and Watson 2004). As such, external assumptions of gender and parenthood inform individual career choices and the way in which men and women choose to divide domestic duties in their partnership.

2.5 Diversity management frameworks

Organisational efforts to encourage and support workers from a variety of backgrounds spur from altruistic and business-orientated motivations (see section 1.3) as well as wider social and legislative pressures to do so. Within the UK, such efforts are commonly focused on three areas: equality, diversity and inclusion (Èzbilgin 2009). Whilst the definitions of such terms in relation to EDI management continue to shift amongst academic experts (Lenard et al. 2014, Lagerberg 2015, Atiyah 2016, Buchanan and Huczynski 2017, Julian and Ofori-Dankwa 2017), a general understanding of each term can be established for the purpose of this study. First,

equality practices are generally considered to include any organisational actions taken to ensure compliance with anti-discrimination laws and regulations. In the UK, this would include, for example, ensuring that reasonable accommodations are made for disabled employees or the annual disclosure of gender pay gap reporting. Equality initiatives similarly address initiatives taken to ensure legal compliance for all protected groups (i.e. gender, race, disability status, religious beliefs, age and sexual orientation).

Next, diversity efforts generally focus on the acknowledgement and celebration of the business benefits associated with having employees from a wide range of backgrounds (i.e. gender, race, class, ethnicity, religion, disability status, etc.) (Konrad, Prasad and Pringle 2006). This generally includes organisational efforts to strategically recruit diverse workforces and raise the profile of minority worker groups through networking opportunities, speaker series featuring minority role models and the celebration of diversity in alignment with social awareness activities such as international women's day, LGBT pride month and Black history month. Konrad (2003) further clarifies that whilst diversity research has increasingly come to the fore, the field must continue to specifically position itself as an investigation of marginalised groups systematically underserved through traditional power dynamics rather than any group which is not statistically represented in the majority.

Finally, inclusion practices acknowledge that historically marginalised workers continue to experience barriers to retention in the workplace due to organisational norms which either implicitly or explicitly favour individuals from a singular background (i.e. white, middle to upper class males). Firms seeking to minimise such barriers first must gather data on the specific needs of workers who are not being retained or promoted at the same rate as others and correct any organisational factors contributing to this discrepancy (Konrad 2003). Inclusion initiatives encompass training programmes for management and recruitment teams, minority mentorship programmes and people-centred benefits systems which take an individualistic approach to balance the needs of each employee with the needs of the firm (i.e. flexible and remote working, childcare stipends, wellness packages, etc.).

EDI research generally spans investigations of the impact of EDI strategies on engendering diversity as well as the impact of workforce diversity on wider business outcomes (Buchanan and Huczynski 2017). As introduced in chapter one, there are several benefits associated with demographical and cognitive workforce diversity (see section 1.3) and varying degrees of impact on the diversity and business goals of an organisation. It must be noted that whilst there is a strong base of evidence which suggests that companies can benefit from workforce diversity, there are some academics who have been unable to confirm such benefits and still others which highlight key drawbacks associated with workforce diversity (Ionascu et al. 2018). The remainder of this section will go on to outline key literature regarding EDI management and the evaluation of EDI measures.

2.5.1 EDI management

The strategic decision for businesses to manage the attraction and retention of workforce diversity requires an analysis of their specific EDI goals, the current organisational status in relation to those goals and the correct selection of initiatives to fully address each issue. Generally, EDI goals are set to address objectives to meet legal requirements, increase business operational and financial goals and to align company practices with social or moral objectives as demonstrated in the following figure.

Factors influencing the adoption of EDI

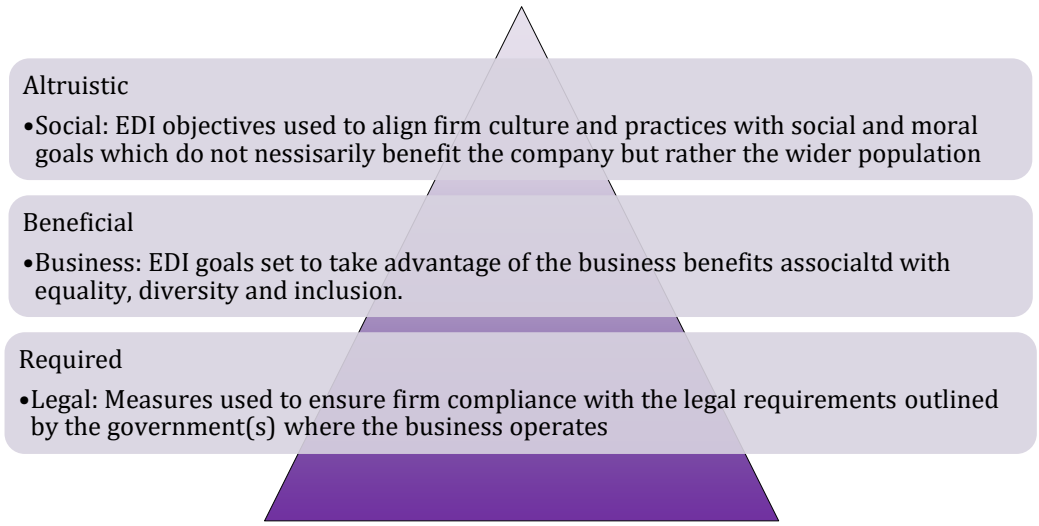

Figure 9 source: author generated:

In some respect, all firms are compelled to consider EDI to the extent that they adhere to anti-discriminatory litigation as established by the countries in which they do business. Within the UK, firms over 250 employees are subject to more rigorous equality measures as well (Equality Act 2010). Thus, organisations often include objectives which specifically seek to minimise legal risk in regards to equality, diversity and inclusion. These objectives ensure that there are policies and procedures, as well as designated personnel, assigned to meeting legal requirements such as annual disclosure of gender pay gap data, education of diversity issues for key personnel (namely managers and recruitment teams), and the reduction of organisational factors which could lead to mediation or litigation of discriminatory practices. In this sense, the legal requirements themselves represent the EDI goals of the firm. For example, legally-instigated goals can include the submission of employee data to government entities (such as pay gap data) by the designated timeline and the application of internal checks to maintain that the firm is operating within the legal definition of a fair and safe workplace (Konrad, Prasad and Pringle 2006).

Organisations additionally set goals which seek to maximise the financial benefits associated with workforce diversity such as increased innovation, diverse knowledge of new customer bases and higher retention of minority workers. Indeed, a study conducted by McKinsey (2017)

found that companies within the highest levels of gender diversity in their executive team were 21% more likely to outperform their industry peers in short-term financial goals (represented by earnings before interest and tax margin) as well as 27% more likely to outperform on long-term value creation. Similarly, the study found that firms with the highest levels of gender and ethnic diversity were 29% more profitable than industry peers (Ibid.). As such, firms set EDI goals which seek to measure the impact of diversity initiatives through reduced employee turnover costs, new and increased revenue streams through diversified customer pools and industry-leading advancements in innovation and technology.

Finally, organisations also seek to manage EDI within their organisation as a social or moral imperative which is essential to their company culture. Such initiatives are driven from goals to attract a diverse workforce, increase overall employee satisfaction and retain historically marginalised workers through accurately meeting the needs of diverse work groups and workers. For example, Brown (2018) found that minority retention must focus on inclusion efforts (rather that equality and diversity) which first identify the needs specific to minority groups within the organisation and then seek to meet those needs by segmenting responses and organising effective initiatives to meet them. Moreover, there is an importance in measuring the success of such initiatives, regardless of the legal, financial or moral imperatives which drive them to ensure that EDI initiatives are delivering effective results.

2.5.2 EDI measurement

Along with academic discourses regarding the importance of workforce diversity, and the ways in which to build workforce diversity, there is some debate over the effective measurement of those methods once they have been established (Dreachslin and Lee 2007, Hamdani and Buckley 2010, Ricco and Guercci 2014). Some academics assert that the evaluation tools presented in programmes such as lean six sigma (a popular tool for process improvement which aims to detail each step of a particular process and identify areas where the process is delayed as well as areas where the process can be streamlined) are the most efficient way in which to monitor diversity goals and to ensure that diversity metrics are monitored as regularly as wider business metrics (Dreachslin and Lee 2007). Others argue that the evaluation of EDI programmes must consider less quantifiable benefits, such as consumer goodwill and increased legitimacy, which cannot be captured effectively through traditional monitoring systems (Hamdani and Buckley 2010). For example, Ricco and Guerci (2014) propose a three-phase change management system for EDI efforts to address the implementation gap often experienced by organisations. First, the organisation must strategize to change the firm culture at the leadership level, then establish the tactics to implement EDI programmes at the managerial level and finally operationalise initiatives in the day-to-day business practices of the organisation (Ibid.) Whilst the evaluation tool is purposefully vague and flexible so as to be

customised based on firm need, there remains a gap in EDI evaluation literature which both allows for unique evaluation of difficult to quantify results and approaches which seek to assimilate diversity metrics into wider firm success measurements (Yadav and Lenka 2020).

2.5.3 EDI initiatives and firm culture

As introduced in chapter one, studies have shown there is a positive link between workforce diversity and firm performance. Thus, organisations are incentivised to integrate diversity and inclusivity into their culture through the management of workforce diversity practices. A growing number of management texts have begun focusing on managing the needs of a diverse workforce and integrating equality and diversity into existing organisational frameworks in order to attract and retain workers (Buchanan and Huczynski 2017). Indeed, studies show that firms are placing greater importance on promoting diversity in an effort to align with social and political pressures to do so (Lagerberg 2015, Julian and Ofori-Dankwa 2017) and to capitalise on the benefits of a heterogeneous workforce (Kossek, Lobel and Brown 2006, Lenard et al. 2014, Atiyah 2016). Diversity management programmes often incorporate an assortment of initiatives which focus on supporting diversity within the workforce and reducing discrimination (Kalev, Dobbin and Kelly 2006). The following subsections will address the ways in which firms tackle these goals and the effectiveness of such tactics.

2.5.3.1 Reducing discrimination

Organisations often tackle diversity issues through a targeted approach to increase workers within a specific demographic subset, such as technology firms actively seeking women for skilled technical positions (Coe, Wiley and Bekker 2019) and conversely medical practices actively seeking men for nursing positions (Meadus and Twomey 2007). Initiatives often include a re-branding of employment websites, targeted recruitment and alterations to the hiring process (Kalev, Dobbin and Kelly 2006, Dobbin and Kalev 2016). In this sense, hiring can take on an identity-conscious perspective, wherein diversity is managed and encouraged, or an identity-blind perspective, wherein the firm believes that in hiring the best person for the role and respecting the legal obligations regarding equal opportunities, diversity will be achieved proportional to the pool of applicants (Konrad and Linnehan 1995). However, whilst research shows that identity-conscious hiring practices can have a positive effect on the diversity of a workforce, additional effects for minorities hired into a homogenous culture can pigeonhole them into the role of a diversity hire and can adversely affect their worker experience (Kravitz and Platania 1993, Lafuente and Vaillant 2019).

Similar to changes in the recruitment process, firms may also incorporate changes to their company culture through the implementation of EDI policy (Dobbin and Kalev 2016) and initiation of grievance systems which allow workers to report sexism, harassment and

discrimination (Kalev, Dobbin and Kelly 2006, Beham, Straub and Schwalbach 2011). These systematic and wide-ranging changes are made in an effort to increase retention of minority workers through the creation of an inclusive workplace and by giving workers the opportunity to report incidents which do not align with an inclusive culture.

Some studies have found similar approaches to have limited impact as workers often ignore top-down initiatives which seem ancillary to core business duties or are counter-intuitive to historical directives within a firm (Evans and Glover 2012). For example, Kalev, Dobbin and Kelly (2006 p. 592) found that line managers often need to "juggle competing demands to meet production quotas, financial targets, and the like and therefore find difficulty in incorporating new initiatives". Such studies highlight the importance of policy integration with existing practices as well as high-level sponsorship for EDI initiatives to effectively make change.

Reporting policies for harassment and discrimination face particular scrutiny due to their underutilisation (Vijayasiri 2008). Those who do report incidents often find that it is difficult to establish enough evidence for action to be taken against the perpetrator (McLaughlin, Uggen and Blackstone 2017). Thus, victims who choose to report often do not find satisfactory outcomes.

Kalev, Dobbin and Kelly (2006) conclude that the successful implementation of EDI policies is dependent upon a dedicated group of workers primarily tasked with diversity work as well as a firm-wide culture shift wherein diversity issues are established as the responsibility of every worker. A subsequent study conducted by Dobbin and Kalev (2016) found that diversity initiatives in the US financial industry have successfully increased the Hispanic worker population however this has led to a reduction of white women and black men concurrently, suggesting that diversity initiatives may continue to marginalise some minority groups in favour of others. Thus, diversity recruitment and retention initiatives must take an integrated and holistic approach to avoid competing diversity initiatives.

The relationship between managers and workers has often been cited to have a crucial impact on an individual's career satisfaction and aspiration (Rynes and Rosen 1995, Kim 2002, Firth et al. 2004). Of equal importance, managers often act as gatekeepers to career advancement opportunities (Barker 1993), mentorships (Williamson and Foley 2018) and access to employee benefits such as flexible working (Higgins, Duxbury and Johnson 2000). Consequently, bias amongst managers has been an area of critical focus through the implementation of unconscious bias and diversity sensitivity training (Paluck and Green 2009, Dobbin and Kalev 2016). Unconscious bias training has risen quickly in popularity and is used to raise awareness of the ways in which individuals may be influenced by preferences and contribute to sexism and racism in the workplace unknowingly (Beham, Straub and Schwalbach 2011). Noon (2018 p 205) encourages a critical approach to the evaluation of such trainings, highlighting that "the turn towards the racist individual potentially distracts from

the long-standing issues of structural disadvantage and overstates the agency of organisational members". Similar critiques are echoed by researchers who question the impact of unconscious bias training on the ability to make meaningful change at the individual and organisational levels (Kulik, Perry and Bourhis 2000, Kowal, Franklin and Paradies 2013, Bezrukova et al. 2016). Kalev, Dobbin and Kelly (2006) come to a similar conclusion that management training programmes are the least effective method of encouraging diversity. Moreover, while diversity training programmes have the potential to challenge stereotypes and raise awareness of unconscious bias, they can also "reinforce stereotypes and elicit reactance among the most prejudiced participants" (Paluck and Green 2009 p.357). It can be reasonably concluded that additional research is needed to evaluate the outcomes of training programmes around diversity and that current research suggests low levels of efficacy in this method.

2.5.3.2 Supporting diversity

In addition to initiatives meant to minimise discrimination, a common way in which firms look to support individuals with minority status within the workplace is through the implementation of networking and affinity groups. Networking has been identified as a primary way in which an individual identifies opportunities for career progression (Forret and Dougherty 2004), yet individuals who fall outside the majority demographic are often excluded from 'old boys networks' (Durbin and Tomlinson 2010, McDonald 2011, Brass 2017). Indeed, research shows that network-based recruitment often favours men over women (Fernandez and Rubineau 2019). Moreover, the ICT industry, once considered a promising area for gender equality, continues to show evidence of gender-marginalising networks (Gamba and Kleiner 2001).

As such, minority workers often feel isolated and have limited interaction with individuals within the same demographic group. Thus, purposeful gatherings for minorities within an organisation can increase visibility of such individuals and allow informal mentorship relationships to grow (Ridgeway 2011). There is some evidence that networking groups can increase retention rates for minority workers at the managerial level, although the effectiveness is modest and ranges across groups (Friedman and Holtom 2002).

Similarly, research suggests a need for more robust professional development support, particularly for women re-entering ICT after a career break (Bandias and Warne 2009). This is specifically important for women in technical positions as the profession sees rapid change, creating barriers to re-entry for those who take career breaks, such as extended maternity leave (Webster 2003). Indeed, Valenduc (2011 p 486) highlights that the career paths of women in ICT vary significantly from men, where "many women entered the ICT professions from other occupations in the same organisation, after re-training, or resulting from a reconversion process (retraining, reorientation) in the labour market". Thus, organisations must

take gendered differences in training into consideration when seeking to retain female ICT workers.

Some critics warn that equality initiatives which highlight a ‘female-friendly’ culture might have a negative effect on others. The effect is two-fold. First, men may feel marginalized or ignored in equality and inclusion efforts, resulting in the marginalization of equality efforts as a ‘female concern’ (Flynn 1999, Connell 2003). Other discourses suggest that gender equality may be more effectively reached through presenting the business case for diversity work (Crane, Matten and Spence 2008) or through identifying ways in which to champion issues where gender differences persist for both men and women (Javaid 2018). A notable example exists in United States legislation Moritz v. Commissioner of Internal Revenue (1972) wherein a male defendant successfully sued for a caretaker tax deduction previously only accessible to women. In arguing that men were equally able to take on caretaker duties at the Supreme Court level, precedent was established that discrimination on the basis of gender was unconstitutional. Equal rights advocates went on to use this precedent to fight discrimination cases for female defendants where previously this had been unsuccessful.

Second, changes to procedures intended to increase the number of women in a particular workforce could have an adverse effect on other protected groups (Linnehan and Konrad 1999, Apfelbaum, Stephens and Reagans 2016). An interesting example comes from the technology industry where there is a strong push to increase the number of women in the workforce. Similarly, technology roles have been identified as strong opportunities for some individuals on the autistic spectrum (Robertson and Ne'eman 2008). Whilst there is evidence of firms incorporating changes to their recruitment and hiring from both of these groups, some changes made to create a gender-inclusive workforce such as highly relational values-based ‘culture interviews’ have had negative effects on autistic interviewees who excel at technical work but may have trouble relating meaning to others in a high-stress interview situation (Dipeolu, Storlie and Johnson 2015, Wehman et al. 2016). Whilst this has encouraged hiring teams to consider individual values in tandem with technical skills, it has the potential to create bias against both men and women who do not perform well in high-stress interactive settings such as interviews.

Additionally, Lyngsie and Foss (2016) warn that limited extant diversity in an organisation’s senior leadership and management positions can lead to a lack of senior support and an expectation placed on minority leaders to champion such activities. Indeed, gender imbalance at the leadership level can also impact the quality of minority sponsorship and mentorship opportunities (Friedman and Holtom 2002). Whilst mentoring programmes are an often-cited tool for women working in ICT seeking to address career challenges and feelings of isolation, the lack of women in leadership roles limits the availability of such opportunities, particularly for those seeking female mentors (Orser, Riding and Stanley 2012).

The efficacy of mentorship and networking opportunities between women has acted as a key area of research for women's career progression in technology roles, indicating that exposure to women who have succeeded increases an individual's ability to foresee a similar outcome for themselves (Cozza 2011, Drury 2016). However, it is important to note that mentorship opportunities vary in effectiveness, with research indicating that informal mentorships and mentorships with a high-ranking member of staff being the most beneficial (James, Rayner and Bruno 2015, Drury 2016). Thus, the efficacy of EDI initiatives such as minority networks and mentorships can be limited by the way in which they are enacted within the organisation and furthermore must consider potential negative impacts on those asked to participate, other marginalised groups, and even gender-majority workers.

2.6 Summary and implications for the study

The review of literature in this section introduced traditional approaches to organisational theory and the feminist critiques of such approaches. Theories of gender and work were explored at the macro, meso and micro levels and organisational approaches to diversity and equality management was presented. In summary, the following key implications were noted in the selection of the theoretical framework for this study.

1. Feminist theorists argue that the historical absence of women in the organisation of work, as well as in the formation of theories which have informed the organisation, has led to a systematic marginalisation of female workers.
2. Macro, meso and micro levels of research on gender and work are interconnected and therefore equally necessary for the research to make an informed selection of a specific theoretical lens.
3. Whilst a myriad of tactics have been used to support workforce diversity and discourage discrimination based on legal, business and social firm imperatives, EDI research suggests there is a need to further analyse the efficacy of such tactics in relation to the goal intended by the firm.

As such, the investigation of theories presented in this chapter, paired with a review of academic approaches to gender studies in the ICT sector, led to the determination that Acker's (1990) gendered institutions theory, ideal worker narrative, and Eagly and Karau's (2002) role congruity theory were all key to achieving the aim of this piece of research. Whilst studies adopting some aspects of gendered institutions in their investigations of gendered experiences in ICT are established, extant research raises important questions regarding the holistic effect of organisational substructures on the worker experience. Furthermore, theories regarding the ideal worker and its impact on an individual's efficacy and aspiration must be articulated and

incorporated into the theoretical model to properly evaluate the impact on workers beyond a gender binary.

As such, a new theoretical framework has been constructed which adopts aspects of each critical theory to further understand the relationship between the role of the organisation in the creation of the ideal worker narrative as well as the way in which that narrative marginalises workers outside of the ideal. The following diagram is a visual representation of the theoretical framework informed by the literature review and used to interpret the data collected in each case study firm. Organisational influences introduced in Acker's (1990) gendered institutions theory, specifically culture, worker discourses and job divisions are identified as contributing to the creation of an ideal worker narrative within the context of a particular firm. This narrative, in turn, can be compared to the experiences of workers based on their proximity to the ideal worker narrative rather than through the male/female dichotomy. Finally, social factors are represented as aspects out with the organisational focus which also influence the gendered experiences of workers.

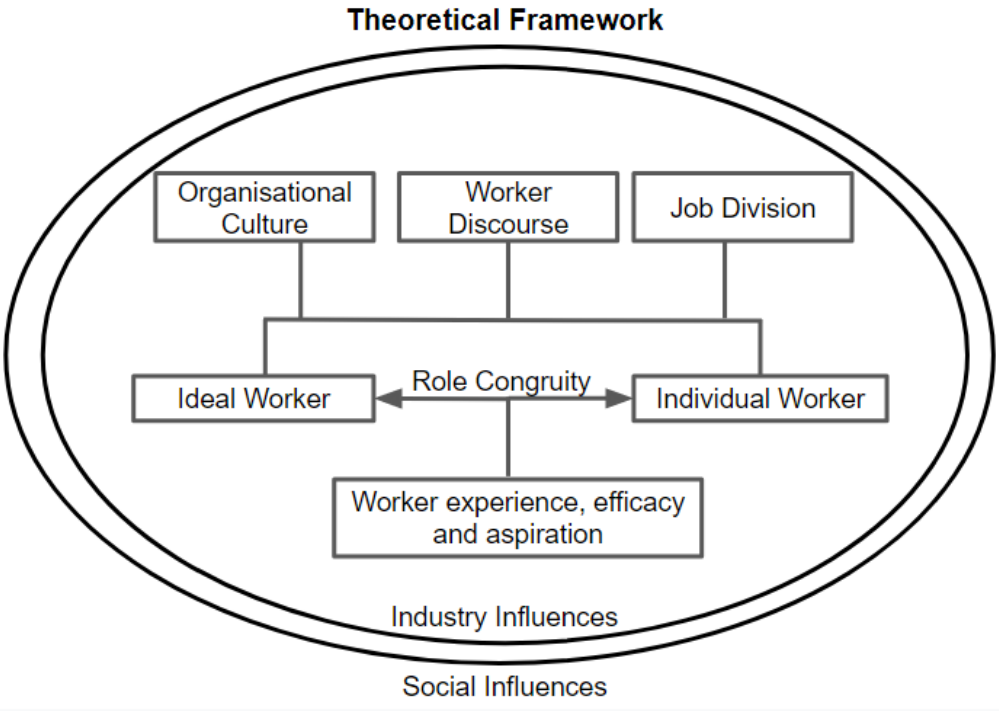

Figure 10 source: adapted from Acker 1990, Eagly and Karau 2002

Aspects of Acker's gendered institutions model were adopted for this study as the framework provides a strong lens through which to observe both explicit and implicit biases at the organisational level (Rutherford 2001, Liff and Ward 2001, Lewis and Humbert 2010, Dugan et al. 2013, Cross, Linehan and Murphy 2015, Brands and Fernandez-Mateo 2016) while the ideal worker narrative was assimilated into the framework as a means of providing a more detailed understanding of the spectrum of marginalisation and idealisation which is influenced by a number of characteristics in addition to gender (Bell and Nkomo 2001, Sanchez-Hucles

and Davis 2010, Gu 2016). Acker herself addresses the need to refocus gender and organisation research to more fully understand the impact of characteristics such as race and class (Acker 2006) whilst scholars such as Connell (1995) highlight the need to understand the nuances of masculinities as well. Through a more thorough understanding of the ideal worker narrative, the impact on individual workers' experiences, career aspirations and self-efficacy can be understood beyond the gender binary.

Finally, it was necessary to illustrate that the findings derived through this theoretical lens are bounded by wider social factors. For example, the expectations placed on tech workers vary from those placed on care workers and cultural norms and legislation vary based on the physical location of the worker. Thus, wider social influences as well as industry influences are depicted as encompassing the framework and act to focus the findings of this study. The next chapter will provide an overview of the methodology and methods chosen for this research project and introduce the Scottish ICT firms which participated as case study subjects.

Chapter Three: Methodology

3.0 Introduction

The previous chapter provided a synthesis of literature which has informed the theoretical framework and methodological approach for this research project. In this chapter, a detailed account of the methodology as well as the methods used to execute the project will be given. The chosen methods have been selected as the most effective means of achieving the study's purpose, and will facilitate both a theoretical and practical contribution to the existing body of knowledge regarding gender and organisational theory. Through an investigation of gendered substructures and firm-specific ideal worker narratives, this project can provide informed and evidence-based suggestions for firms looking to create an inclusive environment where a diverse set of skilled workers are incentivised and supported throughout their career (RO5).
This chapter will begin by describing and justifying the methods used to approach the research questions effectively. It will then give an overview of the research sample and the criteria for case study selection. Next the chapter will detail the information required to successfully address each research question, the design of the study and data collection as well as the methods used to store, manage and categorize data. It will go on to describe the theory and technique used for data management and analysis and introduce the case study firms selected for this study. Finally, the chapter will address the ethical considerations for the study as well as the limitations associated with the project.

3.0.1 Aim, objective and research questions

As detailed in chapter one, the aim of this study is to critically investigate gendered organisational barriers in the Scottish technology industry in an effort to understand the impact on workers who fall outside of the ideal worker narrative and find effective methods for firms to retain a diverse workforce. This is done in an effort to understand the impact on workers who fall outside of the ideal worker narrative. Knowledge gained from the study will help inform effective methods for firms to retain a diverse workforce. To achieve this aim, five objectives were formulated as reminded in the table below.

Research objectives	
RO1	To establish the validity of claims that gender differentially influences the experiences of workers in technology firms in Scotland through an updated framework for the analysis of those potential differences in a contemporary context.
RO2	To assess to what extent there are specific expectations of an ideal worker with preferred qualities, demographics and characteristics in Scottish technology firms.
RO3	To evaluate the extent to which the gendered substructures of a firm can affect worker behaviours, aspirations and success in the context of the Scottish technology industry.
RO4	To establish how firms are currently working to create more equitable workplace cultures for men and women in the technology industry.
RO5	To provide recommendations on effective strategies a firm can employ to recruit and retain a skilled, diverse workforce.

Table 4 source: author generated

To achieve these objectives, the following research questions were used to guide the data collection.

1. Do firms in the Scottish ICT sector exhibit signs of gendered barriers to workforce participation?
2. How can the term 'ideal worker' be described within a particular firm in the Scottish ICT industry?
3. How does the gendered substructure of a gendered organisation affect the behaviours of men and women within the organisation?
4. How do gendered substructures affect the self-efficacy and aspirations of workers based on their gender?
5. What steps are firms currently taking to create equitable opportunities for both men and women in recruitment and retention?
6. What can organisations in the Scottish ICT sector do to become a more gender-inclusive environment?

3.0.2 Research Design

This study adopts a descriptive research design wherein a study is conducted to examine a set of research questions within a set of clear boundaries (Shields and Rangarajan 2013). Some theorising on gender performativity and the ideal worker has been done across male-dominated industries, however there is a need for additional research based on the uniqueness of the industry and culture being examined (Kelan 2009). As is implied in the name, descriptive research describes a study that "is focused and detailed, in which propositions and questions about a phenomenon are carefully scrutinized and articulated at the outset" (Tobin 2010 p

289). Whilst both explanatory and exploratory approaches were considered, both were determined to be less suited to the aim of this research project. It was determined through an extensive review of existing literature that there was a groundwork of relevant theory and empirical exploration to build upon, proving a lack of applicability for an exploratory approach (Streb 2010). Similarly, an explanatory approach requires an adaptive structure to be applied to the data collection process, aligning more with a grounded approach to theory building (Norlyk and Harder 2010). As such, it was determined that existing studies regarding gendered institutions and the ideal worker narrative in the ICT sector adequately prepared the researcher's data collection plan and thus considerable re-structuring based on the data analysis would not be required. A summation of key differences for each approach is included in the table below.

Key features in research design selection	
Approach	**Determinants of design selection**
Exploratory	● Primary investigation of an under-researched and under-theorized phenomenon ● Tests a new hypothesis in a specific research environment ● Preliminary step to developing theory in a new area of investigation ● Often applied to difficult to access case study subjects
Explanatory	● Explores and describes phenomena ● Explains causal relationships and develops theory ● Follows an outline that indicates the areas for study exploration ● Outline can be altered during data collection based on evidence collected
Descriptive	● Investigation of a sample in detail and in depth based heavily on established theory ● Study boundaries are clear and well-articulated ● Focused and detailed ● Advances theory development

Table 5 source: adapted from Streb 2010, Harder 2010 and Tobin 2010

The theoretical framework adopted for this study provides a groundwork for understanding why there are differences in the lived experiences of men and women in the workplace centred around a qualitative case study research structure (Tobin 2010). This approach aligns with an in-depth investigation of a case study with clearly established boundaries for a more holistic set of findings related to the research aim (Cooper and Schindler 2003). Perhaps most importantly, a descriptive approach provides a structure built upon theory which then applies the theory in a specific context to advance its development.

A descriptive approach was moreover appropriate for this study as the key theories applied to this research are adapted to better reflect three key aspects of gender research within the realm of the Scottish ICT industry. First, the study seeks to capture gender stereotypes prevalent in the sector and decouple gender from a binary understanding. Second, the adapted

framework challenges assumptions of alignment between gender and character traits through the incorporation of the ideal worker narrative. Finally, the study seeks to find ways to incorporate the overlapping disadvantages experienced by some women based on additional demographical characteristics. This is cumulatively demonstrated in the following figure.

Advancing theory through descriptive empirical applications

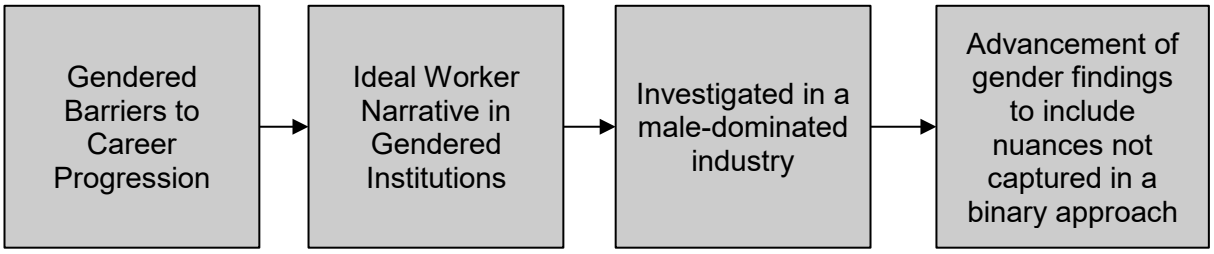

Figure 11 source: author generated

Based on the goal of presenting a nuanced understanding of the study findings regarding gender and the availability of well-established theory, a descriptive approach presented itself as the most appropriate choice.

3.1 Epistemological Positioning

In constructing the study design, it was pertinent to determine the proper philosophical school of thought which would most accurately seek to achieve the stated aim. This is understood through the selection of an epistemological positioning, or a selection of a particular school of knowledge derivation to be applied to a given research project (Bryman and Bell 2011). A thorough examination of traditional schools of thought and the way in which they have been applied to similar studies was undertaken as “methods are not simply neutral tools [but] are linked to the ways in which social scientists envision the connection between different viewpoints about the nature of social reality and how it should be examined” (Ibid. p 4). Thus, the researcher’s epistemological positioning provides a strategic link between the observation of phenomena and analysis.

Accordingly, the tenants of a social constructivist positioning were compared to a positivist approach. Social constructivists “tend to be skeptical of empiricist foundations of knowledge and of claims of objectivity and value neutrality of scientific methods. They particularly question the existence of an external and already determined world and social reality, independent of any human knowledge, action, or activity” (Maréchal 2010 p 223). Surrounding circumstances such as where participants live, work and interact with others is also considered in the interpretation of data (Berger and Luckmann 1966). Thus, a social constructivist positioning argues that phenomena can be understood through the collection of data from the social actors

involved and that “attention to detail, to complexity and to the particular situation’s meanings are crucial” in the collection and analysis of data (Brand 2009 p. 433).

In contrast, positivist approaches seek to formulate a hypothesis regarding an observed phenomenon to be tested through an objective collection of data (Bloomberg and Volpe 2016). Indeed, regarding the positivist approach, Hasan (2016 p. 319) describes that “science deals with the fact and the value belongs to an entirely different order of discourse, which is beyond the remit of science”. Thus, positivists seek to understand facts as indisputable and do not attempt to extrapolate meaning (Ibid.). Positivism is highly associated with quantitative data collection methods and the use of close-ended questions which minimise diversity in participant responses. As such, positivist studies with adequate sample sizes are often considered generalizable, however do not capture the nuances of perspectives of their participants. The table below provides an overview of the differences between epistemological positionings to summarise the key impacts on method selection.

Impacts of epistemological positionings on method selection	
Social Constructivism	**Positivism**
Key features	
Places importance on the interpretation of events and the theory that reality is not static but rather interpreted through a lens and given meaning by the interpreter.	De-emphasizes the interpretation of meaning from participants. Presents that there is only one reality which can be investigated through the scientific method.
Data collection methods	
Use of open-ended data collection methods which provide research participants scope to respond to themes and researchers to observe and interpret data through methods such as semi-structured interviews and ethnographic studies.	Often associated with ‘hard’ sciences and quantitative data collection methods such as surveys and statistical data. Closed-ended questions which do not allow for participants to expand upon their response or the researcher to interpret the meaning.
Role of the researcher	
The role of the researcher is considered in both the data collection and analysis processes and disclosed in the interpretation of the findings.	Data is often measured numerically to show quantitative trends of the phenomena under investigation. The role of the researcher in interpreting the data is minimal.

Table 6 source: author adapted from Maréchal 2010

After consideration of both positivist and constructivist approaches, this research project was created under the constructivist paradigm which states that the complexities of the social world are “experienced, interpreted, and understood in a particular context, and at a particular point in time” (Bloomberg and Volpe 2016 p 41). The constructivist approach was deemed most

appropriate for this study as participant perspectives and the specific way in which they describe their experiences within a masculinized organisation is impacted by their past experiences and how they interact and are interacted with in the world. This approach is well aligned with research objectives two and three which seek to understand both the firm perspective as well as the worker perspective regarding the ideal worker narrative and the implementation of EDI efforts. As such, the reality of the organisation is articulated differently by the firm, marginalised workers and ideal workers.

Furthermore, the constructivist epistemology recognizes that the social context surrounding individuals and firms at the specific time a research project is conducted has an impact on the way in which individuals interpret certain events or frame their experiences. For example, in the case of the study, a recent implementation of the Equality Act 2010 has required organisations within the UK with over 250 employees to publish gender pay gap data, which is closely related to the focus of the research. For some, this legal step to increase transparency is seen as a positive step towards gender equality whilst others may interpret the results as an indicator that gender equality has yet to be achieved and this may influence how they are experiencing the phenomenon studied. Social constructivism allows researchers to consider and interpret social phenomena specific to the historical, cultural and circumstantial context in which it is placed.

Finally, current research on gendered institutions reveal that biases related to gender in the workplace, the focus of this study, have become increasingly less blatant, with higher levels of unconscious biases and hidden biases impacting workers rather than explicit instances of gender discrimination. As such, instances of sexism, harassment, microaggressions and discrimination may be interpreted differently by different people and this may impact the way in which they are shared with the researcher. In line with a constructivist positioning, it was therefore necessary to approach the interviews in way which allowed the researcher the flexibility to delve into certain aspects shared to better understand the positioning of the interview participants. As such, a constructivist approach allowed the researcher to leverage the most effective data collection methods for this study.

3.1.1 Qualitative Approach

As the research approach must be tied to the aim and objectives of the project and effectively facilitate rich data gathering, an investigation of both quantitative and qualitative methods was conducted in order to make a well-informed choice regarding the most logical option. Antwi and Hamza (2015) highlight that both approaches have been used in the social sciences and have been the topic of much debate between academic ‘purists’. A qualitative approach is often aligned with interpretivism and allows for data collection in local context “to find the sequences (‘how’) in which participants’ meanings (‘what’) are deployed (Silverman 2011 p

17). Research employing a qualitative approach posits that the real world is complex and cannot always be reconstructed through the scientific process. In contrast, quantitative research is highly aligned with positivist approaches and "is frequently depicted as presenting a static image of social reality with its emphasis on relationships between variables" (Bryman and Bell 2011 p 410). Quantitative studies are often highly structured and do not allow for contextual evidence or elaboration by participants, however can leverage large sample sizes for greater generalisability for study findings (Antwi and Hamza 2015). The following table provides an overview of the key differences between the two approaches when applied to business studies.

Methodological paradigms in business research		
	Qualitative	**Quantitative**
Methodological alignment	Interpretivist paradigm	Positivist paradigm
Purpose	Exploratory/Descriptive	Explanatory
Data collection	Interviews, focus groups, ethnography (smaller sample populations)	Surveys, financial data sets (larger sample populations)
Data analysis	Thematic	Statistical

Table 7 source: adapted from Antwi and Hamza 2015

Whilst both qualitative and quantitative approaches have merit, this study's descriptive approach informed by a constructivist epistemological positioning necessitated a qualitative research design. It is understood that the complexities of how individuals interpret their experiences is an important aspect of this research and thus must be explored through semi-structured interviews rather than a more static data collection method and bolstered through additional sources to provide insight on firm culture and procedures.

3.1.2 Deductive Reasoning

Qualitative research can adopt either deductive or inductive reasoning towards the selection of research methods which then informs the way in which a study is approached. Specifically, deductive theory will frame data collection around a theoretical framework, often viewed as a progression from the general to the specific, whilst inductive research will begin by investigating a phenomenon, progressing from the specific to the general (Ketokivi and Mantere 2010). Whilst often cited as polar opposites, it is rarely linear but rather cyclical wherein the researcher identifies the most effective starting point based on the available data and existing research as demonstrated in the figure below (Boyatzis 1998).

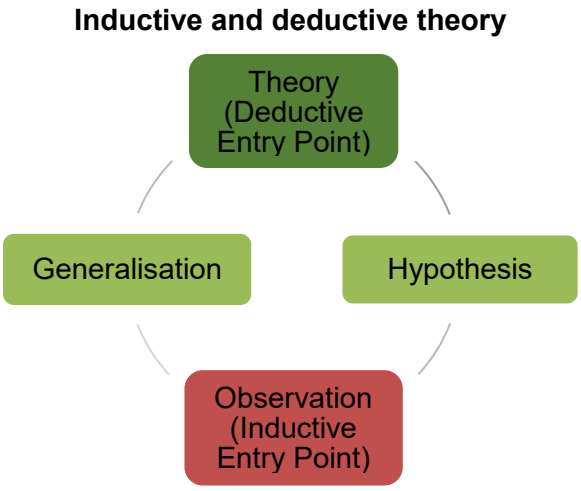

Figure 12 source: adapted from Boyatzis 1998, Ketokivi and Mantere 2010

Deductive reasoning is rooted in theory which is used to form a set of objectives then explored through empirical data collection. The theory is tested against real world data and conclusions are drawn to confirm, revise or reject the theory (Evers and van Staa 2010). Alternatively, an inductive approach can be adopted in research projects looking to create theory through the observation of phenomena and collection of data. Data collection in this process is often more open-ended and modified as the data is analysed to form generalisations at the conclusion of the study (Crabtree and Miller 1999).

This research study is heavily grounded in existing theory regarding gender and organisational behaviour and thus adopts a deductive approach. An extensive literature review was used to form a theoretical framework which then informed the data collection and analysis phases. As there is a body of research regarding the existing framework of gendered organisations which has been under-examined empirically, a clear area of entry for this project presented itself in the theory. However, in the vein of Evers and van Staa (2010 p 778) who argue "that it is best to perceive data analysis as an enterprise that is never entirely inductive or deductive in nature but rather a combination of both", this research project allowed for unique codes to emerge from the data collection as well. This allowed for critical themes to be captured which otherwise would not be categorised in the predetermined theory-based code set. Additionally, an inductive approach was used in the analysis of the pilot study to check for rigor in the deductive analysis and identify themes which may not have emerged. This was informed by Yin's (2018) guidelines towards ensuring rigor in case studies and will be further explored in section 3.6.1.

3.1.3 A Multiple-Case Study Design

Of the available research methods, the case study approach was the most suitable tactic for obtaining the data needed to appropriately describe the ideal worker narrative within gendered institutions from multiple perspectives. A case study is "an empirical method that investigates a phenomenon (the "case") in depth and within its real-world context, especially when the

boundaries between phenomenon and context may not be clearly evident" (Yin 2018 p 15). It is relevant for research questions attempting to examine how and why certain contemporary phenomena exist and the researcher requires no control over events (Cooper and Schindler 2003). A case study approach can adopt multiple methods of data collection across qualitative and quantitative approaches, as a means of garnering a holistic understanding of the case unrestricted by the boundary of a singular data collection method.

Eriksson and Kovalainen (2010) further specify that either an intensive or extensive case study research strategy can be adopted. An intensive strategy aligns with descriptive and explanatory aims wherein theoretical knowledge has been developed and is now being applied to a unique area of investigation (the case). Alternatively, an extensive approach seeks to develop theory based on the phenomena observed in a particular case and is more so aligned with a descriptive aim. The intensive case study approach was adopted for this project due to the descriptive methodology adopted.

Case studies are a common method of enquiry in business and management projects and are often used in the investigation of gender in male-dominated firms. A notable example includes Woodfield's (2000) case study of gender performativity in an ICT firm and the impact of an optimistic outlook on gender equality on the lived experiences of workers. A comparable study conducted by Kelan (2009) on the ideal worker narrative in two Swiss ICT companies approached the data collection process in a similar manner through researcher observation and worker interviews.

First-person experiences from employees within the ICT sector proved an important aspect of the case study structure for this research in line with research questions one and two, which require both the perspectives of the worker and the organisation regarding evidence of gendered substructures and the ideal worker narrative as well as questions three and four which delve specifically into the worker experience in relation to these narratives. The firm perspective was necessary to address the aspirational culture presented by the firm in relation to research questions one and two and to gather an understanding of the work undertaken by the firm to attract and retain a diverse workforce (reflected in research question five). In this way, the case study structure allowed for insights that could not be collectively derived from a singular method such as surveys, interviews or focus groups (Aaltio and Heilmann 2010). Building upon this foundation, this study has approached the data collection process through semi-structured interviews and document analysis.

Through an examination of the aim and objectives for this study, it was determined that a multi-case study approach would be both feasible and more appropriate than a single case study exploration. A tool that is employed often in business research, undertaking multiple case studies facilitates "the researcher to compare and contrast the findings deriving from each of the cases" (Bryman and Bell 2011 p 63). By investigating multiple organisations within a

singular industry and country, the evidence drawn across cases can provide a more robust analysis of the current state of affairs within the Scottish ICT industry. Specifically, it was necessary to examine multiple organisations to inform research objective five which seeks to identify the most impactful EDI methods for attracting and retaining a diverse workforce. As such, a replication design, wherein purposive sampling was used to select firms in an attempt to examine phenomena in similar settings across cases, was applied by establishing a significant set of findings within the first case study and then seeing similar environments for subsequent cases (Hak and Dul 2010).

With this goal in mind, it was essential to critically select the number of case studies to be performed for this study. Yin (2013) cautions that the primary goal of the case study approach which necessitates an in-depth data collection process and detailed description of the case should not be forgone in a multiple case study approach. As such, the exact number of case studies undertaken was determined upon completion of the pilot case study wherein the amount of time and data needed for a robust analysis of each firm was determined.

There is a lack of agreement amongst scholars on the number of case studies required for a multiple case study design, however aims to balance depth (within a case) with the wider study breadth (number of cases) (Morse 1994, Shakir 2002, Mason 2010). Yin (1994) suggests studies which aim to replicate the results across cases should aim for between three and four case studies when the difference between rival theories is low, differences between cases are minimal and the confidence level needed is low. Academic precedents in similar studies were consulted prior to determining the number of firms targeted for this study as presented earlier in this section. Scotland hosts approximately 120 medium and large sized ICT firms which employ the majority of Scotland's skilled ICT workforce (ScotlandIS 2018). This population was further narrowed in the purpose sampling process to ensure that participating firms could be considered best practice EDI firms in the sector. This selection was made as it was determined that firms at the forefront of EDI practices in the Scottish ICT sector would allow for an investigation of current initiatives used to attract and support workforce diversity and the extent to which they are effective across several sites of exploration. Whilst this presents a study limitation insofar as case study firms are less-representative of the industry average, this determination is necessary to map the current efforts being undertaken by ICT firms regarding EDI (RO5). Thus, a review of academic discourses and the data collection process of the pilot study determined that expanding data collection beyond three firms would not allow for a thorough investigation of each firm respectively.

Critics of the case study approach posit three main arguments against the use of this method (Feagin, Orum and Sjoberg 1991). First, the level of rigor is often questioned in so far as the way in which the research collection is designed may lack a thorough and organised plan. Thus, it was important to demonstrate a detailed data collection plan which aligned the aim,

objectives, research questions and theoretical framework with a systematic set of procedures for investigation. As such, the data collection tools and processes have been established prior to data collection and reviewed upon conducting a pilot study. The data collection process has been depicted in the following figure and is expanded upon in the following sections.

Data collection process

Figure 13 source: adapted from Yin 2018

Secondly, detractors of case study methodology assert that case studies can be limited in their generalizability, or the applicability of study findings outside of the context in which the research was conducted (Bryman and Bell 2011). This study has mitigated this risk through the adoption of a multi-case study approach wherein replication strategy is used in the selection of case study firms. Each case study is analysed separately, and data is then synthesised across cases to identify similarities and differences across firms.

Finally, a case study format can often involve a large amount of data collection which can increase the amount of time and effort needed to complete the study effectively. This risk was mitigated through a thorough evaluation of the pilot study and a selection of meaningful data collection methods which are further detailed in section 3.3.4. Additionally, Denzin (1970) presented that the use of multiple data sources in a case study method can reduce the amount of time required to achieve saturation in data collection. In this way, the use of multiple data collection methods has allowed for multiple experiences to be collected expediently through the adoption of methods most appropriate for each perspective.

3.1.4 Research sample and participant selection

A set of criteria was applied to the selection of location, industry, firm, interview participants and supporting documents in order to set a reasonable scope for this research project. The following figure illustrates the four areas wherein selection criteria were applied to narrow the scope of the study, minimize extraneous differences in participants and allow for synthesis across cases.

Figure 14 source: author generated

3.1.4.1 Geographical Location

As presented in chapter one, the decision was made to select firms with head offices located anywhere within the United Kingdom and to limit data collection to Scottish-based offices. The British ICT sector is an interesting point of enquiry as historically the sector's workforce has fluctuated from predominantly female to predominantly male (Hicks 2017). Whilst there is largely symmetry between Scottish economies and culture and the wider culture of the United Kingdom, high levels of replication were sought within case study firms. Thus, Scotland was chosen as a country under-investigated in relation to their technology workforce. Scotland's ICT industry has experienced growth over several years, becoming increasingly important for the country's workforce and economy (ScotlandIS 2018). This has led to a need for skilled workers within the country's ICT sector and social, governmental and sector efforts to encourage more women into the field.

3.1.4.2 Industry Selection

In order to conduct a study with meaningful synthesis across cases, it was important to restrict data collection to a singular industry within Scotland. Several criteria were considered prior to the selection of the ICT industry. First, sectors were eliminated which did not have a heavily male-dominated workforce. Sectors were then considered based on their contribution to the overall Scottish economy as well as their current and projected growth. Industries with declining contributions to the Scottish economy were given lower priority. Additional considerations included a preference for sectors with an increase in EDI efforts. Finally, the availability of medium to large sized firms willing to participate in the study was considered. Whilst the financial and oil and gas sectors were both considered for this project, the ICT industry aligned most closely with the industry criteria. A summary of criteria fit by industry can be seen in the following table.

Criteria for industry selection			
	Technology	**Oil & Gas**	**Finance**
Male dominated workforce	Yes	Yes	Yes
Contribution to Scottish economy	Medium	High	High
Strength of industry	Incline	Decline	Incline
EDI efforts	High	Medium	Medium
Scottish firm availability	High	Low	Low

Table 8 source: adapted from House of Lords European Union Committee 2017, Scottish Government 2018

Whilst all three industries were good candidates for the focus of this study, it was particularly evident that the ICT sector was the best positioned for an investigation of the research questions. Gender and work scholars critically site ICT as an important locus for investigation, with a large part in shaping the future of work and organisation (Wajcman 1991, Cockburn and Fürst-Dilic 1994, Faulkner 2001, Kelan 2007, Perez 2019). Indeed, Woodfield (2000 p 9) notes that "IT is strongly, indeed causally linked with the production and reproduction of national and international culture". Moreover, the researcher had built a relationship with Equate Scotland which assisted in gaining access to key ICT firms. This provided greater access both in the breadth of firms for selection as well as the depth of access granted to the researcher by selected firms. Thus, this relationship allowed for robust data collection.

3.1.4.3 Firm Selection

Firms were selected based on an initial review of externally facing data as well as an interview with a member of the leadership team to assess early indicators of applicability within the theoretical framework. A summary of criteria used to augment firm comparability is detailed in the figure below.

Firm selection criteria

1. **Industry**
    a. Firms must be able to be identified as an ICT organisation
    b. Firms must self-identify as an ICT organisation
    c. Firms must place an emphasis on innovative practices as well as a focus on research and development
2. **Size**
    a. Firms must be categorised as having medium to large workforces within Scotland
3. **Office location**
    a. Firms must have head offices located in the United Kingdom
        i. Preference given to firms with head offices in Scotland for ease of access
    b. Firms must have at least one major office in Scotland
4. **Participation**
    a. Firms must agree to full participation to include up to twenty worker interviews, requests for internal policies and documentation as well as leadership participation
5. **Applicability**
    a. Firms must indicate a significant workplace commitment to equality and diversity verified by Equate Scotland

Figure 15 source: author generated

In the purposeful selection process of firms, three main criteria were used to confirm ICT industry participation. First, a Scottish professional body which supports the ICT industry was consulted to confirm that each firm was a strong representation of the ICT industry in Scotland. Next, firm self-identification as an ICT firm was confirmed in interviews with leadership. Finally, evidence was sought based on the key indicators of an ICT firm in relevant literature: innovative focus and an emphasis on research and development (Woodfield 2000).

Additionally, it was determined that medium and large firms were needed to allow for adequate worker interview populations. While data specific to Scotland was unavailable, data regarding ICT firm size in the UK indicates that the majority of firms classify as micro (0-9 employees) or small (10-49), with 1% of the sector represented by medium-sized firms (50-249 employees) and 0.2% of the sector represented by large firms (250+ employees) (House of Lords European Union Committee 2017). Medium to large sized firms are the largest contributors to the Scottish ICT employability market and are subjected to similar external constraints, such as mandatory gender pay gap reporting, that smaller firms may not be required to adhere to. Moreover, larger firms are likely more consistent as they are not exposed to the influence of key individuals who may change the culture, policy and procedures. Finally, small firms were not a feasible locus of study due to small numbers of minority workers which could lead to a lack of data saturation as well as ethical issues pertaining to anonymity.

In this study, five firms expressed an interest in participation after the researcher was introduced through Equate Scotland. However, it was determined that two of these firms were not qualified under the firm selection criteria, with three firms fitting within the standards

presented above. Specifically, after conducting a leadership interview and primary external document search, it was determined that firm four was not large enough to allow for a significant pool of worker interviews, nor was it large enough to be subjected to similar external scrutiny and governmental regulations as medium to large-sized firms. Similarly, firm five was determined to be ineligible due to the international location of their head office and lack of tech positions within Scotland. Thus, while firm five was classified as an ICT company, it was not a leading employer for technology workers in Scotland and therefore did not contribute meaningfully towards the aim of this study. Firms one, two and three are introduced in greater detail in the following sections, however, the chart below provides an overview of firm fit for those organisations considered for this study.

Firms considered for study participation					
	Firm One	**Firm Two**	**Firm Three**	**Firm Four**	**Firm Five**
3rd-party verified	✓	✓	✓	✓	✓
Self-identifies as an ICT company	✓	✓	✓	✓	✓
Focus on innovation, R&D	✓	✓	✓	✓	✓
Major employer of skilled tech workforce	✓	✓	✓	✘	✘
Head office in United Kingdom	✓	✓	✓	✓	✘
One or more major Scottish offices	✓	✓	✓	✓	✓
Medium to large firm classification	✓	✓	✓	✘	✓
Participation agreement	✓	✓	✓	✓	✓
Representative of industry	✓	✓	✓	✘	✘
Evidence of EDI efforts	✓	✓	✓	✘	✓

Table 9 source: author generated

After firms were selected based on the eligibility criteria, data collection to include worker interviews, leadership interviews, third-party documentation regarding case study firms and firm-generated externally and internally facing documents was organised. This was used to confirm the remaining criteria for participation wherein the firm acknowledged the level of access needed to conduct the case study and establish similarities across firms which would align with the replication strategy used in this project. In the following sections, each case study firm will be introduced under a pseudonym, providing context regarding their suitability for the study.

3.1.5 Triangulation

The researcher acknowledges the importance of triangulation to ensure that the aim and objectives were effectively investigated through multiple entry points. Whilst triangulation "takes a broad spectrum of its praxis over decades" (Hesse-Biber 2012 p 137), it can be generally understood as "the combination of methodologies in the study of the same phenomenon" (Denzin 1970 p 291). This method can assist in a more thorough understanding of the phenomena being examined and was carried out in this study through the use of two data collection methods: semi-structured interviews and document analysis (Natow 2020).
Important to the context of this study, feminist scholars have expanded upon the definition of triangulation which historically has been defined as the use of multiple data collection methods specifically to validate findings, asserting that this definition does not allow for the understanding that the 'truth' is subjective and based on perspective. This argument is best presented by Hesse-Biber:

> *Treating the concept of triangulation as a validation tool, however, already assumes that the ''context of discovery''—that is, the types of research questions and who is included and excluded—can bias the knowledge found. No matter how well researchers apply the concept of triangulation as a validity tool, if their data are not inclusive of differences based on gender, class, nationality, or any factors that matter to a given question, triangulation will wind up serving to reinforce the status quo by not reflecting the wider range of individual differences that also need to be reflected in the findings.*
> *Hesse-Biber 2012 pp. 138-139*

Specific to the aim of this study is an understanding of the ideal worker narrative and wider workplace culture for each case study firm. The collection of data from a singular source, for example the firm, may have presented a complete understanding of the 'aspirational' culture of the firm but would be less effective in sourcing the lived experiences of the same phenomena. This is underscored by Gummesson (2000) who points out that if the data sources from multiple methods are contradictory, the use of a singular method could have presented misleading and incomplete conclusions. Thus, several perspectives were captured regarding firm culture and the experiences of workers, however this is not used to construct a singular reality, but instead to compare and contrast the realities of each group as depicted in the following figure (Fielding and Fielding 1986).

Triangulation of perspectives through multiple data sources

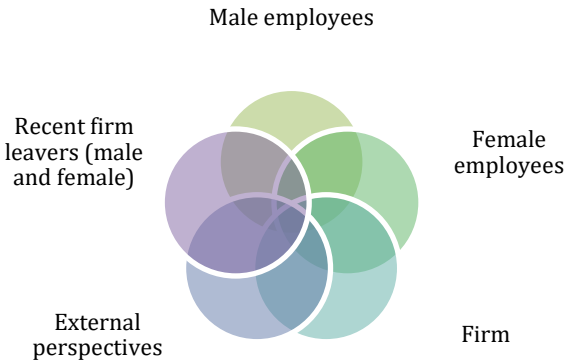

Figure 16 source: compiled from researcher data collection plan and informed by Denzin 1970, Fielding and Fielding 1986, Silverman 2011

The theoretical framework selected for this study informed the perspectives through which data was sought. First, it was important to include both the firm's perspective, as well as the statistical reality, regarding workforce diversity and support. Acker's (1990) framework also acknowledges the external perspectives which can influence who decides to work for a particular organisation as well as the way in which an organisation chooses to address barriers to equality, thus external perspectives of the firm were also considered, including firm leavers. Finally, it was important to speak with both male and female interview participants to understand the perspective of both the gender majority as well as the gender minority.

3.2 Methods of data collection

Rowley and Slack (2004) emphasise that prior to any piece of research, a review of existing literature must be initially conducted to support the need for the proposed study, inform the methodology selection and build upon the current collective knowledge base. Thus, an extensive review of literature as demonstrated in the previous chapter, was undertaken. Wider literature regarding feminist theory and organisational studies was consulted and key theorists were then identified. As the review progressed, potential gaps were identified wherein this study could contribute to knowledge. A specific relevant framework was identified, followed by a subsequent narrowing of the literature review to a comprehensive examination of literature regarding gendered institutions, gender performativity and the impact of organisation EDI initiatives. Particular attention was paid to research conducted in the ICT industry. This process was iterative, wherein subtopics, patterns, key theorists and competing perspectives were mapped systematically prior to the final selection of a theoretical framework and locus of study. Upon reflection of the literature, research questions and guiding methodology, it was determined that the aim of the research could be accomplished through two primary tools for data collection: semi-structured interviews and document analysis. Interviews were conducted

with one member of the leadership team in each case study firm to gather the firm perspective related to the ideal worker narrative, gendered barriers to employee retention and the ways in which the firm is looking to mitigate these barriers through the use of EDI practices (research questions one, two, five and six). This allowed for an understanding of leadership influences on EDI within the firm and the wider tone set by leadership to ensure a culture of acceptance and equality. Data was also sourced from firm-generated documents, to include policies, internal communications, employer branding and job postings to supplement the firm perspective regarding research questions one and two regarding evidence of gendered substructures to inclusion and the ideal worker narrative. Third-party reviews and awards were gathered to assist in answering research questions five and six regarding the current initiatives being undertaken by case study firms to attract and support minority workers as well as the efficacy of such initiatives. The documentation selected for this aspect was informed by the literature review which highlighted the need to understand the way in which a firm presents itself to potential job applicants, for example the employee benefits package and presentation of company culture in employer branding efforts (Eikhof 2012), as well as the need to examine both formal and informal channels used by the firm to create and reinforce their culture (McCarthy, Darcy and Grady 2010, Ashforth, Schinoff and Brickson 2018). Worker interviews with both male and female employees were used to ascertain worker perspectives related to experiences of gendered substructures and their perspectives on the ideal worker narrative (research questions one and two) as well as the impact of the ideal worker narrative and gendered substructures on workers (questions three and four). The following table depicts the alignment between each data collection method and the research questions targeted.

Data collection methods by research question			
Semi-structured Interviews		**Document Analysis**	
Member of leadership	RQ1 RQ2 RQ5 RQ6	EDI reporting	RQ1 RQ5 RQ6
Male participants	RQ1 RQ2 RQ3 RQ4	Pay gap reporting	RQ1 RQ5 RQ6
Female participants	RQ1 RQ2 RQ3 RQ4	Internal policy	RQ1 RQ2 RQ5 RQ6
		Employer branding/ job postings	RQ1 RQ2 RQ5
		Composition of executive team and board of directors	RQ1 RQ2
		Third-party reviews and awards	RQ5 RQ6

Table 10 source: author generated

The use of multiple data collection methods allowed for the perspectives of the firm, marginalised workers and idealised workers to be integrated into the construction of the ideal worker narrative. This also allowed for evidence from multiple sources to assist in comparing and contrasting the viewpoints of each group. The following sections will provide a detailed description of each data collection process as well as the justification for each.

3.2.1 Semi-structured Interviews

Semi-structured interviews are a commonly used tactic for collecting data in qualitative inquiry and are classified as a conversation between the researcher and the participant wherein a list of topics is covered “in a conversational manner offering participants the chance to explore issues they feel are important” (Longhurst 2003 p 143). Research regarding gender performativity is reliant on the expression and interpretation of ‘doing gender’ by participants and thus relies heavily on data collection methods which allow for participant expression (Kelan 2009, Mavin and Grandy 2013, Chan and Anteby 2015). Whilst the merits of unstructured and structured interview methods were also considered, it was determined that semi-structured interviews provided the relevant structure needed to compare and contrast interview responses whilst still providing flexibility to the participants to expand upon areas of particular

relevance to them (Longhurst 2003). The following table outlines the key differences between interview approaches.

Key determinants of interview style			
	Unstructured	**Semi-structured**	**Structured**
Methodological applications	Constructivist	Constructivist	Positivist
Tone	Conversational	Guided conversational	Formal
Question Structure	Questions are not pre-determined	Interview guide with possible questions by topic	Interview questions
Output	Qualitative, categories are not pre-determined and commonalities emerge in the analysis	Data is collected across specific pre-determined categories	Data is collected for each question for all participants, often quantitative

Table 11 source: adapted from Eriksson and Kovalainen 2010

Whilst both unstructured and semi-structured interview approaches aligned with the methodological positioning of this research as a constructivist, qualitative piece, it was determined that only the semi-structured interview structure would further allow for adequate coverage of topics based on the theoretical framework of the study.

Additionally, the inclusion of both male and female participants was used to capture data which was subsequently compared between those theorised as marginalised (women) and those theorised as ideal (men). The perception of male interview participants was of particular interest regarding the current landscape of gender equality in the field and the construction of the ideal worker narrative. Male worker perspectives were additionally needed to fully capture worker discourses which are formulated through the interactions of all workers, regardless of gender. Thus, it was necessary to utilise purposive sampling in the selection of interview participants to ensure that the voices of male and female workers across the firm were represented equally (Hak and Dul 2010).

Kvale and Brinkman (2009) suggest that semi-structured interview questions must achieve two goals: thematic knowledge gathering and rapport building. As such, a general topic outline was generated prior to the data collection phase, including a list of questions which could be utilised informally to guide the interview. However, prompting questions were adapted based on the interview participant's exploration of topics. This elevated the agency of the participant to express the lived experiences most important to them whilst generally remaining on topic. The interview guide was informed by the theoretical framework as well as the research aim, objectives and questions. This guide, has been included in appendix III and aligns each sample question with the aspect of the theoretical framework and research goals it seeks to achieve.

Worker interview participants for each firm were procured by a liaison working within the firm but out with a leadership position. This method of outreach was agreed upon with each participating firm primarily to increase the perceived legitimacy of the study with potential participants and additionally to limit permissions needed for the researcher to access the contact data of the wider workforce. Therefore, participants were informed of the opportunity to participate internally by the firm liaison. Whilst this approach somewhat limited the ability to control the level to which the participant pool was representative of the wider workforce, it was determined that this allowed for the greatest access to firm participants overall. The researcher requested interviews with participants across multiple departments, demographics and time employed with the company and that worker participation was entirely voluntary. The firm liaison was required to be a member of human resources or support staff rather than a manager or high-level leader so as to minimize any pressure employees might feel to participate or answer in a specific way. This method was selected as “when collaborators are assigned to participate by their superiors...such participation is somewhat less than voluntary” (Acker 2000). Thus, it was important to work with individuals out with senior leadership to procure interview participants.

3.2.1.1 Interview sample sizes

A rough goal of between 12 and 20 interviews evenly split between men and women for each case study firm was set prior to data collection and reassessed upon completion of the pilot study. In total, 46 interviews were conducted, with 16 in firms one and three and 14 in firm two. This number was determined to meet a level of data saturation wherein a complete understanding of the research questions could be obtained. Data saturation, particularly in qualitative research methods, is widely regarded as particularly difficult to assess (Guest, Bunce and Johnson 2006, Mason 2010, Shields and Rangarajan 2013, Fusch and Ness 2015, Yin 2018). Through a content analysis of PhD theses aimed at identifying trends in data saturation, Mason (2010) found that phenomenological studies conducted between 7 and 89 interviews with an average of 20 per thesis project. Guest, Bunce and Johnson (2006) approached the issue through a review of literature, finding seven sources which offer numerical, yet varying, guidelines for qualitative data saturation. Most relative to this study, Creswell (1998) suggests that between 5 and 25 interviews is sufficient in a phenomenological study whilst Morse (1994) asserts that a minimum of six interviews should be conducted. Conversely, Fusch and Ness (2015) argue that data saturation must be determined in relation to the aim of the study and cannot be predetermined by external consensus. As with the wider data collection process, the aim and objectives were the primary guideline used to determine data saturation relative to each case study firm. Moreover, it was necessary to achieve saturation within each case study firm while still setting a realistic goal for replication across

three firms. Thus, the rough target of 12 to 20 interviews per firm was set. The table below summarises the key statistics of study participants across firms; additional details will be presented in the firm introductions to follow.

Interview participants key statistics						
	Beets Co.		**Muckduk Inc.**		**Vance Ltd.**	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Total	7	9	8	6	8	8[1]
Demographic Characteristics						
White British	6	9	6	6	7	6
White Other	1	0	2	2	1	2
BME	0	0	0	0	0	0
Distribution of roles[2]						
Technical worker	3	4	4	4	5	6
Non-technical worker	4	5	4	2	3	2
Management	5	5	1	2	3	3
Non-management	2	4	7	4	5	5

Table 12 source: author generated

It should be noted that in the preparation of the interview plan, the researcher made the decision to reduce the emphasis on gender and traditional barriers to inclusion cited in literature such as caring responsibilities. Thus, this data was only collected from interview participants who spontaneously shared this information as part of their lived experiences. Care-giving roles were disclosed in the course of the interview with five participants at Beets Co. (two men and three women), four participants at Muckduk Inc. (three men and one woman) and three participants at Vance Ltd. (two men and one woman). The choice was made to minimise the impact of researcher bias on participant responses and to allow themes to emerge without prompting. Therefore, the statistic regarding caring responsibilities for interview participants is limited to those who volunteered the information.

3.2.1.2 Participant procurement and method of contact

The intention of the researcher was to gather an equal number of male and female interview participants around a variety of positions within the firm as well as representation from BME participants. Whilst those who volunteered for participation allowed for a strong sampling

[1] One participant self-identified as transgender and had worked at the firm presenting as male prior to transition and currently as female. The data from her interview was included in the female perspective as she identified fully as such.
[2] At the time of data collection

across departments, this did not wholly extend to gender and ethnicity. Specifically, there was a lack of male participants in the initial request from Muckduk Inc. and a lack of ethnic diversity across all three firms. As gender diversity was critical to the aim of the research, further efforts were taken to increase the number of male participants from Muckduk Inc.

Whilst the goal was to conduct an equal number of interviews with male and female employees, only one male interview participant volunteered initially at Muckduk Inc. The firm liaison was consulted and an additional request for male interview participants was made to the staff, however this did not glean any additional interviews. It was then determined that participants could be enlisted directly by the researcher through the professional social media platform LinkedIn. Potential participants were identified through a search for employees who have worked for the firm for at least 12 months within two years of data collection. To minimize selection bias, potential participants were contacted in the order they were presented in the search, given they met the predetermined gender and employment criteria. To ensure that the data collection process was mirrored across all three case studies, additional interviews were also ascertained in this manner for male and female workers in each firm. Interview transcripts with participants gathered through firm liaisons were compared to those gathered directly by the researcher, which verified that similar themes emerged regardless of how the participant was contacted. This variation in data collection moreover allowed for an additional level of rigor to be presented into the study, particularly in checking that the experiences shared by participants procured through the firm liaison did not vary significantly from those procured independently from the firm. The following table provides a summary of how interview participants were procured.

Interview participant procurement						
	Beets Co.		**Muckduk Inc.**		**Vance Ltd.**	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Total	7	9	8	6	8	8
Initial Contact						
Via firm liaison	6	7	6	1	7	8
Via LinkedIn	1	2	2	5	1	0
Interview Method						
In person	2	3	5	1	7	8
By phone	5	5	2	4	1	0
E-mail correspondence	0	1	1	1	0	0

Table 13 source: author generated

Each participant was encouraged to engage in an interview via phone or in-person, however the option to participate via a series of email correspondences was extended to those unable

to participate in any other way. Although rapport is most easily built through face-to-face interactions, valuable insight can be collected through alternative methods, such as phone, video and text exchanges which would otherwise be omitted from the research (Kvale and Brinkman 2009). Whilst email correspondence limited the ability of the researcher to build rapport, valuable information was gathered through these interviews and as such were included in the study. In total, three interviews were conducted via email, eighteen by phone or video conference and twenty-two in person at the participant's place of work. Interviews lasted between 25 and 60 minutes and a summary of how participant interviews were conducted is presented in the following table.

Summary of interview methods						
	Beets Co.		**Muckduk Inc.**		**Vance Ltd.**	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
In person	2	3	5	1	7	8
By phone	5	5	2	4	1	0
E-mail correspondence	0	1	1	1	0	0

Table 14 source: author generated

3.2.2 Document Review

In addition to interviews, a review of documents was included in the data collection process. Document analysis is the systematic review of documents which "requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge" (Bowen 2009 p 27). This method has been used as part of the wider data collection methods of many studies which seek to interpret the impact of organisational policies on the lived experiences of workers (Avery 2003, Ashcraft and Mumby 2003, Kornberger, Carter and Ross-Smith 2010). For example, Kornberger, Carter and Ross-Smith (2010) examined the impact of a flexible work initiative in a large accounting firm on redressing the leadership gender imbalance historically held by the firm. Through an analysis of the policy in comparison to the lived experiences of interview participants, the study identified that the policy was not achieving the intended aim of increasing the number of women able to progress into leadership but rather reinforcing gender stereotypes within the firm.

The use of document review as a secondary source of data is also claimed to compensate for the limitations of interviews which can be influenced by the researcher, the location of the interview and external circumstances which may lead to an incomplete or inaccurate picture of the participants views (Briggs 1986). Due to the complex nature of the phenomenon being investigated, multiple methods and sources allowed for a more robust understanding of the

subject matter, adding “rigor, breadth, and depth to the study and [providing] corroborative evidence of the data obtained” (Bloomberg and Volpe 2016 p 46).

A systematic document review was a natural point of entry for the investigation of specific phenomena sought out in the research questions pertaining to firm culture and current endeavours towards equality and diversity. All documents were obtained by the researcher either through the firm liaison or an internet search of publicly available data and were created independently of the research project. Thus, the documents analysed as part of this project were produced naturally in the course of business and everyday life, providing descriptive artefacts for analysis to confirm insights gained from the interview process (Bowen 2009).

A list of potentially relevant documentation was drafted prior to the pilot study and revised as part of the method analysis. This included requests for internal firm documents such as policy handbooks as well as externally-facing documents such as employer branding efforts. Additionally, third-party data regarding the firm was targeted for inclusion, particularly as a means of addressing external representations of the firm as advised by Acker’s (1990) framework. Whilst the list was used in the request for documentation across all case study firms, additional documentation was sourced as it was revealed through the interview process. This flexibility allowed for greater richness in the data obtained in the document review (Briggs 1986). As the document analysis varied across firms to some extent to reflect the ways in which the culture was expressed and reinforced, the documents collected are discussed in more detail in the firm introductions. However, the figure below provides an overview of the documentation actively sourced in the collection process.

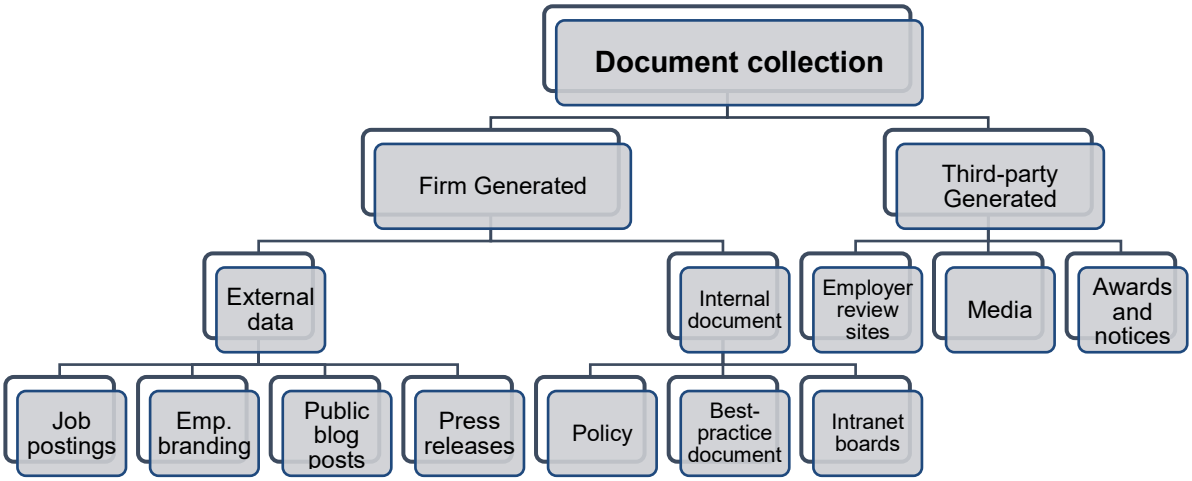

Figure 17 source: author generated

Whilst the availability of data varied across case study firms, efforts were made to provide congruity in the documents sourced. Specifically, firm-generated job vacancies were gathered

for all firms on the same day, September 15th, 2018. Press releases and blog posts pertaining to EDI initiatives as well as third-party generated media coverage, awards and notices within the last three years were also included for all firms and gathered on September 26th, 2018. Concurrently, social media accounts specifically aimed towards recruitment were included in the employer branding. A guideline of collecting the 20 most recent posts on each account was included in the document collection plan, however this number was used as a guideline depending on the emphasis placed on this particular branding effort. Platforms which were used regularly or cited by leadership as critical to their recruitment process were considered for higher numbers of data collection whilst firms with less-intensive platform engagement were considered for less data collection in this area so as to not include largely disparate time periods across the three case study firms. A more detailed account of the documentation analysed in this project will be highlighted specifically to each firm in sections 3.3.3, 3.4.3 and 3.5.3.

3.2.3 Data collection plan

Data collection was conducted in three phases for each firm, with each phase providing information which allowed for more robust data collection efforts in subsequent phases. This approach is not limited to a case study approach and is a popular tactic for mixed methods and multi-method studies as well wherein data collected in earlier phases will influence the methods of subsequent phases (Meyer 2001, Beddewela et al 2017). The phases for this study have been organised to align research questions with the methods used to obtain information. The following table provides an overview of the data collection process for this study.

Data collection plan		
Phase	**Data Collected**	**Research Question Targeted**
Phase One	● Identify potential firms for participation in partnership with Equate Scotland ● Review publicly available documents and employer branding for qualification in purposive sampling ● Engage with firm; seek understanding and agreement regarding the scope of the study ● Interview with member of leadership	RQ1
Phase Two	● Request firm documentation on policies specific to EDI as well as wider HR policies ● Collection of open job adverts available at a singular point in time ● Engage in semi-structured interviews with male and female workers ● Collection of social media posts on employer branding accounts; most recent at a singular point in time ● Request for internal documentation of worker discourse: intranet, blog posts and chat platforms ● Data collection of gender divisions in leadership and pay gap data	RQ1 RQ2 RQ3 RQ4 RQ5 RQ6
Phase Three	● Review for gaps in data ● Additional documents requested as needed for firm perspectives regarding topics emerging from worker interviews ● Additional interviews conducted with populations needed through additional requests of firm liaison and direct outreach to recent firm leavers	RQ5 RQ6

Table 15 source: author generated

The remainder of this section will detail the phases of data collection organised for this study as outlined in the preceding table.

3.2.3.1 Phase One

The purposive sampling approach applied to this study necessitated that preliminary data be ascertained on each potential case study firm. As such, phase one included an analysis of publicly available documentation regarding the firm's EDI efforts and awards, gender and pay gap reporting and evidence that each firm fit the specifications detailed in section 3.1.4.3. This initial phase allowed for a brief overview of the organisation as well as an initial assessment of any evidence of gendered substructures prior to delving into the main data collection phase.

Phase one additionally consisted of a semi-structured interview with a member of leadership within the firm which focused on questions regarding company culture, policies around gender diversity and an assessment of characteristics which might lead to the creation of an ideal

worker. Through conducting the leadership interview prior to phase two, the researcher was able to have a stronger understanding of how members of leadership would like the firm's culture to be understood. It also allowed the researcher to identify specific tools which leadership felt led to an equitable work experience and provided the necessary information to ask workers directly about their experiences with these tools in the subsequent phase.

3.2.3.2 Phase Two

Phase two consisted of the bulk of the data collection to include interviews with male and female workers across a range of job duties, ages and time with the firm. Additionally, requests were made for firm documentation on HR policies, employee conduct, and EDI initiatives from the firm liaison. Employer branding data was collected to include open job advertisements, career-specific social media accounts and the wider employment webpages available on each firm website.

Worker interviews also allowed the researcher to probe for additional documentation to be analysed which were not available to external sources, such as intranet discussions regarding gender and equality as well as blog posts and chat platforms. Finally, data was collected regarding the most recent reporting of gendered leadership divisions and pay gap data for each firm.

3.2.3.3 Phase Three

The final data collection phase was conducted after a review of any gaps left unanswered or underexplored in the primary and secondary phases. Documents which had been referred to in worker interviews but had not yet been sourced from the firm were included in the final phase of requests to each firm liaison. This allowed for the researcher to close the loop on the data collection relationship with the firm. Additionally, gaps in representation across populations were identified and rectified through an alternative method. This is described in greater detail in section 3.2.1.2, however was particularly necessary for male participants in the case of Muckduk Inc. as only one male participant emerged in phase two.

3.3 Firm One Introduction: Beets Co.

Beets Co. is a large publicly traded multinational ICT company. Whilst the head office is located outside of Scotland in the wider UK, they are a major contributor to the Scottish economy and have a strong influence over the worker experience in the nation's ICT industry. To quantify their contribution, Beets Co. employs between 5,000-10,000 Scottish workers, which is the equivalent of 1 in every 190 employees working in the Scottish private sector. Moreover, they contribute 1% to the nation's GVA on their own, making the firm a leading contributor to the

Scottish economy. Due to the size and structure of the firm, high levels of bureaucracy are used in the organisational logic and the structure is fairly hierarchical. Beets Co. was verified as an active participant in the Scottish ICT sector through two external professional bodies, ScotlandIS and Equate Scotland. A review of publicly available data confirmed high levels of contribution to the Scottish ICT job market as well as their focus on innovation, research and development. The interview with firm leadership confirmed that Beets Co. strongly identifies as an ICT company and is an active participant in EDI best practices, particularly around gender.

3.3.1 Beets Co. indicators of EDI best practices

Important to the aim of this study was the selection of ICT firms which have demonstrated a strong commitment to EDI as this allowed for a thorough investigation of research objectives five and six which seek to identify practices which have effectively worked to attract and retain a diverse workforce. The following table introduces the primary EDI initiatives identified in phase one of the data collection process which were used to confirm alignment with the study criteria.

Beets Co. EDI initiatives	
Initiative	Description
Diversity Training	● Available via the intranet as well as in-person training events ● Focus on management: unconscious bias and managing bullying and harassment claims ● Disability-awareness training is delivered for customer-facing employees, with online modules available company-wide
Minority Networking Groups	● Internal networking groups are active for gender, ethnicity, LGBT+, Disability and Neurodiversity ● Networks are sponsored by members of senior leadership ● Partnerships with external networking groups for women in tech are used to facilitate and encourage a wider skilled workforce
Parental Leave	● Maternity leave handbook created to assist first-time mothers in navigating the leave process ● Parental leave extended beyond legal requirements, with the ability to transfer parental leave between partners ● Flexible working opportunities extended upon return

Table 16 source: author generated

3.3.2 Study participants: worker interviews at Beets Co.

In total, sixteen interviews were conducted with workers at Beets Co. The majority of interviews were conducted by phone (10), followed by in person (5) and one who chose to participate through e-mail correspondence. Participants were represented across technical (7) and non-technical roles (9) as well as non-management (6) and management (10) roles. The choice to include workers across departments and levels was made to provide an understanding of the lived experiences across the firm, rather than limiting the experience to a singular group. This

was specifically important in regards to the implications of EDI initiatives on female workers as there are high levels of gendered job divisions both horizontally and vertically within the firm and a focus on a specific group would not allow for a holistic understanding of lived experiences within the firm. The following subsections will provide background for each interview participant by gender.

3.3.2.1 Female interview participants

Seven female workers volunteered to participate for the study, six of whom were procured through the firm liaison and one of which was procured through LinkedIn. As with the male participants, a variety of ages, roles and time with the firm was represented in the interview participant group. Participant age ranged from 20 years old to 58 and firm tenure varied from less than a year to 34 years. Key statistics for each participant are included in the following table.

Key data for female interview participants: Beets Co.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure**	**Method of Contact**
C1F1	Technical	40-49	N	20	Firm
C1F2	Non	40-49	Y	20	Firm
C1F3	Non	50-59	Y	34	Firm
C1F4	Non	50-59	N	17	Firm
C1F5	Non	30-39	N	< 1	Firm
C1F6	Technical	20-29	N	2	Firm
C1F7	Technical	40-49	Y	15	LinkedIn

Table 17 source: author generated

Whilst the majority of study time and resources were dedicated to the collection of interviews, considerable data was also gathered through an analysis of documents. The following section will provide an overview of documentation included in this study.

3.3.2.2 Male interview participants

Nine male workers volunteered to participate for the study, seven of whom were procured through the firm liaison and two of which were procured through LinkedIn. Participant age ranged from 22 years old to 63 and firm tenure varied from less than a year to 34 years. Key

statistics for each participant are included in the following table and assigned to a study-generated ID so as to preserve anonymity for all study participants.

Key data for male interview participants: Beets Co.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure (years)**	**Method of Contact**
C1M1	Non	30-39	N	< 1	Firm
C1M2	Non	30-39	N	11	Firm
C1M3	Non	50-59	Y	15	Firm
C1M4	Non	50-59	N	31	Firm
C1M5	Technical	30-39	N	< 1	Firm
C1M6	Technical	20-29	N	1	Firm
C1M7	Non	40-49	N	15	Firm
C1M8	Technical	20-29	N	2	LinkedIn
C1M9	Technical	60-69	Y	34	LinkedIn

Table 18 source: author generated

3.3.3 Artefact collection: Beets Co. documentation and external resources

A document analysis was conducted in conjunction with worker interviews, with a total of 90 artefacts obtained from a range of resources for Beets Co. The following table provides an overview of the categories in which artefacts were sourced.

Beets Co. summary of artefacts	
Job postings	5
Employer branding webpages	31
Social media accounts	5
Social Media Posts analysed	40
Policy documents/ intranet discussions	9
Press releases/blog posts/reports	1
Employer Review Summaries	2
News articles	2

Table 19 source: author generated

Beets Co. has five social media accounts in total specifically aimed at recruitment efforts. This includes a Facebook, Twitter and LinkedIn account for general employer branding efforts as well as separate Facebook and Twitter accounts for recruitment into the graduate and apprenticeship programmes. The LinkedIn account was not included in the social media analysis as posts were not made recently to the account. A sample of ten most recent posts was taken from the remaining accounts, totalling 20 posts from Facebook and 20 posts from

Twitter which spanned approximately three weeks. Additionally, Beets Co. has a comprehensive set of pages dedicated to their recruitment efforts, thirty-one pages of which were relevant to this study and therefore included in the document analysis.

In addition to publicly-facing documentation, the firm liaison provided access to key documents regarding policy and EDI initiatives as well as limited access to employee discussions hosted on their intranet forum. In total, eight documents were included in the analysis to include pay gap and diversity reports, policies regarding parental leave, flexible working, bullying and harassment, as well as the employee ethics code and an intranet discussion thread regarding a recent EDI award earned by the firm.

While artefacts and interviews generated from within the firm comprised the majority of this study, it was important to gather wider evidence from independent entities as well. Beets Co. was named among Times Top Employers for Women in recent years as well as a winner of an award for innovation in EDI. Additionally, part of their internal policies around gender and equality has been published as a best practice by the UK government's Equality and Human Rights Commission and they have been certified by the Prince's Responsible Business Network for their workplace gender and race equality. In addition to gender, Beets Co. has been recognised for their work around accessibility for disabled workers as well as their wider diversity initiatives. Whilst this data was used to identify the firm as a viable candidate for the study, it was not utilised in the document analysis simply due to the lack of content associated with the awards.

Two websites were included in the employer review summaries: Glassdoor.com and InHerSight.com. Glassdoor.com had 707 reviews from workers located in Scottish offices and InHerSight.com provided an additional 48 reviews from Scottish female workers. The reviews were not singularly included in the analysis as this fell outside of the scope of this project, however the summaries provided by each website were included to check for any significant differences between the opinions expressed in worker interviews and the opinions expressed by former employees. Finally, two news articles published within the period allotted in the data collection plan were included in the document analysis as they related directly to the firm's EDI work in the wider Scottish community.

3.3.4 Pilot Study review and method alterations

Once a plan for data collection had been formulated, it is necessary to test the efficacy of the plan in gathering data which adequately responds to the study's aim (Lackey and Wingate 1998). Thus, the first round of interviews conducted with Beets Co. participants acted as the pilot study for this analysis. As noted by Kim (2011), a pilot study can identify potential issues in participant recruitment, orient the researcher with the culture of the case study subject, inform methods to minimise researcher bias and identify any changes needed in the data

collection processes. Thus, a pilot study was formulated to test the capability and efficiency of the proposed data collection method and was used to validate the theoretical fit of the gendered substructures model in its entirety on an empirical case study. Several insights from this exercise were used to adopt method alterations for subsequent data collection efforts.

First, it was noted that critical to the success of relevant and descriptive data was a long-term working relationship with a member of the firm willing to approach potential interview candidates and internal gatekeepers for pertinent data only available to firm members. As the need for additional data revealed itself over the course of the interviews, the researcher indeed found it necessary to regularly interact with the firm liaison to access information best gathered through a written context rather than interviewee interpretation in order to ensure strong reliability in the data collected.

As discussed in section 3.1.3, careful consideration was needed to decide on the number of case studies to conduct as part of this study. Prior to the pilot study, an estimation of four case study sites was considered. However, upon reflection of the pilot study, this number was reduced to three to ensure adequate depth in the collection of data given the time constraints of the study. This was additionally necessary as the third phase of data collection was expanded upon as several essential documents were only identified once worker interviews had been completed. As such, more time was needed for each case study to better reflect the long-term multi-format data collection strategy.

Second, the primary data collection phase resulted in robust data around company culture, division of labour and worker efficacy whilst worker discourse was more difficult to capture. Therefore, an effort to increase the data gathered regarding common topics of small-talk, instances of worker-perceived harsh or sexist interactions and information regarding written informal communications was made in future interviews through additional lines of questioning and probing follow-up questions.

Finally, the interview with leadership in the pilot study revealed that a basic knowledge of firm-specific jargon and methods of organising would allow the researcher to ask more relevant questions regarding worker interactions, shared spaces and the interaction between positions. Thus, leadership interviews were edited to include questions aimed at increasing this understanding for subsequent case studies. Upon review of the pilot process, it was determined that the pilot study firm would indeed be eligible for inclusion in the final results as minor changes were made based on the analysis of the pilot findings and a strong relationship with the firm liaison ensured that additional data could be collected to fill the gaps identified.

3.4 Firm Two Introduction: Muckduk Inc.

Muckduk Inc. is a medium sized multinational ICT company founded in Scotland. The majority of customers are based in the United States; however, the firm has kept its head office and the majority of skilled ICT positions in their Scottish offices. The firm employs approximately 400 to 800 workers, the majority of which are technical roles. The firm adopts a matrix organisational structure, with teams often comprised of product managers, business partners and technical workers. The organisation is well-established as a large employer in the Scottish ICT industry and active in the STEM EDI landscape. Muckduk Inc. is dependent on their ability to remain at the forefront of innovation for their product development and thus invests heavily in research and development as well as the professional development of their technical workers.

3.4.1 Muckduk Inc. indicators of EDI best practices

During the selection of case study firms, Muckduk Inc. was put forward as a strong candidate for inclusion by Equate Scotland who had partnered with them on several community-based EDI initiatives for the Scottish ICT sector. The following table provides an overview of EDI initiatives championed by the organisation at the time of data collection.

Muckduk Inc. EDI initiatives	
Initiative	Description
Parental assistance	● Updated policies regarding maternity, paternity and adoption leave ● Increased flexible working ● Maternity buddy programme to support those returning from maternity leave
Targeted hiring	● Assessment of external job postings ● Gender-neutral hiring events ● Briefing for recruitment partners on diverse hiring priorities ● Plans to invest in high-potential female workers through an accelerated career progression scheme
Minority networking and training	● Analysis of diversity best practices ● Internal mentoring programme ● Quarterly equality events ● Piloted unconscious bias training

Table 20 source: author generated

These initiatives are evaluated in greater detail in the findings chapters of this thesis and were used in alignment with purposive sampling to select a firm with an established goal of increasing the diversity of its workforce.[3]

[3] It should be noted that several months after the conclusion of the data collection for this study, Muckduk Inc. was purchased by a firm listed as a constituent of FTSE 100 index of the London Stock Exchange.

3.4.2 Study participants: worker interviews at Muckduk Inc.

Fourteen interviews were conducted with workers at Muckduk Inc., six in person at the organisation's Glasgow and Edinburgh offices, six via telephone or Skype and two via email correspondence. Participants were represented across technical (8) and non-technical roles (6) as well as non-management (11) and management (3) roles.

3.4.2.1 Female interview participants

Eight female workers volunteered to participate for the study, six of whom were procured through the firm liaison and two which were procured through LinkedIn. Female participant ages ranged from 24 to 55 years old, with the majority of participants in the 20-29 bracket. The majority of participants had been with the firm for one year or less at the time of the interview. Key statistics for each participant are included in the following table.

Key data for female interview participants: Muckduk Inc.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure (years)**	**Method of Contact**
C2F1	Non	40-49	Y	3	Firm
C2F2	Non	20-29	N	1	Firm
C2F3	Technical	20-29	N	1	Firm
C2F4	Non	20-29	N	1	Firm
C2F5	Non	20-29	N	1	Firm
C2F6	Technical	30-39	N	< 1	Firm
C2F7	Technical	50-59	N	3	LinkedIn
C2F8	Technical	30-39	N	< 1	LinkedIn

Table 21 source: author generated

3.4.2.2 Male interview participants

In total, six male workers volunteered to participate for the study, one of which was produced by the firm liaison and five of which were accessed through LinkedIn due to a lack of participation in the initial request (presented in section 3.2.1.2). Participants, while typical of the firm workforce, were considerably younger than those in the first case study with ages ranging from 21 to 36 years old. Firm tenure on average was fairly short and varied from less than a year to four years. The gatekeeper contact for the firm was consulted and it was advised that workers across the firm generally have similarly short tenures due to the volatile nature of their product market. Key statistics for each participant are included in the following table.

Key data for male interview participants: Muckduk Inc.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure (years)**	**Method of Contact**
C2M1	Technical	30-39	N	<1	Firm
C2M2	Non	20-29	N	1	LinkedIn
C2M3	Technical	20-29	N	1.5	LinkedIn
C2M4	Technical	30-39	Y	4	LinkedIn
C2M5	Non	30-39	Y	2	LinkedIn
C2M6	Technical	30-39	Y	2	LinkedIn

Table 22 source: author generated

3.4.3 Artefact collection: Muckduk Inc. documentation and external resources

The document analysis conducted for Muckduk Inc. yielded a total of 72 artefacts obtained from a range of resources. The following table provides an overview of the categories in which artefacts were sourced and will be detailed further in this section.

Muckduk Inc. summary of artefacts	
Job postings	9
Employer branding webpages	3
Social media accounts	2
Social Media Posts analysed	49
Policy documents[4]	2
Press releases/blog posts/reports	5
Employer Review Summaries	1
News articles	3

Table 23 source: author generated

Muckduk Inc. has three social media accounts specifically aimed at recruitment efforts on Instagram, Twitter and LinkedIn. As with Beets Co., the LinkedIn account was not included in the artefact collection as posts were not made recently to the account. A sample of the 49 most recent posts were taken from the remaining accounts: 34 posts from Instagram and 15 from Twitter. A number of additional tweets were not included in the artefact collection as they were identical to posts made on Instagram. A higher number of social media posts were sourced for Muckduk Inc. as this was an actively used tool for their recruitment efforts. Whilst their website did have three employer branding pages which provided insight into the firm's working culture, benefits and expectations, this was less robust than with other case study firms.

[4] Interviews with leadership revealed Muckduk Inc. has minimal written policy which limited the access to data through this method.

In addition to publicly facing documentation, the firm liaison provided limited access to key documents regarding policy and EDI initiatives. Muckduk Inc. has taken a strategic position to minimise the amount for formal written policies imposed on their employees as a means of maintaining a 'start-up' culture even as they grow. Policies which were written down were coined as guidelines rather than rules. As such, two documents were included in the analysis which outline parental leave and flexible working guidelines. An additional five firm-generated documents were sourced from publicly available data to include pay gap reporting and four blog posts regarding their EDI efforts. Finally, the Glassdoor.com employer review summary was included as well as three recent news articles which related directly to Muckduk Inc.'s gender equality and diversity efforts.

3.5 Firm Three Introduction: Vance Ltd.

Vance Ltd. is a medium-sized fast-growing international ICT company founded in Edinburgh with approximately 1,000 employees. The firm is a large employer for skilled technology workers in Scotland with offices in Edinburgh and Glasgow and nine additional international offices. Vance Ltd. has been recognised both internationally and locally for their innovative contributions to the ICT landscape and positive contributions to the Scottish economy. The firm has a fairly flat structure which they have worked to maintain whilst experiencing fast-paced growth. The majority of senior positions are based in the Edinburgh head office.

3.5.1 Vance Ltd. indicators of EDI best practices

Vance Ltd. publishes data annually regarding their work to move towards a more diverse workforce and a consultation with Equate Scotland reinforced the firm's position at the forefront of gender equality work in the Scottish tech sector. Interviews with leadership confirmed that the initiatives outlined in the annual plan encompass the majority of EDI work undertaken by the firm. Through public dissemination of their goals and initiatives, the firm aims to provide transparency around their diversity efforts to both their workforce and the wider public. An outline of the firm's diversity initiatives is detailed in the following table.

Vance Ltd. EDI initiatives	
Initiative	Description
Hiring practices	● Review of recruitment methods focused on attracting a diverse candidate pool ● Creation of part-time engineering positions ● Review of profile descriptions in job advertisements ● Assessment and training for firm interviewer pool
Employee training and support	● Mentoring programmes with a focus on inclusion to support career progression ● Unconscious bias training and inclusion events ● Internal equality and diversity discussion channel ● Lean-in circles
Parental support	● Increased support for parents returning to work after leave period ● Increased family leave benefits beyond legislative minimums to include both UK and international offices ● Support for flexible working

Table 14 source: author generated

Vance Ltd. has a strong internal focus for their EDI efforts and has not pursued external certifications for their equality and diversity work. However, they have been recognised for their employment practices by several international organisations including their healthy workplace scheme, employee engagement scheme and employee stock share scheme.

3.5.2 Study participants: worker interviews at Vance Ltd.

In total, sixteen interviews were conducted with workers at Vance Ltd. The majority of interviews were conducted in person between the Glasgow and Edinburgh firm offices (15), while one was conducted via Skype. Participants were represented across technical (11) and non-technical roles (5) as well as non-management (10) and management (6) roles.

3.5.2.1 Female interview participants

Eight female workers volunteered to participate for the study, seven were sourced from the firm liaison and one via LinkedIn. Participant age ranged from 24 to 50 years old at the time of data collection and firm tenure varied from two to five years. Key statistics for each participant are included in the following table.

Key data for female interview participants: Vance Ltd.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure (years)**	**Method of Contact**
C3F1	Technical	30-39	N	4	Firm
C3F2	Technical	30-39	N	5	Firm
C3F3	Non	20-29	N	3	Firm
C3F4	Non	20-29	N	5	Firm
C3F5	Non	20-29	N	3	Firm
C3F6	Technical	30-39	Y	5	Firm
C3F7	Technical	50-59	N	2	Firm
C3F8	Technical	40-49	N	4	LinkedIn

Table 25 source: author generated

3.5.2.2 Male interview participants

Eight male workers volunteered to participate for the study, all of whom were procured through the firm liaison. Participant age ranged from 22 to 63 years old and firm tenure varied from less than a year to six years. Key statistics for each participant are included in the following table.

Key data for male interview participants: Vance Ltd.					
	Technical/ Non-technical role	**Age range**	**Caregiving Role Disclosed**	**Firm Tenure (years)**	**Method of Contact**
C3M1	Technical	20-29	N	2	Firm
C3M2	Technical	20-29	N	2	Firm
C3M3	Non	30-39	N	6	Firm
C3M4	Technical	20-29	Y	2	Firm
C3M5	Technical	40-49	N	< 1	Firm
C3M6	Technical	50-59	Y	4	Firm
C3M7	Technical	20-29	N	3	Firm
C3M8	Non	20-29	N	3	Firm

Table 26 source: author generated

3.5.3 Data collection: Vance Ltd. documentation and external resources

The document analysis conducted for Vance Ltd. yielded a total of 26 artefacts obtained from a range of resources. This number is significantly lower than that of the prior two firms however this is due to the lack of employer-focused social media accounts for the firm. The following table provides an overview of the categories in which artefacts were sourced and will be detailed further in this section.

Vance Ltd. summary of artefacts	
Job postings	13
Employer branding webpages	2
Social media accounts	0
Social Media posts analysed	N/A
Policy documents	4
Press releases/blog posts/reports	4
Employer Review Summaries	1
News articles	2

Table 27 source: author generated

Vance Ltd. does not have a robust set of employer branding efforts, with just two pages on their website dedicated to careers which were eligible for inclusion in this study and no social media accounts. The website hosted 13 active job openings at the time of data collection as well as a direct link to the firm's Glassdoor.com account. The employer summary provided by Glassdoor.com was also included in the artefact collection. In addition to employer branding artefacts, the firm liaison provided access to key documents regarding policy and EDI initiatives. In total, four documents were included in the analysis to include policies regarding dignity at work, parental leave, flexible working and harassment. Four additional documents were collected to include pay gap reporting and three blog posts written by the firm regarding gender equality.

It can be easily surmised from the introduction of case study firms that a large amount of data was compiled for analysis. The remainder of this chapter will outline the way in which this data was managed and organised as well as the ethical considerations taken into account throughout the process.

3.6 Data Management and Analysis

As data was collected from multiple written and verbal sources, folders for each participating case study firm were created to house and organise artefacts prior to the analysis phase. The researcher was heavily involved in the transcription process, with recorded interviews transcribed manually. An automatic transcription service was used with a minority of interviews which provided a basic written outline of the interview subsequently edited and completed

manually by the researcher. Member checks were conducted through sending transcripts to interview participants, allowing them to validate that the information presented in the transcript was as they had intended (Mero-Jaffe 2011). All written data was then uploaded into NVivo 11, an electronic tool used to assist in qualitative data analysis. Case study files were kept separate and data was further organised by source to include third-party, firm and worker.

Next, codes were created a priori and derived from the theoretical framework as well as an initial scan of the data (Kuzel 1999). The codes were established to provide a framework for the analysis but remained flexible to allow for emerging themes. For example, codes were pre-determined to include aspects of the gendered substructures model, with sub-topics for each model included based on the literature. This practice was chosen as “tightly organized and highly structured schemes can filter out the unusual and serendipitous” data which can be of importance to the essence of this study (Bloomberg and Volpe 2016 p 193). For example, a theme emerged during the analysis of worker interviews regarding individual perceptions on the gender divide in the technology industry. Whilst this information was not directly relevant to any of the existing codes, it added to an understanding of worker discourse as well as firm culture through a better understanding of how workers interpreted and aligned themselves within the industry’s equality and diversity landscape. Thus, a node was created during the data analysis phase to capture this data as needed. A summary of nodes is listed in the following table; those marked with an asterisk were added in the process of coding the data.

Summary of codes				
Division of labour (1)	**Worker efficacy & aspiration (2)**	**Worker lived experiences (3)**	**Workplace discourses (4)**	**Workplace culture (5)**
1.1 Homogenous leadership	2.1 Lack of policy realisation	3.1 Caregiving responsibilities	4.1 Unknown intention*	5.1 EDI initiatives
1.2 Job segregation	2.2 Lack of progression	3.2 Character moderation	4.2 Formal discourse	5.2 External representation
1.3 Perception of workforce balance	2.3 Line manager feedback	3.3 Higher standards	4.3 Harassment	5.3 Formal reporting
	2.4 Mentorship and sponsorship	3.4 Opinion on gender divide*	4.4 Informal discourse	5.4 Graduate and apprenticeships*
	2.5 Passion project	3.5 Past workplace experiences*	4.5 Microaggressions	5.5 Firm Ideal worker
	2.6 Pay and monetary benefits	3.6 Worker ideal worker		5.6 Informal arrangements*
	2.7 Performance goals and assessment			5.7 Long hours/weeks
	2.8 Progression			5.8 Networking and socialising
	2.9 Promotable activities			5.9 Organisational logic
				5.10 Professional development
				5.11 Progression structure
				5.12 Work/life balance

Table 28 source: author generated

Crabtree and Miller (1999) assert that memos are an integral part of data analysis as themes begin to emerge. Thus, memos were drafted throughout the analysis process to record information, ideas regarding data synthesis, and data collection processes and subsequently used to facilitate the interpretation phase. Upon completion of the coding process, a summary of codes was reviewed and shared with the supervisory team for inter-rater reliability. The coding scheme was then analysed, re-organised and edited to fully capture the information which emerged from the data.

Thematic analysis was employed in the process of coding and synthesizing the data for this study wherein commonalities across interviews and documents were identified (Guest, MacQueen and Namey 2012). The process was guided by the theoretical framework which provided a set of codes against which to process the data. Additional codes were added to accommodate for emerging themes during the process of analysis (see section 3.1.2). The coding process was particularly important in categorising terms used to describe the ideal worker across worker interviews, leadership interviews and firm documentation (RO2). As such, a separate code was included for ideal worker descriptors to aggregate this data for analysis.

Findings were interpreted for each case study and input into a key findings spreadsheet which categorised quotations and themes related to the research questions. Commonalities across case studies were then synthesized to provide insight on recurring phenomena experienced across firms. Finally, the findings were connected to themes identified throughout the analysis in existing literature and used in the pursuit of RO5, to provide EDI best practice recommendations and conclusions.

3.6.1 Trustworthiness

In order to minimize concerns regarding the case study method adoption, particular care was taken to test the trustworthiness, credibility, confirmability and data dependability of the project. Four approaches were adopted to test these parameters: construct validity, internal validity, external validity and reliability (Gilbert et al. 2008). The following table has been adapted from Yin's (2018) guidance for case study validation to summarise how each measure was tested for this research project.

Tests for study validation		
Tests	**Case Study Tactic**	**Application**
Construct Validity	Use of multiple sources of evidence	Data has been collected from multiple sources and through the use of two collection methods in order to provide a robust description of each case study firm.
Internal Validity	Address rival explanations	The findings of the study were compared across theories introduced in the literature review chapter. Data from the pilot study has been analysed both inductively and deductively to check for gaps in the deductive analysis.
External Validity	Use of replication-logic	The adoption of a multi-case study analysis allowed for the application of replication logic, wherein firms were chosen based on a predetermined set of criteria in an attempt to replicate findings across case study firms.
Reliability	Adopt case study protocol	A review of current literature was used to determine the way in which the research questions would be answered in this study. Specific qualification metrics were determined for each case study firm as well as the industry to be investigated. A data collection plan was employed across all case studies.
	Develop case study database	The data from each case study was maintained independently with particular care given to securing any identifying data for firms and interview participants.
	Maintain a chain of evidence	The method of maintaining a chain of evidence was observed wherein the research questions were directly linked to the case study protocol which linked to the database and ultimately the reporting of case findings.

Table 29 source: adapted from Yin 2018

The aim of construct validity is to ensure both that the researcher and methodology of a given study does not unduly influence the results, thus this study employed multiple data collection methods to enhance its validity. Three distinct perspectives were sought out by the researcher; that of the firm, male workers and female workers. This provided an opportunity for both workers considered to be highly aligned with the ideal worker narrative as well as those considered to be marginalised to provide their perspectives and experiences pertaining to barriers to inclusion and progression in the firm. Moreover, the dual data collection strategy of this study provided a level of rigor wherein research questions were analysed, compared and contrasted as detailed in section 3.2.

Second, internal validity was tested in the selection of the theoretical framework of this study wherein competing theories were identified and considered. This was a complex task as feminist research on organisational theory is a rapidly and constantly shifting landscape. As such, an additional step was added to the data analysis phase to test the validity of the selected framework. Data from the pilot case study was analysed both inductively and deductively without the guidance of the coding structure derived from the study's theoretical framework. This was employed to examine whether common themes would emerge which did not come to the fore when analysed deductively. In the main, inductive and deductive approaches to the analysis provided similar findings and did not support a re-examination of the framework.

External validity is used to determine the legitimacy of generalising findings from a singular study to the wider landscape (Reige 2003). Whilst this study does not attempt to achieve generalizability, a multi-case study analysis did provide a greater level of robustness to the conclusions made in the cross-case analysis. As such, transferability can be achieved with a higher level of confidence as the findings have been replicated across multiple sites of study.

Finally, the reliability of the study was assessed to ensure that the implementation of data collection and analysis was undertaken thoroughly. As introduced earlier in the chapter, a comprehensive review of similar studies regarding gendered institutions, gender performativity and the assessment of corporate EDI initiatives was consulted for the study design. The applicability of firms was assessed against the purposive sampling qualifications established as part of the study design and a justification of each firm's inclusion in this study has been outlined in section 3.1.4.3. Additionally, a data collection plan was established prior to firm selection and subsequently assessed upon reflection of the pilot study. This approach minimized opportunities for researcher bias to significantly influence the data collection as variations from the data collection plan would need to be justified.

Upon collection of data, an organisational system was developed to house and maintain all artefacts systematically. All artefacts were stored on a secure drive provided by Robert Gordon University and the database was backed on an additional drive provided by the university for this purpose.

3.6.2 Ethical considerations

It is of particular importance to research involving human participants that the design, data collection and reporting of results is done ethically and does not endanger or leave worse off those who participate (Yin 2018). Thus, a detailed plan of protection was created prior to all data collection efforts. First, informed consent was ascertained to "ensure that all human subjects retain autonomy and the ability to judge for themselves what risks are worth taking for the purpose of furthering scientific knowledge" (Bloomberg and Volpe 2016 p 162). This included providing an overview of the nature of the study prior to the commencement of all

interviews as well as assuring participants that they had the opportunity to decline to answer any and all questions. A copy of the firm information sheet shared with all participants as well as the individual consent statement can be reviewed in Appendix I. The right to record was obtained for each interview and the ability to review written transcripts was extended to all participants. Firm liaisons which assisted in the procurement of interview participants could not be direct supervisors nor high-ranking members of leadership so as to minimize undue pressure to agree to an interview or respond in a particular way.

Furthermore, both case study firms as well as workers were protected from any harm rooting from the study. During the firm selection phase outlined in section 3.1.4.3, care was given to ensure a thorough understanding of the study purpose with firm leadership as well as liaisons. This was done to provide a mutual understanding of the type of data needed to achieve the study aim and address any concerns the firm might have. Additionally, it was determined that study findings might be shared with the firm if requested, however additional checks to ensure for participant anonymity would be conducted to ensure that no one participant could be identified in the report. Direct quotes included in the thesis were carefully chosen, with any identifying information redacted. Similarly, firms were ensured anonymity as the findings of the study could cause potential harm to their reputation as a fair and equitable employer. Thus, all data was thoroughly examined to identify and exclude any information which could potentially lead to firm identification.

3.6.3 Reflexivity

Finally, some espouse that researcher bias is a contested term in qualitative research (Thorne, Stephens and Truant 2016), the essence of which is better addressed through “concepts such as rigor and trustworthiness [which] are more pertinent to the reflexive, subjective nature of qualitative research” (Galdas 2017 p 1). Indeed, current academic discourses of feminist and qualitative research enquiries denote the importance of acknowledging the role of the researcher in the data collection process (Hesse-Biber 2012). The researcher of this project identifies as an American, childless, cis-gender, technophile, white woman, all of which inherently has impact both on the way in which interview participants interact with the researcher as well as how these interactions are interpreted by the researcher in the analysis of findings. Whilst the researcher sought to minimise bias in the project planning, data collection and analysis, it is necessary to acknowledge that researcher influences cannot be wholly removed from the study.

First, whilst the researcher was passionate about the inclusion of an intersectional lens in the research project, as a cis-gender white woman without caring responsibilities, it was determined that could introduce gaps in the data collection which would be more accurately identified by a diverse research team. As such, the researcher chose to focus the data

collection at the firm level, which inherently limited access to an intersectional group of interview participants, rather than expanding the project to a wider case study analysis across the industry which actively sought minority sampling. This limitation is therefore addressed in the conclusion of the thesis so as to acknowledge the importance of a diverse enquiry of the research aim and the barriers to achieving this for the study.

Second, a strategic approach was taken to approach the semi-structured data collection as an exercise in capturing the true sentiments of each research participant. Thus, the researcher chose to begin each session by building rapport and creating a safe environment for participants to share their experiences without reproach. Specifically, the researcher relied heavily on building a rapport with male interview participants who were more likely to provide guarded responses to a feminist enquiry through connecting on similar interests such as gaming and current tech advancements. The researcher additionally leveraged her role as an American to establish her own interest in the research as finding the Scottish ICT sector to have several best practices which are under-reported on in comparison to the hypermasculine culture often experienced in the US ICT sector. In this way, the researcher sought to minimise male interview participant's assumptions of her as a feminist interloper and establish the intention to report on the findings fairly and accurately.

Finally, with both male and female interview participants, the researcher chose to minimise her own reaction to responses so as not to impact the way in which participants moderated their future answers. This was done as the primary goal of these interactions was to elicit responses which most accurately reflected the experiences and sentiments of interview participants rather than to establish a discourse or debate between researcher and participant about the topics covered in the interview guide. Thus, the researcher strategically chose not to outwardly agree or disagree with any statements made by participants but rather to acknowledge their answers and use open-ended questions to allow the participants greater agency in the way they chose to respond.

Finally, in addition to acknowledging the role of the researcher, this research project sought to fully consider ways to mitigate researcher bias which may fall outside the purview of study validity tests outlined in the previous section. As such, three additional steps were taken to ensure study rigor. First, a work in progress paper was submitted to a large national conference in which the researcher presented on the theoretical viewpoint and methodology planned for the study. This allowed for contrasting opinions to arise and to be considered prior to the collection of data. Second, experts regarding post-feminist theory and preference theory were consulted periodically throughout the data collection and analysis process through university connections as well as presentations and discussions at four relevant conferences during the period of the study to ensure that the methods used in this study were applied appropriately. Finally, interview transcripts were member checked by study participants to ensure that the

data collected represented their views rather than that of the researcher. Whilst the researcher, despite their best efforts, does not claim to have fully removed their perspective from the study, these steps have been taken to ensure that the results of this study reflect the voices of the participants.

3.6.3 Limitations

All studies are constricted in their ability to contribute to knowledge, thus limitations must be established and addressed prior to approaching the findings of this study. Whilst the strengths of a case study approach far outweigh the limitations, it is important to recognise the boundaries in which this tactic is placed. Primarily, there is some understanding that the use of a case study approach limits the generalizability of the research (Denzin 1970, Feagin, Orum and Sjoberg 1991, Eriksson and Kovalainen 2010). Whilst necessary to achieve the objectives of this study, this is further limited by the decision to select ICT firms at the forefront of Scottish EDI initiatives. Thus, the goal of this project is transferability, wherein the reader has the authority to interpret the findings in relation to their own experiences and adopt recommendations as applicable (Yin 2018). Furthermore, there is a heightened importance associated with a case study method to address the researcher's influence on the interpretation of findings. An unethical researcher performing a case study analysis would have an increased ability to selectively accept data which affirms their assumptions and ignore data which contradicts it (Guba and Lincoln 1981). As such, detailed protocols were designed and followed in the design of the study as well as the analysis of the data. Bias was checked through the use of software identification of themes as well as the model of trustworthiness introduced in the previous section.

Second, it must be acknowledged that interview participants in this study are from a decidedly limited background in regards to race, ethnicity, class and disability status. Access to a more diverse participant group was limited by the firm focus of this study and the wider homogeny of the Scottish ICT workforce. Thus, whilst the concept of the ideal worker is explored in relation to gender, the ability to report on findings outside of a gendered context is limited. This provides a rich area of expansion for future studies wherein additional areas of dissonance should be investigated for individuals with two or more classifications which preclude them from ideal worker status.

Finally, the need to protect the privacy of research participants precluded the use of some methods of data collection which may have added to the richness of the data. Particularly, researcher observations, detailed descriptions of public branding and descriptions of physical spaces were removed from the analysis as it was determined that findings associated with this data would provide the reader with the ability to approximate firm participants. Further studies

might seek to partner with firms willing to disclose their identities in order to take advantage of these additional sources of data.

3.7 Summary

This chapter provided insight into the methodology chosen for this study and the way in which it informed the research method and analysis. Case study firms were introduced along with an outline of interview participants and a review of artefacts included in the analysis. Limitations, ethical considerations and the steps taken to ensure trustworthiness were outlined. Subsequent chapters will begin the analysis, interpretation and synthesis of findings for each case study respectively. It will then continue to provide a cross-case analysis in an effort to contribute to knowledge on gendered organisations within the Scottish ICT industry.

Chapter Four: Gendered institutions

4.0 Introduction to organisational barriers to inclusion

Acker's (1990) theory of gendered institutions lies at the crux of this research project and has had a significant impact on the structure of the study as well as the analysis of the data collected. As it can be argued that significant progress has been made in gender equality since the introduction of the theory thirty years ago, it was important to establish the validity of the gendered institutions model in a contemporary context. This is reflected in the first research objective of this study:

RO 1: To establish the validity of studying differences between the experience of men and women working in technology firms in Scotland and select a relevant framework for the analysis of those potential differences.

In partial fulfilment of this objective, evidence was collected in line with the gendered institutions model (Acker 1990). In this chapter, aspects of gendered job divisions, organisational culture and worker discourse are evaluated for each case study firm. As introduced in chapter two, it was determined that organisational logic, the fifth substructure included in earlier iterations of Acker's (1990) model and removed later (1992), is integrated into the analysis of organisational culture for the purpose of this study. As such, aspects of organisational logic, such as policy and recruitment practices, are used to inform the firm perspective on culture whilst worker experiences are used to articulate how this is experienced in practice. Specifically, this chapter presents findings limited to the organisational culture, gendered job divisions and worker discourses as it seeks to establish the organisational inputs expressed in the theoretical framework, whilst subsequent chapters will address the formulation of the ideal worker narrative and the cumulative impact on workers:

Addressing the theoretical framework

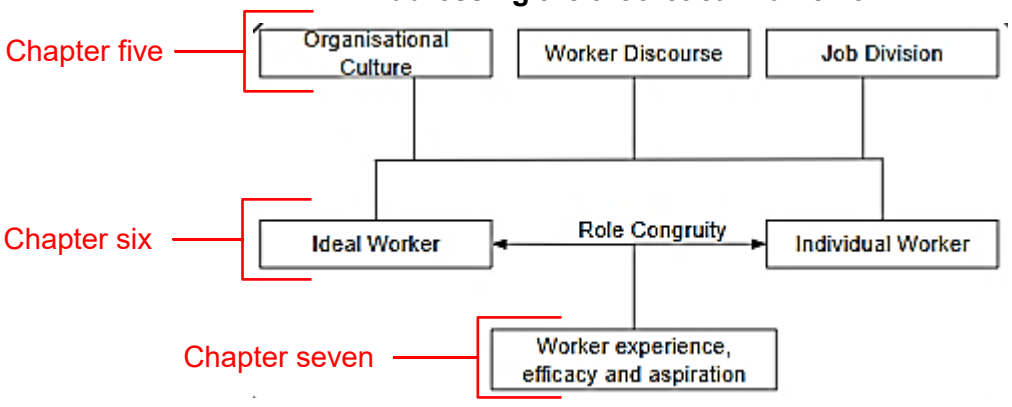

Figure 18 source: author generated

Evidence of gendered organisational substructures will be addressed in the remainder of this chapter for each case study firm. For the purpose of comparison, a red, amber and green system has been implemented to evaluate each case study firm against the criteria introduced in the remainder of this section. The criteria are summarised in a table at the end of this section and revisited throughout the chapter to provide indications of high, medium or low evidence of each gendered substructure for each firm.

4.0.1 Indicators of gendered job divisions

As presented in the literature, it was necessary to determine the levels of gendered job divisions both horizontally and vertically in each case study firm. First, the assessment of horizontal gendered job divisions was formulated as a general benchmarking against the wider Scottish workforce and the ICT landscape. It is well established that technology firms have higher levels of gender segregation than that of the overall workforce (Woodfield 2000, Thewlis, Miller and Neathey 2004, Prescott and Bogg 2011). Thus, it was determined that case study firms with gender divisions mirroring the wider Scottish workforce would indicate forward progress in gender equality and would therefore be assigned a green rating. An amber rating was assigned to firms with workforces which are at least in line with the wider statistics of the ICT industry. Finally, firms with gender divisions and pay gap reports higher than industry average were assigned a red rating.

Second, vertical job division assessments were informed by academic evaluations of gender diversity in leadership. Specifically, trends to improve the number of women in executive and board positions have advanced from an exclusive push to include women on boards to an assessment of the critical mass needed for an organisation to reap the benefits of gender-diversity at the highest levels of leadership (Eagly and Carli 2007, Brown and Kelan 2020). Studies which have assessed the business benefits of board gender diversity suggest that a board must have at least three women, with larger boards increasing representation to 30% accordingly to reap the benefits of board diversity (Konrad and Erkut 2006). This datapoint was used as a benchmark, with a green rating awarded to firms with at least 30% female representation on both the board of directors and executive team. An amber rating was given to firms with at least one woman on both the board of directors and executive team while a red rating was given to firms lacking female representation on one or both.

4.0.2 Indicators of gendered firm cultures

As introduced in chapter two, the culture a firm seeks to engender can be indicated in the policies and initiatives (Ashforth, Schinoff and Brickson 2018) established as well as the external employer branding used to attract new employees (Wilden, Gudergan and Lings 2010). Moreover, studies regarding movements to increase the number of women in tech show

that workforce diversity should be targeted at the recruitment stage and must also be maintained through gender-diverse retention initiatives (Etzkowitz and Ranga 2011). As policies do not necessarily translate consistently into practice, there is a further need to derive worker experiences of culture to compare against the aspirational culture of the firm (Dobbin and Kalev 2016). Thus, the firm perspective of organisational culture was assessed through an analysis of policy documents and then compared to the lived experiences expressed by interview participants. Firms with a comprehensive set of EDI policies in place and supporting evidence that policies were well-supported in practice were awarded a green rating. An amber rating was given to firms who had EDI policies in place but contradictory evidence was presented regarding worker's experiences with them. A red rating was given to firms who did not have an established set of policies or firms who had EDI policies however strong evidence was found that they had not been implemented in practice.

Similarly, research has presented that the way in which a firm markets itself to potential job applicants can impact the population who applies (Dobbin and Kalev 2016). An assessment of recruitment practices was particularly important as the Scottish ICT sector has high levels of occupational segregation, with the majority of the skilled workforce identifying as male (ScotlandIS 2018). Moreover, studies have suggested that women are more likely to enter the tech workforce later in their careers than men and are more likely to do so through a reskilling programme rather than a traditional university course (PwC 2017). As such, an evaluation of employer branding and recruitment practices was needed to separate inherent issues with recruiting from a highly male-dominated applicant pool and the efficacy with which each firm sought to capture gender-minority applicants. Thus, firms which provided evidence of strategic diversity recruitment methods as well as inclusive employer branding were awarded a green rating. Firms which demonstrated either inclusive employer branding or strategic diversity recruitment methods were awarded an amber rating. A red rating was given to firms which lacked female representation in their employer branding efforts and who did not present evidence of diversity recruitment tactics.

4.0.3 Indicators of gendered discourses

Finally, research suggests that in highly male-dominated industries such as the ICT sector, the way in which workers interact with one another can become hypermasculinised, further marginalising those who do not modify their behaviour to align with the set of behavioural norms established informally between co-workers (Agapiou 2002). Thus, it was necessary to obtain evidence of gendered discourses and behaviours, or the lack thereof, in each case study firm. This was assessed on two levels; the first of which sought to capture minor experiences of gendered banter or microaggressions which were often performed

unconsciously by a worker while the second category of harassment and sexism sought to capture more significant acts of aggression.

Microaggressions between male and female workers as well as exclusionary informal socialisation can act as indicators of gendered barriers to inclusion (Rutherford 2001). As such, interview participants were asked to share their experiences of such behaviours within the firm as well as the wider context of firm reinforcement or disapproval of them. A green rating was awarded to firms where such behaviour was generally considered to be counterculture and infrequent while an amber rating was given to firms where such behaviours were experienced fairly regularly but were misaligned with the firm's aspirational culture. A red rating was given to firms with frequent experiences of such behaviours and where participants generally felt that it was reflective of the wider culture of the firm.

Experiences with harassment and sexism were assessed separately from small acts of aggression as they are more likely to lead to negative career consequences for the victims. Indeed, individuals who experience sexual harassment are more likely to be dissatisfied in their work, stagnate in their career progression (McLaughlin, Uggen and Blackstone 2017) and are more likely to leave their place of work (Eagly and Carli 2007). Thus, it was important to assess the way in which each firm established processes to deal with such incidents as well as the efficacy of such processes reflected in the lived experiences of interview participants. A green rating was awarded to firms with well-established formal reporting measures who also had infrequent experiences of harassment shared by interview participants and a positive assessment of the reporting system for those who did. An amber rating was given to firms who had established a set of processes to investigate reports of harassment and sexism however interview participants reported mixed experiences in their confidence in the system. A red rating was given to firms where workers generally shared poor experiences with the reporting system or chose to opt-out of formal reporting specifically due to a lack of confidence in the system.

4.0.4 Summary of evaluation criteria

In summation, six areas of evaluation have been identified across the three gendered substructures presented in this chapter. The criteria for each rating have been derived from the review of relevant literature presented in chapter two and reminded in the introduction of this section. The following table has been composed to provide a summative rubric against which to evaluate the gendered substructures of each case study firm.

Evaluation criteria		
Job divisions		
Horizontal	Green	Gendered divisions and pay gap data reflective of Scottish workforce
	Amber	Gendered divisions and pay gap data reflective of Scottish ICT industry
	Red	Gendered divisions and pay gap data below industry average
Vertical	Green	At least 30% of Executive team and Board of Directors held by women
	Amber	At least one female on both the Executive team and Board of Directors
	Red	Lack of female representation on either the Executive team or board of directors
Organisational culture		
Policy and EDI initiatives	Green	EDI policies and initiatives in place with evidence of effective implementation. High levels of alignment between worker experiences and firm aspirational culture.
	Amber	EDI policies in place with some evidence of contradictory practices. Some alignment between worker experiences of culture and firm aspirational culture.
	Red	A lack of EDI policies or strong evidence that policies are not implemented in practice. Little to no alignment firm aspirational culture and the lived experiences of workers.
Recruitment	Green	Demonstrated efforts to recruit more women, particularly into ICT roles and evidence of employer branding concentrated on equal representation
	Amber	Demonstrated efforts to recruit more women, particularly into ICT roles or evidence of employer branding concentrated on equal representation
	Red	A lack of female representation in employer branding efforts and no evidence of recruitment efforts targeted at increasing the number of women in the firm
Gendered discourses and behaviours		
Gendered banter/ microaggressions	Green	Reports of such behaviour are considered counterculture/infrequent and informal/low consequence reporting channels can be used to report such experiences
	Amber	Worker experiences of such behaviours are considered intermittent and misaligned with the wider firm culture
	Red	Workers report frequent experiences of such behaviours which reflect the lived culture of the firm
Harassment/sexism	Green	Well-established formal reporting measures; infrequent experiences shared by interview participants and/or a positive experience resulting in the use of the reporting system
	Amber	Formal reporting measures are established, however there is some disparity in the experiences of participants who have needed the system
	Red	Reporting experiences are poor, or workers opt out of reporting explicitly due to a lack of confidence in the system. Evidence of workers leaving the firm due to such incidents.

Table 30 source: author generated

The remainder of this chapter will present the findings for each case study firm, assign a rating for each aspect of the evaluation grid based on those findings and finally discuss best practices which have surfaced in the data in parallel with existing academic knowledge for each section.

4.1 Job divisions

As introduced in chapter two, despite considerable social and political attention to redress gendered differences in work, studies reveal rigid and unchanging occupational gender roles, particularly in the ICT industry (Woodfield 2000, Kelan 2007) which reinforce gendered differences in pay (Hegewisch and Hartmann 2014) and career progression (McCullough 2011). As such, this study places considerable importance on assessing the gendered job divisions within each firm. Data was collected regarding each organisation's overall gender composition. The majority of data regarding the members of the executive teams and boards of directors was sourced from each organisation's website and confirmed with a member of leadership. Vance Ltd. was the exception to this as the information was not publicly available. An interview with leadership revealed general trends however statistical data was not disclosed to the researcher.

Horizontal data regarding gender diversity across departments was primarily sourced through interviews with leadership. Whilst each firm had data regarding the number of women working in technical positions within their firm, the gender divisions of labour were not provided across departments. General trends were disclosed by members of leadership and confirmed through worker interviews. Additional data was sourced through pay gap reporting which provided some context to the gendered divisions of labour both horizontally and vertically.

4.1.1 Gendered divisions in technical and non-technical roles

Whilst all three case study firms presented strong commitment to encouraging and supporting workforce diversity, this was not reflected in the gender statistics of technical roles. Data requested from leadership teams allowed for a comparison of the gender divisions of technical and non-technical workers for each case study firm and is presented in the following table.

Gender job divisions across case study firms				
	Overall UK Workforce		*ICT Workforce*	
	Male	Female	Male	Female
Beets Co.	75%	25%	82%	18%
Muckduk Inc.	80%	20%	86%	14%
Vance Ltd.	70%	30%	87%	13%

Table 31 source: author generated

Vance Ltd. reported the highest percentage of female workers in their overall workforce at 30%, however this statistic belies the higher levels of gendered job divisions experienced in the firm. Specifically, data sourced from leadership detailed that women represent 61% of support and administrative roles and 13% of product and engineering roles. As such, the organisation has the highest levels of gender disparity specific to their ICT workforce.

Beets Co. presented slightly lower numbers of women in the firm overall at 25%, however they have the highest percentage of women in technical roles out of all three case study firms at 18%. Leadership interviews shared that gender divisions within the firm reflected wider social norms, with male-dominated technical and sales teams and female dominated customer-facing and administrative roles.

Finally, Muckduk Inc. reported the lowest number of women in their workforce of the three case study firms at 20% and the second highest number of women in technical roles at 14%.

4.1.1.1 Gendered pay differentials

Horizontal gendered job divisions reflected in this study show evidence of impacting pay differentials between men and women. Specifically, the findings suggest female-dominated roles within firms are often valued less than those dominated by men with research suggesting "salaries awarded for the same types of work have been strongly determined by the sex of the worker" (Woodfield 2000 p 7). To comprehend the significance of gendered job divisions, it is necessary to understand the knock-on effects of such divisions. As outlined by Acker (1992), the divisions of women and men into different roles perpetuates pay inequalities and organisational investment in male-dominated roles. This is particularly true in ICT (Ashcraft and Ashcraft 2015).

Recent legislative shifts in the United Kingdom have provided data which highlights this impact through annual pay gap reporting. Data has been made available starting in 2017 and has been reported by 11,60 companies operating in the UK (UK government Equalities Office 2019). An overview of the gender pay gap for the Scottish tech industry is presented in the following table.

2018 Scotland tech industry gender pay gap		
Mean hourly pay: men	Mean hourly pay: women	Pay gap full time workers
£17.68	£14.89	6.6%

Table 32 source: UK Data Service 2018 gender pay gap reporting

Companies over 250 employees operating within the UK are legally obligated to produce a gender gap report which provides the mean and median pay gap, mean and median bonus pay gap and gender breakdown by pay quartiles within the firm. This aggregate data was accessed through the UK Data Service to provide insight into the wider UK pay gap as well as the pay gap limited to the SIC (standard industrial classification) codes in which the case study firms operate.

It must be noted that until recently, Muckduk Inc. has not been legally required to report pay gap data for their firm, however this shifted post data-collection due to a 2018 merger with another UK-based company which resulted in an increase of their British employee base over

the legal threshold for reporting. Whilst this data was not available during the prescribed data collection period, it was subsequently obtained for 2019.

Prior to this change, leadership made the decision not to disclose gender pay differentials both to the staff as well to the researcher for this study. Two female Interview participants spontaneously raised their concerns regarding this decision, both of whom work in technical roles.

> *Our company wasn't [required to release pay gap information] because we didn't have over 250 employees in the UK at the time. And it was brought up in one of the meetings and our CEO said that they're not going to share that information publicly. I did speak up about it because I didn't feel comfortable and I didn't feel that was right.*
>
> *Muckduk Inc. female technical worker*

The previous lack of access to pay gap data in 2018 resulted in the use of 2019 data which includes both Muckduk Inc. and the company with which they merged. All data pertaining to Muckduk Inc. post data collection will be referred to as Muckduk Merged to indicate that this data is a compilation of both Muckduk Inc. and the ICT company with which they merged in 2018.

The following table provides a comparison of the number of women represented by pay quartile for the UK ICT industry, wider UK workforce and each case study firm.

Female representation by pay quartile					
	Beets Co.	*Muckduk Merged*	*Vance Ltd.*	*Industry Average*	*UK Average*
Q1	23%	22%	19%	22%	39%
Q2	23%	39%	22%	27%	45%
Q3	16%	45%	36%	33%	49%
Q4	35%	52%	44%	42%	54%

Table 33 source: UK Data Service 2018, 2019 gender pay gap reporting

In addition to the data presented, all three firms cite two primary factors for the pay gap evidenced in their organisation; the lack of women in technical roles and the lack of women in leadership roles. While women represent 18% of the technology workforce in Scotland (Graham et al. 2016), they are more likely to be employed in non-technical roles than their male counterparts (D'Mello 2006, Perez 2019). This is reflected in the wider UK pay gap data, where women constitute 42% and 33% of the lowest pay quartile and second lowest pay quartile respectively. Moreover, the ICT industry gender pay gap is wider than the UK gap as a whole. Across industries, women hold 39% of jobs in the highest pay quartile; seventeen percentage points more than the highest pay quartile in ICT (UK Data Service 2018). Recent research shows that this trend is not limited to Scotland or the UK but is present across

international technology hubs (Hegewisch and Hartmann 2014). As demonstrated in the table above, case study firms for this study reflected similar findings wherein the majority of female workers were represented in the lower quartiles.

Of the case study firms, Vance Ltd. has the lowest female representation in the highest pay quartile, falling three percentage points below industry average, whilst Beets Co. mirrors the industry statistic of twenty-two percent and Muckduk Merged comes in one percentage point higher. Somewhat in conflict with this data, the findings from Muckduk Merged pay gap reports also demonstrate that women are more commonly represented in the lowest pay quartile than that of the remaining case study firms, with additional data reporting that male employees on average make between 25-31% more than female employees and earn over 70% more in bonuses.

While men comprise the majority of the workforce at all levels at Beets Co., the gender gap varies across income quartiles. The lowest gap is found in Q4 at 30 percentage points (pp) and the largest gap is found in Q3 at 68pp while it stabilises at 54pp in Q2 and Q1. As with Beets Co. and Muckduk Merged, the pay gap data for Vance Ltd. demonstrates that women are more likely to be represented in lower salary brackets at 44% of the lowest pay quartile and 36% of the second lowest pay quartile.

As demonstrated in the findings of this section, the gender distribution between each pay quartile is dependent on the overall ratio of men and women within the firm. Thus, it is necessary to take the variances between quartiles into account. Specifically, firms with no vertical gender segregation would show similar gender distributions across all four quartiles, while firms with high levels of vertical gender segregation would show higher percentages of women in Q4 than in Q1. With this understanding, the pay gap data suggests the highest levels of vertical job divisions in Muckduk Inc. with the number of women in Q1 30pp lower than Q4, followed by Vance Ltd. at 25pp and finally Beets Co. at 12pp.

4.1.2 Gendered leadership teams

Across case studies, evidence suggests that all three organisations have decidedly male-dominated leadership teams. Data was collected from each case study firm regarding the gender composition of their board of directors and executive teams in 2019 and is presented in the following table.

Leadership teams by gender				
	Board of directors		*Executive team*	
	Male	Female	Male	Female
Beets Co.	12	3	13	3
Muckduk Inc.	8	0	5	0
Vance Ltd.	N/A	N/A	8	2

Table 34 source: author generated

It should be noted that the gender division of the executive team at Muckduk Inc. shifted during the course of the data collection. Prior to 2019, the Chief People Officer was included in top management and was held by a female. However, this position has remained vacant after the departure of the employee, leaving no female representation amongst the leadership team. Additionally, gender composition data was not available for Vance Ltd. at the board of directors' level, with leadership interviews suggesting an impending transition which would remove the need for a board of directors at the company level and an inability to disclose the reasoning behind this shift.

Gender imbalances are most present in the leadership of Muckduk Inc., with slightly greater female representation found in the remaining case study firms. For reference, the UK ICT industry in 2018 reported an average of 22% of board directorates held by women, with women more likely to be represented in non-technical directorates (29%) than technical directorates (22%) (Tech Nation Report 2018). Vance Ltd. reported some female representation within their leadership team, however 80% of executive roles are held by men, placing them statistically just under the national average. Two executive positions are held by female employees, both of which are in roles traditionally dominated by a female workforce: human resources and marketing.

Whilst eighty and eighty-one percent of Beets Co. executive team and board of directors are male respectively, the firm has exhibited some evidence of forward progress in increasing the number of women in leadership positions. This is particularly evident in comparison to the remaining case study firms as well as contemporary industry trends. Unique to the firm is their participation in the 30 Percent Club, an initiative which UK organisations can opt into to challenge themselves to increase the number of women in board positions. Through their participation, the organisation is required to provide a measurable goal with a predetermined time table and adhere to high levels of reporting and transparency in their progression towards this goal. The pay gap reporting and external EDI reporting for Beets Co. regularly cites the importance of their participation in this programme:

> *We've set targets to promote gender balance in our business. We've set ourselves a target of a 40% female senior management team by the end of 2020. We're also members of the 30% Club, a campaign to achieve at least 30% women on all FTSE boards.*
>
> *Beets Co. Equality and Diversity Reporting*

Across case study firms, Beets Co. was able to provide the most detailed accounting of the progress made towards gender parity at leadership levels. Interviews with leadership confirmed that the firm's participation in the 30 Percent Club was, as stated in their equality and diversity reporting, a key reason that the organisation had been able to increase gender parity at the Executive and Board levels.

Whilst Vance Ltd. has similarly introduced a goal in their pay gap reporting to increase the diversity of leadership, there was no plan of action presented or progress reported to reach that goal:

> *One of our goals in the next 12 months is to increase the diversity within our leadership roles, which we believe will positively impact our quartile distribution.*
>
> *Vance Ltd. pay gap report*

When asked to outline the primary ways in which the firm works to increase and support workforce diversity, no interview participants, to include leaders and managers, identified this initiative. Thus, no evidence was found regarding the implementation of EDI initiatives to increase female leaders in practice.

4.1.3 Evaluation and discussion of gendered job divisions

In line with the evaluation metrics established in section one, all three firms showed high indicators of gendered barriers to inclusion regarding horizontal job divisions. Whilst all three firms did not egregiously surpass industry averages, pay gap data and the number of women in technical positions were not in line with the minimum threshold for amber status. Additionally, Muckduk Inc. was assigned a red rating for vertical job divisions as there was no female representation at the highest leadership levels. Both Vance Ltd. and Beets Co. were awarded an amber rating as their female representation fell below the 30% threshold to be awarded green.

Firm evaluation of gendered job divisions		
	Horizontal	Vertical
Beets Co.	Red	Amber
Muckduk Inc.	Red	Red
Vance Ltd.	Red	Amber[5]

Table 35 source: author generated

The red and amber ratings presented across case study firms support Heilman and Caleo's (2018) application of lack of fit theory regarding the way in which gender inclusion is approached in organisations, suggesting a need to make systematic changes to existing organisational processes rather than establishing new initiatives targeted at diversity and inclusion. The wider Scottish ICT workforce gender composition is on par with Beets Co. at 18% (Graham et al. 2016) while Muckduk Inc. and Vance Ltd. fall below average by five percentage points and four percentage points respectively. This disparity reveals some trepidation regarding the best practice status of all three case study firms regarding equality,

[5] Statistical data was unavailable however interviews with leadership informed the assessment of this criteria.

diversity and inclusion practices. As such, the findings support a need to revaluate the way in which success is measured in equality, diversity and inclusion work, in agreement with literature which argues a need for an emphasis on results rather than efforts (Ivancevich and Gilbert 2000, Hubbard 2007, Madera 2018). In this vein, a best practice can be identified in the efforts of Beets Co. which is supported in the existing literature presented above. Through the heightened focus on evaluation, monitoring and reporting of gender diversity required to participate in the 30 Percent Club, Beets Co. has placed an emphasis on the outcome of their EDI initiatives for this specific metric and demonstrated some forward progress in achieving their goal.

Moreover, access to gender pay differentials provided valuable insight into the impact of occupational segregation at the organisational level. The findings showed strong alignment with the conclusions presented by the UK Government Equalities Office (2019) which found that gendered differences in performance evaluations, differentials in starting pay for identical jobs and the recruitment of women into lower paid roles all contribute to the perpetuation of the gender pay gap. Similar influences are described in academic studies of gender pay differentials. For example, Cross and Linehan (2007) found that women are more likely to experience career stagnation than men in ICT whilst Ashcraft and Ashcraft (2015) demonstrated that entry-level work is remunerated at a higher rate for male-dominated positions than female-dominated positions in the sector.

Indeed, Ashcraft and Mumby (2003) assert that through wider professionalisation efforts, male-dominated roles are often valued more than female-dominated roles and moreover state that when male-dominated occupations become less divided, the value of the role decreases. This is supported through a historical understanding of gender and tech roles in the UK (Hicks 2017) where a systematic effort was undertaken to increase the number of men into computing which coincided with strong pay rises and quick promotion opportunities. The gender pay gap present across all case study firms demonstrates that women remain disproportionately represented in the lowest pay quartile of ICT firms. This is further evidenced in the industry pay gap which remains larger than the wider UK gender pay gap. Next, this chapter will go on to present findings regarding the aspirational culture and lived experiences of workers is presented and evaluated for each case study firm.

4.2 Organisational Culture

As introduced in chapter two, gendered institutions theory (Acker 1990) posits that the way in which an organisational culture is introduced, reinforced and experienced systematically contributes to the marginalisation of some and idealisation of others. Specifically, trends in the literature suggest that the way in which individuals perceive the culture of an organisation can

have a gendered impact on the attraction and retention of workers (Jandeska and Kraimer 2005, Blanen and Fischer 2010, Horowotz 2013). Based on this understanding, this study sought to capture the way in which firms incorporate equality, diversity and inclusion in their culture and the extent to which this aligned with the lived experiences of workers.

First, it was determined that organisational policies both directly related to EDI, such as support initiatives for marginalised workers and diversity training programmes, as well as those which indirectly impact EDI, such as flexible working policies, would provide insight into the aspirational culture of each case study firm (McCarthy, Darcy and Grady 2010). This was further supplemented by interviews with leadership to provide a holistic view of the firm perspective and subsequently compared to the way in which workers described the firm's culture in their interviews.

Second, recruitment practices were identified as a way in which the inclusive or gendered culture of a firm is expressed to potential new recruits (Alnıaçık and Alnıaçık 2012) and therefore was assessed to better determine how each case study firm signalled their dedication to diversity through an analysis of their employer branding as well as through interviews with leadership regarding their EDI recruitment strategies. The following subsections will provide an in-depth presentation of findings related to these aspects and will conclude by addressing the ratings for each firm.

4.2.1 Policy and EDI initiatives

Across case study firms, three key themes emerged in the data regarding the way in which firms described the presentation of culture through policies and initiatives. First, organisational approaches to flexible working were cited across firms as a way in which to support and retain workers with a variety of external responsibilities and working patterns. Second, each firm cited the use of initiatives such as minority networks, diversity celebrations and internal discussion channels to raise minority worker profiles and express their commitment to an inclusive working environment. Third, firms reported implementing a suite of EDI training programmes, particularly aimed at people managers and recruitment teams to reduce barriers created by unconscious bias.

4.2.1.1 Flexible working

The opportunity to work flexibly was used liberally by all case study firms to signal that their culture allowed for individuals, particularly those with caring responsibilities, to alter their work patterns to align with personal responsibilities. However, the findings from this study demonstrate that flexible working opportunities are implemented with varying degrees of success across firms.

Beets Co.'s policies around flexible working were identified as one of the primary ways in which the firm enabled more women to remain within the workforce. The firm's flexible working options include the ability to work from home, participate in a job-sharing programme or request modified and reduced hours. Of their UK employee base, 4,216 workers (4.5%) are part-time and an additional 210 (0.2%) participate in a job-sharing scheme. These options were of particular importance for those which caring responsibilities as they were able to adapt their work schedule rather than exiting the workforce. The firm's flexible working policy outlines five guiding principles in the outset of the document:

> *Everyone has the opportunity to ask to work flexibly.*
>
> *We want everyone to have a healthy work life balance.*
>
> *We'll take into account individual needs and the needs of the business.*
>
> *We'll make sure we take into account any personal circumstances.*
>
> *We'll make sure our process is fair and free from bias.*
>
> *Beets Co. Flexible Working Policy*

Of particular interest is the written commitment to accessibility to flexible working for all employees as this was not necessarily reflected in the lived experiences of workers. Specifically, worker perspectives revealed that flexible working arrangements are most often made informally between the worker and their line manager, while a formal process is available for those who wish to challenge the decision. Interviews with leadership established that this option is rarely taken up and evidence from an employee intranet discussion suggested that those who do take up this option often find that Beets Co. do not overturn management decisions. This was particularly evident with one discussion board participant who felt that they did not have access to flexible working within their role:

> *I have had 6 children during my [firm] career, I have never asked for flexible working until recently when I came back from maternity leave and it was declined. I appealed and still got declined, so for me [firm] has not supported me with being a mother of 6 and work life balance. I feel really disappointed.*
>
> *Beets Co. Discussion board post by female worker*

The post was addressed by a member of management after receiving considerable attention on the discussion board. This particular experience was echoed to a lesser extent by three additional women on the same post whilst five workers shared that they felt supported by Beets Co. A similar divide emerged from worker interviews, with three of seven female interview participants citing a heightened push to reduce their flexible working.

Within Beets Co., flexible working opportunities are taken up for different reasons and with different consistency by male and female workers. In total five out of the seven female interview participants used some form of flexible working compared to three out of the nine male interview participants. While both men and women reported using the opportunity to work from

home, the most recent firm diversity report outlined that the majority of individuals who pursue job sharing, part-time work and altered hours were women. For male interview participants, flexible working was limited to working from home intermittently rather than reduced or altered hours and job sharing. Three female participants who had young children whilst working at Beets Co. recounted that the opportunity to adapt their work schedule allowed them to remain in the workforce. One of nine male interview participants indicated that they used flexible working to assist with childcare duties, however he did so as a secondary resource to his wife when needed.

Two of the three female participants with caring responsibilities at Beets Co. cited the ability to work flexibly as a major reason they have stayed with the firm long-term. This aligns with data reported by the firm in their equality and diversity report which asserted that 86% of maternity leavers return compared to the UK national average of 77%.

Conversely, male participants noted an aversion to working from home and no male participants utilised remote working regularly to balance work and childcare. For example, when asked about whether they work from home, one male participant responded:

> *No and that's a very personal thing. At one point I had three children, I have five children now at home. My wife doesn't work. It was just easier for me and for them to understand that when I'm not at the house I work, when I'm at the house I play.*
>
> *Beets Co. male non-technical worker*

A notable trend shared by three female interview participants with caring responsibilities was an implicit pressure to limit their use of flexible working options. For example, one participant worked primarily from home, coming into the office once per week and when needed for meetings. The purpose for this was to balance her work with caring for her two children, one of whom required additional care. Whilst she had agreed on the arrangement with her line manager, she felt pressure to prove to co-workers that she was present and productive to the extent that she often worked extended hours and responded to emails regardless of the time:

> *I think some people work from home and personally see it as almost a day off or, you know, you're not going to pull your weight. There's a perception that that could be the case and I think you know as a female who has had to work from home then you know we've got a duty to show that we can do that responsibly and in fact be more productive rather than less productive.*
>
> *Beets Co. female non-technical worker*

Another female interview participant reflected that she was reticent to take up flexible working after witnessing a co-worker's experience. Although the worker had retained full-time hours, they did so over a four-day period which allowed her to balance external responsibilities with her job:

> *A member of our team, she's a lady, mid-forties, she had four children. She did get flexible working. What she did was all her hours were just consolidated into four days. So, she had four long days. And I do remember comments being made, 'well this is just no use' because the day that this person was off was the day that somebody wanted to speak to them and it wasn't always the customer you know, it could be internal.*
>
> *Beets Co. female technical worker*

Two female interview participants also reported a recent shift in attitudes regarding flexible working from leadership. This was often expressed informally through verbal conversations with line managers and caused dissidence in their perceptions of balancing work and personal duties:

> *There is a definite pull to get people in the office, you know, which again doesn't help people who, men included, work from home because of family commitments … So, you know… and I have actually had a bit of resistance from my own boss in that area. We've had a chat around it and I think he would like to see me in the office more but he's not pushed it with me. Cause he probably knows I wouldn't. Yeah and to be honest it's not him personally. Big [firm leadership] is pushing that. And it's all about... I don't actually know what it's all about.*
>
> *Beets Co. female non-technical worker*

The changeability of policy application was echoed in an internal discussion board post as well in response to another comment where an individual was refused flexible working accommodations:

> *This highlights inconsistency in how [flex options are] applied within [firm]…I supported a manager a number of years back with a request for job share and despite a solid business case and a precedent already being set in the unit it was turned down by a manager 2 levels up and then again on appeal. The devastation felt by the individual was extremely upsetting. [Firm] does many truly great things but how these are applied in a consistent and fair manner still remains a challenge.*
>
> *Beets Co. Discussion board post by female worker*

A male interview participant noted that the implementation of flexible working opportunities needed to be better-aligned with the firm's policy also:

> *You know, we do have people on reduced hours and jobs share and compressed hours but I think folk find it hard to get local agreement to do that. So, whilst as an organisation it's something we want to promote, there are probably people I imagine who will face barriers when they try and get local agreement for that. There's not quite that recognition from managers just yet that the mentality should be, "how can we make this work".*
>
> *Beets Co. male non-technical worker*

The issue of balancing caring responsibilities with work duties shared by several data sources highlighted fractures between flexible working policies and the actual practice of using them for workers. Moreover, the gendered difference in those who reported such discrepancies suggests a distinct division between male and female worker perspectives.

Whilst overall Muckduk Inc. did not provide strong evidence of a gender-inclusive culture, their approach to flexible working was generally regarded positively amongst both male and female workers. There is no formal flexible working policy, however interviews with leadership provided context for this approach:

> *We're highly agile and work flexibly. So, we don't have a formal flexible working policy in place on purpose, it's 'work with your manager'. If it doesn't impact immediately on the team let's do the right thing for you as an employee. We'll work on the basis of trust. However, if the work isn't getting done, we have a different type of conversation but the go to is 'what is it you need to work to get the best out of you'.*
>
> *Muckduk Inc. female non-technical worker*

Similar to Beets Co., flexible working arrangements are made between the worker and their manager, however the ability to work from home is implied rather than applied for. Interestingly, workers at Muckduk Inc. were much less likely to request permanent flexible working arrangements, opting rather to work from home intermittently as needed. The majority of both male and female interview participants elected to do so approximately one to three times per month.

Whilst three male participants (two of which worked in technical positions) and one female participant (non-technical worker) mentioned they were parents, this was not aligned with a greater need to adopt flexible working practices. Both male and female technical workers primarily did not use flexible working for personal reasons but rather as a means to work until a task was completed rather than picking it back up the next day:

> *If I am really passionate for something, I'm like, 'I have to finish now'. Maybe I'll work like a 10-hour day or maybe I will go home and I will do some more things. It's like winning something and I need to finish because this makes me feel good.*
>
> *Muckduk Inc. female technical worker*

This phenomenon was unique to technical workers at Muckduk Inc. and highlighted alternative uses for flexible working allowances which gave workers agency over their schedules and allowed them to self-select the work pattern in which they would be most effective for the firm. Non-technical workers generally did not report similar trends, with the majority using remote working two to four times a month either to save time and money on commuting, to work more

productively or to attend to household needs such as receiving a package or scheduling a home repair.

Non-management employees at Muckduk Inc. did not report a regular pressure to work extended hours, however those within management roles did. As the organisation operates with offices in two countries, there is some need for managers to work extended hours to accommodate for international meeting times:

> *I'll be on until about 10 o'clock because that's about 5 o'clock their time. So, there isn't an expectation, but it's quite hard to balance if you don't make yourself available. The more senior you are, the more forgiving you probably are of an 8 o'clock call versus we would never ask anybody else to do late night calls. I think the hours can be a little bit of a drain.*
>
> *Muckduk Inc. female non-technical worker*

The need for managers to work extended hours was acknowledged by non-management workers as well:

> *I know that there are some people who do have to stay. Some people have meetings put in for like 6 p.m. and they still have to work a full day before that.*
>
> *Muckduk Inc. male technical worker*

Finally, Vance Ltd. has a flexible working policy similar to that of Beets Co., wherein workers are given the opportunity to request a formal arrangement such as job sharing and reduced hours or an informal arrangement with the line manager such as altered work hours and remote working. Statistically, 7% of the overall workforce is part-time and this opportunity is taken up more often by women (10% of female workers and 6% of male workers have requested reduced hours according to the organisation's pay gap reporting). Informal flexible working opportunities are implied similar to Muckduk Inc., wherein workers do not need to request permission to take them up:

> *For the formal arrangement, it was so I could take my daughter to and from school. But otherwise we could do it for any reason; childcare, making appointments or just to get some quiet working time. We don't have to explain our reasons as long as it isn't clashing with important work meetings.*
>
> *Vance Ltd. female technical worker*

It should be noted that workers generally elect to work from home between two and four times a month, with most interview participants citing a preference for coming into the office. One worker explained that while there are no formal limitations to remote working, doing so too frequently would most likely raise a conversation with her line manager:

> *I would say I work from home maybe once every other week. Any more than that and my manager would probably want to check in with me and see why I needed to work from home.*
>
> *Vance Ltd. female non-technical worker*

This sentiment was reflected by two additional interview participants, however they universally stressed that the reasoning behind this was that generally workers who avoid the office are doing so for negative reasons such as feeling overwhelmed or experiencing discord with another team member. In this case, the line manager aims to step in and help the worker fix any barriers to retention they may be facing at that time.

Included in the document analysis, a summary of employee reviews from Glassdoor.com indicated that Vance Ltd. has a strong commitment to work/life balance for their employees, with flexible working opportunities listed as the most frequently reported benefit.

Interestingly, it is important to note that interview participants in non-technical positions, particularly those in marketing, did not feel they were able to achieve a healthy work/life balance. Three participants interviewed worked as part of the growth team, all of whom relayed the need to frequently work extended hours:

> *I usually come in maybe eight in the morning or earlier and probably don't leave before 7:00 or 8:00. We have been discussing this actually in the growth team specifically just because we run an employee survey at [Vance Ltd.] and one of the things measured in it is work life balance and growth tribe had much worse results compared to the rest of the company. So, it's an interesting one because I think I'm not the only person in this position where I feel like I'm working very long hours but there are probably quite a lot of other people.*
>
> *Vance Ltd. female non-technical worker*

One interview participant who worked part-time in a management role did cite that she often checked in during her off hours however felt that she did so of her own volition as a means to meet team deadlines:

> *I don't work on Monday and I don't work on Friday afternoons. And it's kind of been my choice if I'm still checking slack and emails then and I quite often do. Particularly where we've had quite a high-pressure project over the last few months.*
>
> *Vance Ltd. female technical worker*

Additionally, some aspects of the firm's culture necessitated working extended hours for workers to participate. For example, team meetings are frequently held in person and often require travel between Glasgow and Edinburgh:

> *I would say I'm normally in Glasgow four days a week, one day in Edinburgh just because of where my team is, and I'll occasionally work from home just depending on what I need to do.*
>
> *Vance Ltd. female technical worker*

Some organisational team-building events additionally require extended working hours. Vance Ltd. sponsored charity work was cited as a strong aspect of the organisational culture which is reinforced through the inclusion of volunteerism in three of thirteen job postings as well as a blog post on the subject. This focus, however, was cited as somewhat increasing the need to work extended hours by three interview participants:

> *For example, last week we had a charity one day thing going on. So, we were only in four days, but those four days were quite intense. I would say I was probably in from nine until six.*
>
> *Vance Ltd. male technical worker*

Other participants noted weekend events where they participated in the organisation's Pride fundraising and parade team, although it should be noted that participation in such events was not seen as either explicitly or implicitly mandatory but rather an opportunity to collectively show support for causes. As such, interview participants did not feel this was an extension of their work hours but did acknowledge that those with families were less likely to join.

In summary, whilst all three case study firms have progressive approaches to flexible working, the implementation of flexible working varied in practice across firms. This was particularly evidenced in Beets Co. where there was some disagreement between the aspirational culture purported by the firm and the experiences of workers. The importance of organisational culture in supporting EDI initiatives is raised by Jandeska and Kraimer (2005) whose study found the lived culture of workers either encouraged or discouraged the use of flexible working policies. Similarly, Rhode and Williams (2007) highlight that flexible working policies do not always translate to reasonable access for workers, as was similarly evidenced at Beets Co. Workers at Muckduk Inc. and Vance Ltd. reported easier access to remote working options, with policies which pre-approve the use of informal flexible working arrangements. Whilst managers still maintain control over the frequency of use to some extent, workers were less likely to report barriers to access when compared to workers at Beets Co. This aligns with the findings presented by Maxwell (2005) in their study of work/life balance policies and implementation wherein the role of managers was proven critical in the way in which a policy is deployed and its efficacy in practice. Thus, a best practice can be derived wherein the role of individual managers is minimised so as to provide equal access across an organisation.

More generally, research agrees with the approach taken by case study firms to provide a suite of remote and flexible working opportunities to retain of female workers (Durbin and Tomlinson 2010). As this is well documented in academic studies, the findings from this study further

highlight the need to implement flexible working policies effectively across business operations. It should also be noted, however, that while flexible working has increased retention for women workers, studies warn that such policies are often seen as a trade-off for career progression. Indeed, as presented earlier, a lack of women in leadership positions has been evidenced across all three case study firms with evidence that leadership positions have less flexibility over their schedule than non-management workers. Thus, whilst flexible working policies may increase the number of women working part-time and in entry to mid-level positions, it may impede the progression of more women into leadership positions and therefore contribute to the persistence of vertical job divisions (Whittock et al. 2002, McIntosh et al. 2012).

4.2.1.2 Raising Minority Profiles

Minority networks are used extensively within Beets Co. to provide a space for marginalised workers to connect and an opportunity to raise awareness of issues they may face. There are two networks centred around gender. The first has recently shifted from a woman's network to a gender equality network to encourage men to participate as gender equality advocates and to recognise non-binary employees as well. The second is a networking and training hybrid programme specific to women in technical positions:

> *We've developed a programme that's designed to support women have fantastic careers in STEM. TechWomen is a 12-month programme geared around developing and sponsoring mid-management women, all the while connecting them with their peers to create a strong network.*
>
> *Beets Co. Equalities Reporting*

Whilst seven interview participants (six female and one male) reported awareness of the gender equality network, no participants were aware of the TechWomen programme. As this is primarily based outside of Scotland, the location is most likely a barrier for most female ICT workers from Scottish offices who would need to travel frequently for the opportunity. One interview participant felt that the gender equality network also lacked sponsorship from senior leadership due to their location:

> *We're not given enough time and attention to focus on [the gender equality network]. There should be people who their entire job is looking at the whole gender thing. Other firms have senior sponsorship of their gender network. In [Beets Co.] we don't have anybody. It's totally on our back to organise events. There is nobody supporting it or backing it or pushing it. It doesn't have any senior interest. In London there's probably a bit more.*
>
> *Beets Co. female technical worker*

The majority of interview participants, however, felt that the gender equality network was effective in their goal to elevate equality issues and to provide participants with opportunities to network and hear from notable female speakers in the industry:

> *[Beets Co.] has an equality network which is really well-established and well supported… has senior championship back up, gets good speakers along. Women who are in very strong leadership roles, female politicians and so on and so forth.*
>
> *Beets Co. female non-technical worker*

When asked if Beets Co. could improve their support for female workers, two female and six male workers went on to say that they felt Beets Co. was very supportive of female employees and has been proactive in trying to increase the number of women in technical positions:

> *We have opportunities through the gender equality network. We have events in London and up in Scotland. [Beets Co.] do a lot to try and level the playing field. I don't think they can do any more other than advertise that there are women working within this industry so that it continues.*
>
> *Beets Co. female technical worker*

Whilst there is strong support for the gender equality network, there is some work needed to increase awareness of the opportunities available through it, particularly for male employees. This was evidenced in just one male interview participant citing his ability to participate in the group and no male interviewees citing actual participation in the gender equality network.

Informally, interview participants reported that they did not generally socialise outside of work hours with co-workers. However, an exception to this was participants who had entered the organisation through apprenticeship and graduate programmes. These cohorts did socialise regularly via group texting and informal social gatherings outside of work hours, with both male and female participants noting this equally. One participant noted that her cohort, consisting of six men and two women, regularly socialised:

> *So as apprentices we do socialise out of work hours. We meet up on the weekend, we go for dinners, we have family barbeques …we're very close.*
>
> *Beets Co. female technical worker*

At Muckduk Inc., there is a lack of internal networks for minority workers however they do host quarterly events aimed at providing networking opportunities for their female employees. The majority of interview participants were aware of these events but none had utilised the opportunity to attend them:

> *I think there's a lot of organisations in Scotland like Equate Scotland and lady's tech meetups, almost like support groups. I mean if [Muckduk Inc.] would host them that would be great. I know that we hosted an Equate*

Scotland thing a while ago and talent tried to get me to go to it but that's sort of where they finish. They just go, 'do you want to go to this event?' They didn't actually get involved with the organisation or get to know the people within the organisation.

Muckduk Inc. female technical worker

Two of four female technical interview participants noted that they chose to participate in gender-specific industry events out with the organisation. This suggests that there may be some interest from female technical employees to have more regular networking events in-house, however the lack of uptake of existing events indicates a need to investigate the underlying reasons such events are not well attended.

Finally, Vance Ltd. has taken a fairly unique approach to raising the profiles of their minority workers. Whilst similar to Muckduk Inc. the firm hosts events specific to equality, diversity and inclusion, the majority of interview participants cited an informal online diversity discussion channel as the primary vehicle in which EDI issues are addressed:

There is a pretty active diversity and inclusivity group here which I like. Generally, most people seem to be very friendly and supportive of each other on it.

Vance Ltd. male technology worker

Of the sixteen workers interviewed, eight reported the channel as the primary area where the topic was discussed and moreover reported engaging with it personally. Even more interestingly, this number was gender-balanced with four female and four male participants reporting active participation within the group. The use of a virtual networking space was done purposefully as Vance Ltd. has small offices across several countries and this allowed for workers in smaller offices outside of Scotland to participate as well.

The international nature of the workforce was highlighted by two male and two female interview participants in regards to a recent incident on the diversity discussion channel:

I mean on the topic of diversity that group has had some trouble recently because every time we've had a discussion about anything there has been a very small group of people from [international office] trying to destabilize it. It's definitely made it less of a safe space for people to come and talk about these things.

Vance Ltd. male technical worker

Of the same issue, one female participant went on to say that it had been corrected by leadership informally but that a more structured approach to the channel would most likely result from the incident as well:

I think it's been addressed kind of behind the scenes but I'd expect there will be some guidelines that come out as a result of it.

Vance Ltd. female technical worker

As this was very recent, some participants did not know how the organisation would address it, however the consensus was that it would be handled at the leadership level shortly.

In summary, the findings from this study demonstrate a variety of approaches to minority networking opportunities. There is some disagreement in academic evaluations of diversity networks, with some studies arguing that minority networks provide opportunities more easily accessed by majority workers, such as informal mentorships (Ridgeway 2011), leading to modest increases in minority retention rates and positive organisation outcomes (Friedman and Hotom 2002, Singh, Vinnicombe, and Kumra 2006). Others have found that minority networks are less effective, particularly when wider organisational attitudes do not recognise external barriers to progression for female workers in male-dominated firms (O'Neil, Hopkins and Sullivan 2011, Gremmen and Benschop 2011).

Beets Co.'s gender equality network, open to all workers across the gender spectrum, demonstrated high levels of visibility within the firm and fairly strong engagement with female workers. Similarly, Vance Ltd. adopted an online platform for their gender diversity network which was highly engaged with by both male and female workers. The efficacy of virtual platforms must be further developed in academic discourses, however the findings from this case study agree with Kouse and Webb (2002) who found that virtual tools are useful for minority networks, particularly in an increasingly global economy, as it allows for individuals to identify others similar to them regardless of location.

Whilst Benchop et al. (2015) identify the inclusion of allies and interested parties in some organisational networking groups, they do not address the effectiveness of this but rather highlight the lack of research in the vein. Others argue that such approaches must be taken up cautiously, with key researchers raising concerns that this minimises the efficacy of such groups in allowing marginalised workers to connect with one another (Ibarra 1993, Friedman and Holtom 2002) and a thinning of the line between male allyship and saviour syndrome (Burke and Major 2014).

The findings for Vance Ltd. wherein both male and female employees were involved in the diversity network, suggest that while employees were highly engaged, the purpose of the group was more so to raise awareness of diversity issues and did not show evidence of connecting marginalised workers within the firm. As such, the findings from this study along with academic critics of minority networks suggest that the purpose of a network can be either to raise minority issues or to connect minority workers, with evidence suggesting that the two objectives cannot be effectively reached in tandem.

4.2.1.3 EDI training

Whilst literature suggests that the implementation of unconscious bias trainings have limited impact on shifting worker understanding of implicit discriminatory beliefs and behaviours

(Rynes and Rosen 1995, Kalev, Dobbin and Kelly 2006), their use has become increasingly popular in contemporary organisational practices. This commonality is extended to all three case study firms who have implemented the use of unconscious bias and diversity awareness trainings to a limited extent.

Interview participants at Beets Co. noted frequent availability of diversity and unconscious bias trainings, often online. One worker who had attended in recent years felt the training was positive whilst three additional participants cited an interest in participating in the on-demand virtual training course available through the company's professional development training suite (although none had done so at the time of data collection). One employee who had been with the firm for over thirty years mentioned that early on in their career they were required to attend diversity training but that they did not think it was effective. The participant attributed this to the compulsory nature of the training and went on to mention that significant changes had most likely been made since that time:

> *A very long time ago I did [participate in a diversity training]. They taught us about bias through something called the brown eyes exercise. It was mandatory but I didn't get anything out of it. I don't think anyone did. Like I said, this was a while back and I think they've made some changes since then.*
>
> *Beets Co. male non-technical worker*

Similarly, Muckduk Inc. developed and deployed training sessions for members of management as well as upper-level leadership regarding unconscious bias in the workplace. However, worker interviews suggest this has not led to increased awareness of EDI issues. Whilst the majority of interview participants were unaware of such trainings, including two of the three workers interviewed who qualified for participation as members of management, those who were aware did not feel that the trainings had achieved positive outcomes:

> *When I did the discrimination and unconscious bias training with managers… I think it's a blind spot because the overarching comment when I asked them, 'do you think that we discriminate unconsciously?' was, 'absolutely not, absolutely not. I think we're really good at diversity'. Yet the table is all 30-year-old white men with beards dressed in hoodies.*
>
> *Muckduk Inc. female non-technical worker*

As the manager tasked with deploying the training, this individual in particular felt that the attitudes of management most likely would not change as a result of the training and, as such, it would not be an effective way to reduce gender bias within the firm in the future. This extended somewhat to female technical workers, three out of four of whom felt the homogenous composition of leadership was, to some extent, purposeful.

> *It seems to be a very political, a political thing within this company. For example, there are zero female technical managers. None. Which is something that I find very worrisome.*
>
> *Muckduk Inc. female technical worker*

Finally, Vance Ltd. utilises an online training platform, similar to Beets Co., which includes a suite of professional development and diversity training materials:

> *In 2017, we launched [Vance Ltd.] University Personal Effectiveness Training (including influencing, emotional intelligence, unconscious bias awareness).*
>
> *Vance Ltd. Pay Gap Report*

This opportunity had not been taken up by any of the interview participants at Vance Ltd., with the majority unaware of the offering. This is of particular importance as Vance Ltd. reports that all managers and recruiters are trained in unconscious bias:

> *In seeking to ensure we have an inclusive workplace, [Vance Ltd.] has introduced several initiatives including a review of our recruitment methods to ensure we attract a diverse workforce, unconscious bias training for all interviewers and line managers, a dedicated Diversity and Inclusion cross-business group and forum for open discussion.*
>
> *Vance Ltd. Pay Gap Report*

Of those interviewed, six participants would qualify for compulsory unconscious bias training however none had completed the training at the time of data collection.

In summary, EDI training programmes were established across all three case study firms; however, the findings suggest that the uptake of such programmes is low. The findings here were particularly interesting for Vance Ltd. wherein firm reports outlined that unconscious bias trainings were considered mandatory for all people managers but had not been deployed to any interview participants at the time of data collection. Similarly, the findings from Muckduk Inc. demonstrated that unconscious bias trainings had been given in the past but were not considered to be effective by the individual who conducted the sessions.

Thus, the findings from this study largely align with wider literature to indicate a lack of efficacy regarding unconscious bias trainings, with the majority of workers across firms unaware that the training was available and a lack of use by both managers and line workers. Research suggests that compulsory trainings can reinforce negative stereotypes (Paluck and Green 2009) whilst workers with the most need of the training are the least likely to opt-in to a voluntary training (Kalev, Dobbin and Kelly 2006). Bezrukova et al. (2016) alternatively, finds in their critique of diversity training programmes that employee training is only impactful when aligned with a suite of diversity initiatives which increase awareness and develop interpersonal skills over a long period of time. This may provide some insight into the ineffectiveness reported

within Muckduk Inc. where policies and initiatives are introduced sparingly and did not integrate with existing procedures. As such, the results from this study reinforce the current call for a more effective way to educate and minimise unconscious biases in workers.

4.2.2 Recruitment

Interviews with leadership revealed significant attention paid to EDI recruitment initiatives in each case study firm. This approach aligns with recent studies which have found a correlation between hypermasculine organisational culture and the gender composition of job applicants (Catanzaro, Moore and Marshall 2010). Thus, a review of EDI recruitment initiatives was undertaken and revealed two primary tools used to attract more women at the applicant stage; a review of employer branding materials and targeted recruitment outreach.

4.2.2.1 Employer Branding

All three case study firms have worked in partnership with Equate Scotland to review their recruitment materials for gender inclusivity. As addressed in chapter three, employer branding efforts were gathered over a period of two days and analysed across job adverts, employment-centric webpages, blogs and social media accounts for each case study firm.

Beets co. hosts four social media accounts specific to their recruitment efforts. In the main, the images used in employer branding depict a varied set of demographics which indicate their aspirational culture of diversity and inclusion. Of the forty posts analysed, the majority were interviews and vlogs (video blogs) with current employees, followed by EDI initiatives and links to their website. Additional posts included employer awards won by the company, relevant news articles and worker networking and professional development. The following table provides an overview of posts categorised by topic.

Beets Co. categorisation of social media posts	
Topic	No.
Worker interviews	11
EDI/philanthropy	6
Links to graduate/apprenticeship website	6
Awards	4
News article	3
Professional development/networking	2

Table 36 source: author generated

Notably, three of the forty posts made were on the topic of gender equality. In total, depictions of 36 men and 51 women were included in social media posts, with three women and two men depicted in positions of authority. Beets Co.'s social media posts demonstrate high levels of gender diversity, with women representing 59% of those included in social media posts, compared to 25% of the total workforce during the same time period.

Additionally, thirty-one recruitment pages included on Beets Co.'s website were analysed. A review of benefits provided by the organisation is advertised such as flexible working and a list of diversity certifications is presented in the footer of all recruitment pages. Women were well-represented across recruitment pages, with 175 women and 154 men included in photos. Particular attention was paid to the gender representation of technical roles and directive positions, which had equal representation for both men and women.

Beets Co. was less effective in the deployment of their EDI initiative regarding job postings. Whilst each job posting included a sentence regarding equal opportunities, there was a lack of publication of the benefits available to individuals in need of flexible working accommodations. For example, there were no part-time positions available at the time of data collection and there were no indications that flexible working arrangements could be requested by applicants. One job posting in particular advertised a need to work a varied schedule set by the firm and a need to be available across a wide range of hours. This indicates a sort of 'reverse flexibility' wherein applicants are expected to be available during unsociable hours and with little notice to fit the changing needs of the firm rather than organising their work schedule around their personal commitments.

Whilst Muckduk Inc. has likewise reported working with Equate Scotland to review their recruitment materials, this is not reflected in their employer branding efforts. An interview with leadership confirmed that the consultation findings were presented to one member of leadership but were not integrated into the work of recruitment managers. The firm has an active and engaged suite of social media accounts specifically aimed at recruitment. Forty-nine posts over two platforms, Instagram and Twitter, were analysed both for visual representation as well as content related to EDI. The majority of posts depicted socialisation, professional development and networking events with employees, followed by work-life balance, job openings and philanthropy. An accounting of topics is given in the following table.

Muckduk Inc. categorisation of social media posts	
Topic	No.
Socialisation	17
Professional development/networking	11
Mental health/work-life balance	7
Job openings	6
EDI/philanthropy	5
Office space (no people/event)	2
News article	1

Table 37 source: author generated

It should be noted that of the five posts categorised under EDI and philanthropy, just one was on the topic of gender equalities. In total, 167 men and 50 women were included in the posts, with some gender differences broken down by category. The highest gender balance was represented in EDI and mental health posts, with eight men and six women. This was followed

by posts depicting worker socialisation where 68 men and 21 women were represented. The greatest gender disparity was found in posts where a member of Muckduk was presenting at a professional development or networking event with nine men shown in positions of authority compared to zero women.

Muckduk Inc. additionally has three employer branding webpages which were included in the analysis of recruitment materials. In the main, there were no visual representations of employees included. The exception to this was the inclusion of three employee quotes, all of whom were male technical workers.

Finally, Vance Ltd. primarily uses their employer website for recruitment and does not have social media accounts specific to employee recruitment. The organisation has shared their inclusive recruitment initiative publicly and reports on their progress annually:

> *We constantly review recruitment methods and even job advert wording to ensure inclusivity, as well as making our diverse pool of interviewers keenly aware of unconscious bias.*
>
> *Vance Ltd. Pay Gap Report*

After a review of their recruitment website and thirteen open job postings, the findings show strong evidence of these efforts. Visually, the website includes 40 women and 35 men in photos across the seven pages dedicated to recruitment as well as an embedded application which provides an up-to-date employer grade independently managed by Glassdoor.com. Currently the firm has a rating of 3.6 stars out of 5 which has been derived from 203 reviews. Equally important to quantitative representation is the way in which women are depicted in the employer branding materials. An interview with leadership revealed that the firm has strategically ensured that women are represented holistically in recruitment and work culture photos as members of the team, taking leadership roles and participating in workplace culture and socialisation and this was confirmed through the analysis of recruitment artefacts.

4.2.2.2 Strategic recruitment practices

Established in chapter one, the way in which individuals enter technical professions varies based on gender. Thus, firms seeking to increase the number of female applicants for skilled technical positions must identify and target the areas of entry that women are more likely to pursue. Of the three case study firms, Muckduk Inc. was the sole organisation to have a targeted recruitment system for female skilled technical workers. Specifically, the firm has developed an on-going relationship with Code Clan, an organisation which provides a suite of computing skills training programmes accredited by the Scottish Qualifications Authority (SQA). Code Clan courses run for 12 to 16 weeks, cost approximately £5,000 and cater specifically to those changing careers. Most importantly, nearly 50% of Code Clan graduates

are female (Code Clan 2019) compared to 16% of University computing entrants (One Scotland 2019). Not surprisingly, Muckduk Inc. has reported increased access to female ICT graduates through their relationship and recruitment events with Code Clan, indicating a significant best practice available to ICT firms in Scotland seeking a more gender-balanced application pool. Whilst leadership interviews with Vance Ltd. and Beets Co. suggested some targeted recruitment practices were undertaken, there were no examples of such given and no formal plans for future targeted outreach.

4.2.2.3 Summary of recruitment findings

The uniformity of approaches taken up across all three case study firms through outsourcing a review of employer branding to Equate Scotland allowed a unique opportunity to identify the ways in which such a practice can be effectively implemented. Specifically, the integration of EDI into the responsibilities of Beets Co. recruitment managers was apparent when compared to Muckduk Inc. where the responsibility to deploy EDI initiatives sits with one individual. A study conducted by Vianen and Fischer (2010) supports efforts to create aspirational employer branding, finding a correlation between whether a firm is perceived as 'masculine' or 'feminine' and the gender of individuals more likely to consider the organisation as an employer. Similarly, Puncheva-Michelotti, Hudson and Jin (2018) found greater diversity in applicant pools dependant on the way in which organisations present themselves externally.

The variance of implementation across firms, however, suggests that EDI processes must be integrated into the wider work of the organisation rather than taken on as a limited project (Bezrukova et al. 2016). Hubbard (2004) presents a business-focused approach to implementing diversity initiatives wherein the impact of EDI work in measured against wider business goals and is integrated into the ongoing processes of the business. Recruitment is identified as a primary aspect of this process, wherein Hubbard (2004 p 137) states, "too often, recruiters and their organizations evaluate new recruits solely on the basis of how they fit the organization's culture, which is somewhat antiquated in today's hiring practices and requirements". Thus, it is suggested that actions should be taken to create a more inclusive recruitment process and turnover rates should be evaluated by employee demographics to measure the impact of those actions. Across case study firms, gender application and retention data were requested by the researcher however was not available. As such, there is a gap across case study firms in their approach to recruitment which could be ameliorated through a more detailed evaluation of their current initiatives.

Finally, whilst the majority of studies on diversity recruitment assess the impact of employer branding (Avery 2003) and the need for affirmative action regulations (Kravitz 2008), the findings from one case study firm, Muckduk Inc., suggests that a review of recruitment efforts should also be undertaken. In the Scottish ICT industry, significant resources are used to

recruit skilled ICT workers as it is considered a job-seeker market (ScotlandIS 2018). Such efforts have historically focused on events targeting university graduates, however certification programmes demonstrate higher rates of female graduates and thus provide a greater opportunity to reach female job applicants (Eggleston 2018, Seibel 2018, Lyon and Green 2019). Whilst there is a lack of empirical research on this approach, Avery and McKay (2006) did include targeted recruitment efforts with historically black and female-only universities as a theoretically sound practice to integrate into a wider diversity recruitment plan. As such, the findings from this study highlight the potential for such recruitment tactics while further research is needed to understand the effectiveness of these efforts.

4.2.3 Evaluation and discussion of gendered organisational cultures

As introduced in section 4.0.2, evidence of gendered barriers to inclusion in firm culture was assessed under two primary categories: policies and recruitment. In regards to the implementation of EDI policies and initiatives, Vance Ltd. demonstrated strong evidence of well-constructed EDI policies which interview participants felt were successfully implemented in the day-to-day workflow of the firm and was awarded a green rating for the category. Beets Co. similarly presented a strong set of EDI policies and initiatives, however workers felt that these were implemented with varying levels of success. As such, Beets Co. was awarded an amber rating for this category. Finally, Muckduk Inc. did not have a set of policies aimed at the retention of marginalised workers and this was moreover reflected in the experiences of interview participants who reported highly variable perspectives of firm culture. Thus, a red rating was given to Muckduk Inc.

Conversely, all three firms were awarded an amber rating in regards to gender-inclusive recruitment practices. A review of employer branding for both Beets Co. and Vance Ltd. showed a commitment to highlighting diversity within the firm however this was not backed by evidence of recruitment practices aimed at increasing the number of minority applicants. Muckduk Inc. did adopt a specific set of recruitment practices aimed at capturing a larger number of female applicants for their technical roles, however their employer branding was decidedly homogenous. Thus, whilst best practices can be derived from each case study firm, an assessment of firm culture continues to evidence barriers to inclusion for marginalised workers. The following table provides an overview of firm assessments based on the findings presented in this section.

Firm evaluation of culture		
	Policy	Recruitment
Beets Co.	Amber	Amber
Muckduk Inc.	Red	Amber
Vance Ltd.	Green	Amber

Table 38 Source: author generated

4.3 Accepted worker discourses and behaviours

Acker (1992) introduced worker discourses as a key indicator of gendered organisations, arguing that interactions between workers are essential to workforce production as well as the embodiment of culture. Moreover, research suggests that gendered institutions are more likely to report higher levels of hypermasculine discourses (Iacuone 2005) and sexual harassment (Gruber and Bjorn 1982). Gendered discourses impact the lived experiences of male and female workers differently, contributing to the marginalisation of gender-minority workers (Ashforth, Schinoff and Brickson 2018). Accordingly, a significant portion of the data collection process aimed to identify themes across worker discourses in each case study firm. This was primarily derived from worker interviews and supplemented by access to any additional informal communication artefacts, such as intranet discussions, referenced during worker interviews and subsequently made available by the firms. Additionally, policies regarding formal reporting and the handling of counter-culture behaviours was included in the document analysis. Questions were asked to understand worker experiences of gendered banter, microaggressions, sexism and harassment. In line with the social constructivist methodology of this study, the way in which workers categorised experiences were maintained. Thus, whilst some participants may report an incident as a microaggression, another may report a similar experience as sexism and this is reflected in the presentation of findings.

4.3.1 Incident reporting systems

Critical to understanding the way in which firm culture interacts with worker discourses is an understanding of the policies established at the organisational level for those who experience incidents of sexism, harassment and discrimination. Of the three firms, Beets Co. and Vance Ltd. have provided a robust suite of policies, contextualizing acceptable workplace behaviours, reporting tools and systems and the procedures which follow a report. In contrast, Muckduk Inc. has taken a minimalist approach in line with their wider goal to retain a ‘start-up culture’ with minimal red tape.

Beets Co. has established the company’s shared set of values in their Code of Ethics document which details a wide range of ethical issues employees may potentially face,

including discrimination and harassment. People managers are particularly tasked with upholding behaviours in line with firm culture:

> *If you're a people manager, you also need to: be a Connected Leader and set an example for your team; create an open culture where people can raise concerns without fear of retaliation; trust your people to make decisions – but verify their approach and understanding; regularly discuss our ethics code with your team, including the consequences of not following our code; recognise people in your team who do the right thing.*
>
> *Beets Co. Code of Ethics*

Additionally, the bullying and harassment policy is available to workers, detailing instructions on what to do if they experience questionable behaviour. Individuals who choose to report have several lines of recourse, including direct to human resources, through their line manager or through an independent Accident and Incident Reporting Group where reports can be made both anonymously or by name.

It should be noted that, similar to the wider professional landscape, leadership interviews highlight that incidents of harassment are most likely underreported at Beets Co. According to their Better Future Report, Beets Co. employees made a total of 183 discrimination-based claims in 2012, with the number of claims increasing year over year since 2008. This data is fairly dated, with more recent numbers undisclosed, however provides some context into firm reporting historically. Literature supports the assertion made by Beets Co. leadership that the rise in reported incidents can, in part, be attributed to the implementation of a more comprehensive and effective formal reporting structure (McLaughlin, Uggen and Blackstone 2017). Statistics of formal reporting were not available for Muckduk Inc. or Vance Ltd.

Similar to Beets Co., Vance Ltd. has outlined what constitutes inappropriate behaviour and the options available to victims of harassment in their Dignity at Work policy and Whistleblowing policy. Whilst policy is essential in establishing a safe and comfortable work environment, leadership also acknowledged the need to reinforce policy through the effective handling of poor behaviours as well as the need to support several methods of reporting. This includes options to do so anonymously or to submit a complaint without the requirement of a formal investigation. This was seen as essential for the reporting of smaller transgressions which, over time, can impact the culture of the firm.

In addition to formal reporting channels, Vance Ltd. uses an informal digital reporting application where workers are able to submit anonymous feedback regarding any member of the organisation. The purpose of this tool was to provide a separate method of reporting for minor counter-culture behaviours which would be addressed by line-managers but would have no formal consequences for the worker. Interview participants viewed this tool as an effective means through which to report incidents which they otherwise would not.

Finally, leadership interviews with Muckduk Inc. and requests for policy for inclusion in the document analysis revealed a lack of written direction for workers regarding acceptable behaviours, reporting tools and the process of making a claim of harassment. This was reflected in interviews with female participants, five of whom described a lack of policy or reinforcement of EDI culture by leadership in addressing such experiences. As previously mentioned, Muckduk Inc. leadership has made a strategic decision to minimise the number of rules related to employee behaviours. Interviews with leadership describe the lack of policy as a means of reducing bureaucratic organisational logic and retaining a start-up culture even as the organisation grows. Indeed, this cultural choice drew their people manager to the organisation:

> *I was excited by the fact that the word policy and the word process wasn't something they were interested in. [Muckduk Inc.] disrupted an entire system and created an industry. And I like the opportunity to do that from an HR perspective and really understand the whole cultural piece around the choice. It's all about 'how do we keep that start-up mentality that draws talent and innovative people…how do we keep agile while we scale.*
>
> *Muckduk Inc. female non-technical worker*

Instead, a general set of guidelines have been put forth to align worker behaviours with the intended culture of the firm rather than a comprehensive set of policies and procedures. Informally, interview participants shared two primary ways in which they would report counter-culture behaviours: directly to HR or through a recently implemented reporting application. This application functions similarly to the informal reporting tool introduced by Vance Ltd. wherein workers can make an anonymous complaint and it must be addressed by a member of leadership. A key difference is that all reports made using the application are viewable by anyone within the firm, with the intention of garnering complaints against the company. There is no tool wherein workers can make reports of interpersonal incidents. Whilst this anti-policy approach has been successful in retaining a start-up culture as the organisation grows rapidly, it has led to some incidents of confusion and lack of action when a claim is levied. This is outlined in the remainder of this section.

4.3.2 Gendered discourses

Worker interviews confirmed experiences of antisocial discourses across firms in the form of microaggressions and, to a lesser extent, exclusionary informal socialisation. This was particularly important as studies show that networking and building inter-personal relationships is key to advancing career goals (Brass 2017). Thus, male and female workers were asked to provide their experiences socialising and networking with co-workers and the perceived impact

of such activities on their career progression. Workers were also asked to share experiences of sexism in the workplace that they had witnessed or experienced first-hand.

4.3.2.1 Gendered banter

At its lowest level, evidence of gendered institutions can be found in the way in which male and female workers interact with one another (Iacuone 2005). Interview participants were asked to describe common topics of informal conversation amongst co-workers as well as the extent to which they socialised with co-workers in an informal setting. In the main, whilst some female participants in each firm felt unable or uninterested in engaging in common informal conversations with their co-workers, there were few who felt excluded because of it.

At Beets Co., four of seven participants felt that there were differences between their interactions with co-workers and the interactions of exclusively male cohorts, whilst three did not feel there were gendered differences in conversations:

> *I've always worked in offices which have been male dominated and never felt you know there was any issue with that. I've always been able to hold my own.*
>
> *Beets Co. female non-technical worker*

Of note, two of the three participants who did not report experiences of gendered banter were technical workers participating in the Beets Co. apprenticeship scheme which, as introduced in section 4.2.1.2, suggested higher levels of gender equality than the wider institution.

One female participant shared that in her earlier days with the company, she had made an effort to learn about football as it was a common topic of conversation amongst her colleagues:

> *When I was in sales I tried that. I mean this is probably about 15, 20 years ago. I started to try and try to but it lasted about two weeks because it was too false. They're passionate about it. I'm not and they know that. So, when the boys talk football I let them talk football and do whatever and occasionally they'll go to me, 'do you understand a word we're saying' and I say, 'well Manchester United are Manchester City I understood those two words'. But I don't feel excluded because they're doing that. If they thought I felt excluded then they wouldn't do it.*
>
> *Female non-technical worker*

Whilst the majority of female participants did not associate informal conversations with sexism, one female technical worker did identify this as an experience of casual sexism:

> *I think casual sexism is really common. And you know you'll be in a meeting and somebody, the first thing they'll say to you is you know oh how are the children but you know the first thing they would say to the man standing next to you is what did you think of the football last night?*
>
> *Beets Co. female technical worker*

Similarly, both male and female workers at Muckduk Inc. did not feel that gendered banter played a large role in marginalising workers, although small-talk conversations did widely centre around topics that most female participants expressed disinterest in.

> *I have a lot of sport-related conversations with a lot of people, because there are a bunch of us that like sport. Lots of gaming chat as well. A lot of people play PS4 or Switch or board games at lunchtimes and sometimes after work.*
>
> *Muckduk Inc. male technical worker*

While no female workers interviewed similarly engaged in socialisation around games and sports, they did feel that they would be welcomed if they chose to do so:

> *When they're talking about games, I don't really join in. But I feel like if I cared or was interested, I could contribute too.*
>
> *Muckduk Inc. female non-technical worker*

It was noted, however, that there is an added level of social anxiety amongst female workers seeking to participate in social gatherings with a male-dominated cohort.

> *You can be a little bit intimidated when you walk into a room and it's a bunch of guys talking. Whenever the office manager puts on events for the office it feels like, you know, you're going into a social situation where it's you and twenty guys.*
>
> *Muckduk Inc. female non-technical worker*

This sentiment was shared amongst five of the seven female participants, with two further indicating a lack of interest in socialising with co-workers in any extended context.

Finally, female participants at Vance Ltd. expressed some incidents of marginalisation associated with gendered banter. For example, one female participant recounted several instances within her work group where she was the only one not invited to engage in a game of ping pong and consequently was also the only woman:

> *It's the smaller things that people say that they probably didn't mean it but it should be a conversation. Especially if I'm around just men. There were instances when I was a test engineer in a team of all men where I had been excluded quite a lot and it felt like it was because of my sex. Like we would be sitting as a team and someone would ask every other person if they wanted to play table tennis in the game room but me. And I've never said that I didn't like play, it was just that they didn't ask me at all. They would also make comments that made me uncomfortable.*
>
> *Vance Ltd. female technical worker*

Whilst this was something that she felt to be marginalising, she eventually was able to address the situation with a male member of her cohort who then chose to act as an ally and call out exclusionary behaviours.

Four of eight female interviewees expressed similar situations, all of whom worked in technical positions or in a group with technical workers. Both male and female participants in the marketing team did not feel they had experienced particularly gendered discourses, which aligns with the more balanced gender divisions within their direct working groups.

Those who did report experiences of gendered discourse did not feel it had a strong impact on their experiences in the firm overall:

> *In crude terms the boys were having just a dick waving competition. I'm just like, 'I'm just going to sit and watch this. This is kind of funny and not productive'. I certainly have been in plenty of those situations, but I have never felt that that's kind of damaged me. But I am fortunate because I do know other people don't have great experiences.*
>
> *Vance Ltd. female technical worker*

However, such incidents did remind them of their 'otherness'. This is reflected in an anecdote shared by a female technical worker:

> *I flicked through [a technical instruction manual] and I found it hilarious that in an entire book there were around about fifty illustrations and of all those illustrations there were I think three women and the rest were entirely white men. Of the three pictures of women, one of them was the Mona Lisa, one of them was a statue of Liberty and one of them was two women in an illustration of the concept of having too many people in your meetings. At some point I made a comment to a male co-worker like, 'oh I need to go and read the sexist book' and their response was, 'oh I don't think you can say it was deliberate there'. And I thought 'it doesn't need to be deliberate to be sexist'. It was a bit of a kind of realisation that we don't have the same cultural understanding.*
>
> *Vance Ltd. female technical worker*

While her colleagues had generally agreed that there was a lack of female representation in the book, the perspective changed when it was labelled 'sexist'. This did not impact her relationship with her colleague but did act as a reminder that her perspective is most likely different than those of her male counterparts in this respect.

A similar experience was recounted by a female technical manager who was reminded that her gender played a role in how her colleagues interacted with her at times:

> *I was sat in a meeting and was the only woman. One of the senior managers who is still here and who probably won't even remember this, but I remember it very clearly... He swore in the meeting and then apologised to me, only me, for swearing. At the time I just went, 'Oh that's okay'. And then afterwards just like 'did that just happen' and 'why did that just happen'?*
>
> *Vance Ltd. female technical worker*

Whilst workers at Vance Ltd. were most likely to report specific incidents of gendered discourse, they similarly agreed with participants across firms that this did not have a significant impact on their day-to-day work experiences.

4.3.2.2 Microaggressions

The idea of microaggressions as small, often unintentional, acts of sexism was introduced to Interview participants who were then asked to reflect on any experiences they may have had with such behaviours within their firm. This was particularly important as microaggressions are frequent, difficult to classify and often go unreported (Iacuone 2005) yet, over time, have a lasting impact on an individual's perception of an organisation and their ability to progress within it (Eagly and Karau 2002).

All seven female interview participants at Beets Co. reported that they had experienced microaggressions at least once during their time at Beets Co. The overriding sentiment shared by female participants is well summarised by the following worker:

> *It's the little things like being called young lady still at my age. You know, I've got colleagues that call me young lady and I find that so patronising. In my head I'm going, 'would you refer to any of the guys as young man'? I just don't see them saying young man as much as young lady. I had a boss who kept referring to, there were two women on the team, 'oh no the two women are on there, we won't get a word in edgewise.' Making out we would just natter, natter, natter. You know, just little comments like that.*
>
> *Beets Co. non-technical worker*

One non-technical participant described worker interactions as a gentleman's club which led to tokenism for women in male-dominated positions:

> *As I said it's a gentlemen's club... And you know when a woman does get the job there's a thought that she only has the job because there's a quota. So, these women who have now joined the team, they're not there because of merit, they're there because the team had to put them there.*
>
> *Beets Co. female technical worker*

As presented earlier in regards to flexible working opportunities, the role of the manager was highlighted by some research participants as key to the way in which they chose to interpret or deal with microaggressions. This is evidenced by one female participant who highlighted that she experienced regular incidents of small-scale sexism from her line manager, which led to her seeking a transfer within the company:

> *I have a manager who has an aggressive way of communicating and he finds absolute pleasure in talking over me and just shooting me down.*
>
> *Beets Co. female non-technical worker*

This impact was further demonstrated by another female participant who expressed an aversion to confronting such behaviours with her line manager so as to retain her informal flexible working arrangement:

> *Sometimes you have to put up with an odd young lady comment to get the flexibility that I'm getting being a woman.*
>
> *Beets Co. female non-technical worker*

Whilst this sentiment was most common amongst female interview participants with caring responsibilities, one female interview participant who did not utilise flexible working arrangements additionally felt that she experienced microaggressions but that it was not worth confronting:

> *It's just, you know, they don't even realise they're doing it. Nothing major, nothing that has upset me. I never thought, 'I'm going to report that'. I just end up rolling my eyes. And maybe that was wrong actually. Maybe there were somethings I should have pushed on a little bit but you kind of pick your battles and it was never bad enough.*
>
> *Beets Co. female non-technical worker*

Younger workers, particularly those in apprenticeship and graduate programmes, believed that whilst they had experienced inappropriate comments being made, it was often by workers who were approaching retirement. This allowed them to feel optimistic about their career within the firm as they felt it was a short-term issue that would not affect them long-term:

> *I wouldn't say it was on purpose, but I think obviously because [firm] does have a lot of sort of older gentlemen who do work for the company and have done for maybe 40 or 50 years…and obviously being a young female coming into the office you're sort of thought of as a child, but it doesn't help the fact that I am female as well because they will make funny remarks like, I don't know. They'll say like 'get that mug washed' or whatever if I'm washing my dishes… you know what I mean.*
>
> *Beets Co. female technical worker*

Seven of eight female interviewees with Muckduk Inc. reported experiencing microaggressions at the firm. One participant described an on-going issue with a fellow engineer, however felt that this was done unintentionally and did not feel that it would be of value to confront the behaviour:

> *I've kind of proven myself to be a good software engineer within the company so, you know, for someone to kind of talk down on my work and try to... not try to belittle me, I don't think… But they try to...I don't think it's conscious, but they just make me feel like my work is devalued and not good enough kind of thing.*
>
> *Muckduk Inc. female technical worker*

Another felt that it was difficult to participate in formalised meetings and have her ideas considered:

> *Sometimes I feel that my opinions are…I have to shout twice as loud to be heard. Try twice as hard to win respect.*
>
> *Muckduk Inc. female technical worker*

Similar trends persisted into management roles as well, with one member of leadership describing a trend of small comments from her peers which contributed to her marginalisation as the only woman at that level of seniority:

> *I'm the only female and the others look to me and they ask, 'could you just take a note of that'? And I honestly don't think they know what the impact that has. It puts you in a very different place.*
>
> *Muckduk Inc. female non-technical worker*

Notably, one female technical worker highlighted that the ambiguity of policies and lack of formal reporting procedures was a significant barrier to addressing her concerns. Specifically, the participant shared an experience wherein she was uncomfortable with the positioning of a video camera at crotch-level in a frequently utilised meeting space and tried to have the camera moved:

> *I started trying to go in every direction and everyone told me to ask someone else. Months passed and nothing happened. And finally, the only reason why it was addressed is we started using an app where people can publicly, in front of the whole company, express their concerns and someone has to action it. That's one of the things that I think is so important about having a place where people can air grievances and things can actually be steered in the right direction. Because right now it's like screaming into the clouds, just hoping someone picks up on what you're saying.*
>
> *Muckduk Inc. female technical worker*

While the incident began as a simple employee request, the lack of action once the request was made led the employee to consider leaving the firm. This was echoed by an additional two female interview participants who reported a lack of support from the firm after reporting sexist behaviours from co-workers.

Finally, both male and female interview participants at Vance Ltd. reported that sexism was a rare occurrence within the firm, however four men and five women reported either witnessing or experiencing low-level transgressions.

> *Here it's more of smaller things that people say that you think they probably didn't mean it. Especially if I'm around just men.*
>
> *Vance Ltd. female technical worker*

Interestingly, male interview participants at Vance Ltd. were the most likely to recognise microaggressions when they occurred compared to male participants in other case studies. For example, one male participant witnessed instances in formal meetings wherein male team members would repeat input shared by their female teammate without crediting her:

> *You do see some behaviour like we have a designer on our team, she might say something and then get mirrored about five minutes later. And that sort of thing sometimes goes unnoticed. So, there's some of those kinds of marginalizing behaviours but I've never seen a directly sexist comment.*
>
> *Vance Ltd. male technical worker*

Access to a reporting system for small interpersonal issues was cited by several participants as a positive tool for redressing minor incidents:

> *I can submit feedback to anyone in the company by a system called Impress. And you can do that anonymously. So, if you were a person that would be speaking down to people I think that would be fed back to you quite quickly and then obviously that's in your interest to change that. I think everyone can make mistakes. I mean I think it's good to have that feedback system where people always have the opportunity to change and know what other people may think of the way they're communicating.*
>
> *Vance Ltd. female technical worker*

The informal and low-consequence nature of the complaint process was reported by two participants, one female and one male, as a more accessible way for workers to report microaggressions they may have otherwise left unreported.

4.3.2.3 Summary of gendered discourses

Across case study firms, there was some evidence of gendered differences in informal discourses wherein female participants reported a disinterest in the topics commonly discussed by their male co-workers or differences in how male co-workers interacted with them compared to other male workers. This aligns with findings from Tannen (1999) as well as Holmes (2008) who used discourse analysis to highlight differences in male and female interactions. Participants from this study did not feel that these differences had an impact on the worker's ability to progress their careers nor their overall satisfaction with the workplace. This does not necessarily align with the literature which suggests that gendered differences in informal conversations lead to the reinforcement of 'old boys networks' as rapport between co-workers is often built through social interactions (McDonald 2011). This can be attributed to the data collection method of this study which focused on multiple methods of collection analysed thematically, with the majority studies using discourse analysis to understand the nuanced and often unconscious nature of gendered discourses (Rutherford 2001). Rather, this

study sought to identify gendered discourses as part of a wider identification of gendered institutions.

4.3.3 Interpersonal conflicts and harassment

In addition to the lower level transgressions reported in the previous section, worker interviews also provided insight into worker experiences with harassment and discrimination. Studies indicate that such experiences can have a negative and long-term impact on the career satisfaction and progression of an individual (McLaughlin, Uggen and Blackstone 2017). As such, it was important to document both worker experiences of interpersonal conflict as well as the way in which it was handled by their employer.

4.3.3.1 Harassment

At Beets Co., interviews revealed that worker experiences vary to some extent from the prescribed behaviours in policy. In total, three participants reported experiences of harassment, one male and two females. One female participant decided to make a formal report after experiencing the incident, however did not feel that it was handled satisfactorily:

> *I had an incident probably about fifteen years ago. It was a telephone call, with a colleague who was senior to me at the time. It was a man and he was very aggressive on the call that I was on. He was very abusive and used aggressive language and that was reported to my line manager. We still worked together afterwards, I think he might have been talked to. We just avoided one another after that point.*
>
> *Beets Co. female technical worker*

It should be noted that a considerable amount of time has passed since the incident wherein organisational changes have made formal reporting methods more robust. More recently, another participant shared an experience with a senior team member which she did not feel comfortable reporting due to the transgressor's relationship with her line manager:

> *In my opinion [my manager] has the other guy in his pocket so he's not exactly unbiased. And I don't feel like my feelings and problems would be dealt with in any other way than a shamble.*
>
> *Beets Co. female non-technical worker*

One male interview participant also shared an experience where they were harassed by a co-worker. He had chosen to report the incident formally which resulted in the transgressor leaving the firm:

> *I had a senior manager once when I was on a lead consultant role for a customer contract. He was just to trying to achieve his goals by playing us, the members of his team, against each other. But we worked out what he was doing. He said things to us that were really critical and just not true but we joined the dots and worked out what was going on and that resulted in him leaving the company.*
>
> *Beets Co. male non-technical worker*

As introduced in section 3.4.1, Muckduk Inc. does not have a set of policies in place outlining their harassment policies. Experiences of harassment at Muckduk Inc. were reported by three of eight female participants. More importantly however, the perpetrators were exclusively reported as members of the leadership team.

> *I did feel harassed by a C-suite employee, who had a track record of having difficulty dealing with strong females. It led him to blame me for something directly, in a group situation, which he had no evidence to back up. When challenged he backed down, but the behaviour was only ever evident with me and two other female project managers.*
>
> *Muckduk Inc. female non-technical worker*

No incidents of harassment were reported by male workers nor were there any incidents shared wherein female workers experienced harassment from individuals out with upper-management and leadership roles.

Lastly, whilst the majority of participants reported that they had not experienced any incidents of harassment at Vance Ltd., one male participant shared an experience wherein a high-ranking and well-respected member of the team acted inappropriately towards him:

> *He's called a distinguished engineer and he is essentially someone who just floats around and gives sage advice and all this stuff. He took an actual fit at me because of something that happened. I broke something. And it was totally out of character and I spoke to people about it. I spoke to my manager and spoke to his manager about it. And they said, 'yeah don't worry about it we're going to talk it over because it's not the first time it's happened'. I think the thing that bothered me about it wasn't the fact that what he said, it was the fact that this is the least [firm] thing I've experienced in all my time that I've been here. I was glad that the reaction was, 'yeah that's not okay. You know even if you were in the wrong, it's not okay to speak to someone like that'.*
>
> *Vance Ltd. male technical worker*

The way in which the organisation handled his report was considered a favourable outcome for the interview participant and thus reinforced the aspirational culture put forth by the firm through leadership actions. This sentiment was echoed more generally by a female participant who had not experienced harassment at the firm but did feel that leadership was transparent and communicative when a trend of counter-culture behaviours began to emerge:

I think one of the things that historically we've been quite good at is from the senior leadership team getting acknowledgement when things aren't great right now. They will tell you, 'these are the reasons why we think things aren't great. And this is what we're going to do about it'.

Vance Ltd. female technical worker

Cumulatively, these experiences demonstrate high levels of alignment between the aspirational culture of the firms and the way in which counter-culture behaviour is addressed in practice.

4.3.3.2 Hostile and benevolent sexism

Across case study firms, it was difficult for workers to pinpoint incidents of sexism. This was particularly true for workers at Beets Co., with the majority of workers classifying hostile experiences as either microaggressions or harassment. One worker provided insight into this, explaining that it can be difficult to understand the intention of the perpetrator:

I think I've experienced every day sexism. It's really difficult. I think that I have... I can't think of a specific example other than passing comments but that could have been something they would say to anybody.

Beets Co. female non-technical worker

In contrast, two female interview participants reported instances of benevolent sexism, wherein they felt it was easier for them to get local agreement to flexible working arrangements than it would be for a man even if he was doing so for childcare purposes:

I don't think I'm special in that he agreed to the flexible Friday but the fact that I was a working mum with young kids was certainly factored in. If I had been a guy who asked they might have just said, 'well no, you've got to work five days.' Again, my current boss is very traditional. They're all in their late 50s, 60s, slightly older generation and it can work in your favour.

Beets Co. female non-technical worker

Another female participant described 'using the female card' as a means of influencing co-workers to help her when she had questions about particular technical tasks:

My influence and skills are quite different. I will take advantage of being a female, even though I am a full technical, I'm not majorly technical. I'm not an Engineer or anything like that. She comes from an engineering background and I come from English language and literature. I came into technology almost by accident. So, if I want somebody to help me with something, I will play a bit of the female card. So, I will use different influencing skills using what I feel are my strengths or whatever. And I'll tend to ask people to do things for me as opposed to tell them.

Beets Co. female technical worker

Within Muckduk Inc., sexism was reported by two of eight female participants, both of whom had similar incidents where their work had been appropriated by a senior male member of their team. Both participants were technical workers and both had decided to report the behaviours to human resources:

> *I did have a situation when one of the managers stole my ideas a few times or kind of claimed my work. And I did speak to HR about it because I was quite unhappy with the situation. And unfortunately, HR's response was to try to make me talk with the person. Which I don't think…[pause] I didn't feel comfortable enough to do that.*
>
> *Muckduk Inc. female technical worker*

The participant attributed this interaction, and particularly the way in which human resources chose to handle it, to instigating their choice to seek alternative employment. This was echoed by the second participant who had experienced work appropriation as well.

Conversely, two female participants felt they were treated with a level of positive sexism due to their gender, particularly in employee reviews:

> *I've experienced quite a lot of reverse sexism as well. For example, in code reviews sometimes people will go easier on me when objectively my code is worse in some cases than someone who had pages and pages of feedback. So, I think kind of avoiding that... I don't want to say confrontation because it's not confrontational, but I think people fearing how that might be received like I'm too delicate to handle that.*
>
> *Muckduk Inc. female technical worker*

The participant went on to say that while the intentions of the assessors were most likely good, it contributed to feeling marginalised and ultimately presented her with less feedback to build her skillset on going forward.

Workers at Vance Ltd. did not report any incidents of hostile sexism; however, a trend did emerge from the data wherein male workers who considered themselves equality allies would confront microaggressions in others. For example, one male participant recounted a recent experience where a female co-worker asked him to address a sexist issue in a group chat on her behalf:

> *The woman who wanted to raise it actually asked me to raise it because she had read through the history recently and didn't feel comfortable raising it herself because she thought these people might shoot it down.*
>
> *Vance Ltd. male technical worker*

A female interview participant echoed this sentiment and felt that while she had experienced gendered exclusion when she began at the firm, she had been able to confide in male allies who then called out the behaviours as it happened.

> *They would also make comments that made me uncomfortable as a woman. It started to change after a while because I would talk to some of the men on my team if we were working one-on-one and they began to kind of be an advocate for me. And then when we would be back in a team again and something sexist was said, they would stick up for me or check that behaviour so that I didn't have to.*
>
> *Vance Ltd. female technical worker*

Whilst the majority of female participants at Vance Ltd. touted the allyship of their male co-workers, some studies highlight that the intervention of male allies on behalf of women is, in fact, benevolent sexism (Hideg and Ferris 2016). Kelan (2018), for example, highlights that allyship can easily cross into a saviour mentality which can reduce the agency of female workers to address issues on their own or reinforce that male voices are more poignant in addressing inequalities.

Returning briefly to the lack of efficacy of unconscious bias trainings established in section 4.2.1.3, the experiences of benevolent sexism from female interview participants across case study firms, particularly relating to work evaluations, supports Kelan's (2018) warning and reinforces the need for institutional processes to report counter-culture behaviours rather than relying on the support of male workers and preferential treatment from line managers. Indeed, positive outcomes were reported by workers at both Vance Ltd. and Muckduk Inc. when an informal tool to report microaggressions and gender-specific issues was established and supported in practice.

Additionally, the findings from this study align with research which suggests incidents of harassment and aggressive behaviours can identify a highly gendered institution (Iacuone 2005). Across firms, worker interviews revealed that rogue agents who act aggressively or against the accepted culture of the firm were to be expected. However, the way in which incidents with such workers were handled by the organisation had a meaningful impact on how the participant viewed the lived culture of the firm.

Studies regarding the impact of harassment in the workplace have established that those who report incidents to their employer are often met with unfavourable outcomes, even when adequate reporting systems are established (McLaughlin, Uggen and Blackstone 2017). Salin (2009) challenged the impact of written policies and procedures on complaint outcomes, finding rather that outcomes were more heavily influenced by the perceptions of managers. This is best evidenced in the way in which individuals interacted with EDI policies and processes at Vance Ltd. in comparison to workers at Muckduk Inc. and Beets Co., with significant trends revealing higher congruence between the aspirational and lived culture of the firm. Indeed, Scott, Klein and Onovakpuri (2017) identify three key actions which firms should take to adequately address harassment and incidents of unfairness: (1) implement EDI policies and initiatives with strong support from leadership (2) continuously monitor the firm

culture through worker perspectives and (3) develop management processes which evaluate the impact of managers on supporting EDI measures. As such, this reinforces the findings that EDI initiatives are significantly more impactful when integrated strategically into existing policies and procedures.

Moreover, this study finds that there is a need for leadership to model and reinforce the aspirational traits outlined in EDI policies in order for it to effectively become engrained within the culture. This was particularly lacking within Muckduk Inc. where those who had experienced incidents of harassment indicated that the transgressors were amongst the upper-management and leadership teams. Whilst bad actors are present in most workplace environments, the lack of consequence for sexist behaviours from leadership can lead to institutionalised sexism (Whelan-Berry, Gordon and Hinings 2003), counteracting the gender-neutral culture put forth by the firm in formal reports.

4.3.4 EDI backlash

Finally, a common theme emerged in the data collection and analysis which had not been captured previously in the theoretical framework established for this study. Several interview participants spontaneously chose to expand upon their opinions regarding the need, or lack thereof, for gender diversity in the industry as well as the potentially negative impact of equality initiatives on male ICT workers. This data was of particular interest as there was a significant gendered difference in those who provided such insights. As such, the researcher chose to include this as an additional area for evaluation as it provided a rich context to the wider discourse and behavioural norms reflected by participants in the firm.

Returning to the assessment system outlined in section 4.0.4, a green rating was awarded to firms where both male and female interview participants expressed support for EDI initiatives in the main. Firms where interview participants showed minimal levels of disagreement regarding the need for EDI policies were assigned an amber rating while a red rating was awarded to firms with high levels of contention around the need and impact of gender-inclusive initiatives. This is summarised in the table below.

Assessment of equality backlash for each case study firm		
Equality backlash	Green	EDI initiatives are supported by both male and female workers
	Amber	Some levels of gendered disagreement regarding the need and efficacy of EDI policies
	Red	High levels of gendered differences in the need for EDI policies and the impact on male and female workers

Table 39 source: author generated

Studies warn that equality and diversity initiatives can negatively influence historically-advantaged workers (Vaccaro 2010). Whilst these attitudes were not explicitly being ascertained in the methodology and data collection of this study, the inclusion of male interview

participants led to the emergence of data in this vein without researcher prompting. Thus, an additional code was added to the data analysis termed ‘equality backlash’ to capture where participants expanded upon the current approach to gender equality taken both by their employer as well as the wider Scottish ICT industry. Specifically, wider social messaging regarding gender pay inequality and occupational segregation, reinforced by individual experiences in the workplace, have had marginalizing effects for some male ICT workers. This was experienced differently across each case study firm.

Within Beets Co., three of nine male interview participants shared their concerns regarding gender discrimination in hiring practices. The most common sentiment from male interview participants, particularly in technical roles, was that the social movement to redress the gender balance in STEM was misinformed:

> *One of the major problems I see is that the media make the issue to be something that it's not in terms of the causes for it. One of the big ones that I see a lot is the pay divide one where they don't break it down as like for like they just take up a blanket statement.*
>
> *Beets Co. male technology worker*

Two male participants additionally felt that organisations would show preference for a female job applicant over an equally or marginally better-qualified male candidate:

> *I think across technology…I think there's a lot of affirmative action to do with women. I think that if right now two people were to go for a job, a male and female, with similar skill sets, and if the male was even a little bit better, they would pick the female just so they can have that quota of having women in the team.*
>
> *Beets Co. male technology worker*

Most significantly, a third male participant who worked for several ICT firms previous to Beets Co. felt particularly strongly that the current landscape of the Scottish tech sector had become biased towards men. He shared his views based on previous experiences in organisations which led, in part, to his seeking employment with Beets Co.:

> *[In my previous firm] there's a woman in charge of [firm] in the Scotland team and most of the field jobs kind of went to female people. I don't know if you know this, this Women in IT group? So, it seems like almost a secret organisation and kind of a positive kind of affirmation of trying to get women in IT... I’m not saying it's like the Masons and it's a secret organisation, but it does help. The more time you spend with senior leaders, the more of a chance you'll have at getting roles. I mean, for example, if we had a Men in IT group and met once a month and then all the jobs went to men there would be a court case about it. I mean, if it was Blacks in IT or Latinos in IT... I mean it just seems there has been a push to get more women involved in technology but sometimes it's a little bit just...women's brains and men's brains are different and both think in different ways. Logical is more the kind*

of male aspect of it and that's what computers are, they are logical. So, there is going to be that divide.

Beets Co. male technical worker

It should be noted that whilst Beets Co. has a predominantly male leadership team, the internal gender equality network is championed by several high-ranking women within the firm. The recent conscious effort to transition from an exclusively women-based group towards a gender equality network may send a more inclusive message to individuals who otherwise feel marginalised by such efforts.

Conversely, male interview participants currently or formally involved in the apprenticeship and graduate programmes at Beets Co. were more optimistic about firm EDI efforts and the overall trend towards encouraging gender diversity, particularly in male-dominated tech roles:

There were females within my apprenticeship group and I would say that the opportunities were definitely equal when you look at the opportunity that females had against males. When I look at the females that I worked with a lot of them have gone into management and they've had excellent opportunities.

Beets Co. male technical worker

At Muckduk Inc, male interview participants generally felt that gender was not an issue for the ICT industry. For example, when asked if there was anything he wanted to add at the conclusion of his interview, one male interview participant noted that tech was a promising, equal-opportunity industry for both men and women:

I'm delighted to see that sex is just not an issue. We don't make it one and there's numerous female engineers and that's good to see.

Muckduk Inc. male technical worker

Specifically, the industry need for skilled technical workers was used to demonstrate that workers have higher levels of agency regardless of gender by another participant:

Tech is a great place at the moment because the short supply of developers makes companies fight for them in a way that makes capitalism work just like it's supposed to; increasing wages, improving benefits, and making work a fair exchange between developers and companies.

Muckduk Inc. male technical worker

One more male participant felt that those working in the tech sector were more likely to be forward thinking and would not tolerate discriminatory practices:

> *I think in general the tech sector is a great place to work. The vast majority of the workforce are modern thinking, and against any form of discrimination. I think we are lucky in that respect, compared to other industries.*
>
> *Muckduk Inc. male technical worker*

Interviews with male participants at Vance Ltd. did not show significant trends similar to Muckduk Inc. or Beets Co., however, one of eight male interview participants did share some concerns regarding how some comments would be taken in a culture with high levels of sensitivity to equalities issues:

> *I've seen people being called out on public channels when they've, for example, made a joke. Yeah, there probably would be a case to say that was sexist but at the same time it was a joke so should it be taken at face value or should there be some understanding that it was a joke?*
>
> *Vance Ltd. male technology worker*

That said, Vance Ltd. shows limited signs of backlash due to progress in equality and diversity initiatives. This is supplemented through a clear trend of workers across genders advocating for and openly discussing issues of sexism.

The findings presented in this section were able to emerge based on a data collection method which interviewed equal populations of male and female workers across firms. The opinions expressed by male interview participants provide insight into key issues that must be addressed by gender equality initiatives so as not to isolate male workers who comprise the majority of the ICT workforce. Moreover, the reflections shared by male interview participants provide a rich context to the gender dynamic in each firm's day-to-day culture. Whilst research regarding male hostility towards gender equality work is limited, some studies have presented similar findings. For example, Vaccaro (2010) found in their study of attitudes towards diversity in a predominantly white university that male participants denied the presence of gender discrimination on campus. More generally, studies have shown that women are more open to diversity initiatives than men (Liang and Alimo, 2005, Zúñiga, Williams and Berger 2005), and that men are more likely to consider equality efforts a 'female concern' (Connell 2003). As such, this study reinforces the importance of including the male perspective in research on gendered institutions as well as the opportunity for organisations to strategically approach the on-boarding of male workers in the implementation of EDI initiatives.

4.3.5 Evaluation and discussion of gendered worker discourses

As introduced earlier in section 4.0.4, evidence of gendered discourses was assessed under two categories derived from the theoretical framework: microaggressions and harassment as well as a third category which emerged in the data: equality backlash. Across case study firms, evidence of gendered discourses such as microaggressions and gendered banter was

presented to varying extents. Interview participants at Vance Ltd. largely reported that such behaviours were infrequent and often addressed directly by peers and management and thus the firm was awarded a green rating. Both Muckduk Inc. and Beets Co. garnered an amber rating as antisocial discourses were more frequent and often unchecked by people managers. In the second category, Muckduk Inc. was given a red rating as participants shared significant experiences of harassment and a lack of formal reporting procedures available to workers. Formal reporting measures are established for both Beets Co. and Vance Ltd., however interview participants varied between the two firms. Workers at Beets Co. were more likely to feel the reporting system lacked support at the management level and therefore frequently presented undesirable outcomes whereas workers at Vance Ltd. generally felt that a positive outcome had been reached if they had experience reporting an incident. Thus, the firms were awarded an amber and green rating respectively.

Finally, gendered differences in the perception of equality and diversity work in the ICT field was particularly high for Muckduk Inc. and Beets Co. who were awarded red ratings while instances of anti-EDI sentiments were also identified in Vance Ltd. to a lesser extent, garnering an amber rating. The following table provides the assessment summary for each case study firm across the three areas of critique for this category.

Firm evaluation of worker discourses			
	Microaggressions	Harassment	Equality Backlash
Beets Co.	Amber	Amber	Red
Muckduk Inc.	Amber	Red	Red
Vance Ltd.	Green	Green	Amber

Table 40 source: author generated

The remainder of this section will summarise the key findings across case studies presented in this chapter.

4.4 Summary of evidence: gendered barriers to inclusion

The purpose of this chapter was to address research objective one:

RO 1: To establish the validity of claims that gender differentially influences the experiences of workers in technology firms in Scotland through an updated framework for the analysis of those potential differences in a contemporary context.

Based on the data presented, the findings demonstrate that some indicators of gendered barriers to inclusion were present in all three firms to varied extents. The following table provides a recap of the criteria for each area of evaluation established in the red, amber and green rating system and identifies where each firm falls within the assessment.

Evaluation criteria and results by firm			
Job divisions			**Firm assessments**
Horizontal	Green	Gendered divisions and pay gap data reflective of Scottish workforce	
	Amber	Gendered divisions and pay gap data reflective of Scottish ICT industry	
	Red	Gendered divisions and pay gap data below industry average	Beets Co. Muckduk Inc. Vance Ltd.
Vertical	Green	At least 30% of Executive team and Board of Directors held by women	
	Amber	At least one female on both the Executive team and Board of Directors	Beets Co. Vance Ltd.
	Red	Lack of female representation on either the Executive team or board of directors	Muckduk Inc.
Organisational culture			
Policy and EDI initiatives	Green	EDI policies and initiatives in place with evidence of effective implementation. High levels of alignment between worker experiences and firm aspirational culture.	Vance Ltd.
	Amber	EDI policies in place with some evidence of contradictory practices. Some alignment between worker experiences of culture and firm aspirational culture.	Beets Co.
	Red	A lack of EDI policies or strong evidence that policies are not implemented in practice. Little to no alignment firm aspirational culture and the lived experiences of workers.	Muckduk Inc.
Recruitment	Green	Demonstrated efforts to recruit more women, particularly into ICT roles and evidence of employer branding concentrated on equal representation	
	Amber	Demonstrated efforts to recruit more women, particularly into ICT roles or evidence of employer branding concentrated on equal representation	Beets Co. Muckduk Inc. Vance Ltd.
	Red	A lack of female representation in employer branding efforts and no evidence of recruitment efforts targeted at increasing the number of women in the firm	
Gendered discourses and behaviours			
Gendered banter/ microaggressions	Green	Reports of such behaviour are considered counterculture/infrequent and informal/low consequence reporting channels can be used to report such experiences	Vance Ltd.
	Amber	Worker experiences of such behaviours are considered intermittent and misaligned with the wider firm culture	Beets Co. Muckduk Inc.
	Red	Workers report frequent experiences of such behaviours which reflect the lived culture of the firm	

Harassment/sexism	Green	Well-established formal reporting measures; infrequent experiences shared by interview participants and/or a positive experience resulting in the use of the reporting system	Vance Ltd.
	Amber	Formal reporting measures are established, however there is some disparity in the experiences of participants who have needed the system	Beets Co.
	Red	Reporting experiences are poor, or workers opt out of reporting explicitly due to a lack of confidence in the system. Evidence of workers leaving the firm due to such incidents.	Muckduk Inc.
Equality backlash	Green	EDI initiatives are supported by both male and female workers	
	Amber	Some levels of gendered disagreement regarding the need and efficacy of EDI policies	Vance Ltd.
	Red	High levels of gendered differences in the need for EDI policies and the impact on male and female workers	Beets Co. Muckduk Inc.

Table 41 source: author generated

In total, Muckduk Inc. demonstrated strong evidence of gendered barriers to inclusion, with five red ratings and two amber ratings. Beets Co. showed some barriers to inclusion as well, with two red ratings and five amber ratings in total. Vance Ltd. showed the most progress towards gender equality, with one red rating, three amber ratings and three green ratings. Thus, while all three firms are considered best practice organisations for engendering diversity in the Scottish tech landscape, the findings from this study suggest a lack of efficacy around the transition from organisational aspirations regarding equality, diversity and inclusion and the lived experiences of female workers.

Nevertheless, some best practices were identified in firm approaches to gender diversity. These have been outlined and discussed in the landscape of wider academic discourses in chapter two and will be revisited in the conclusion of this thesis to address RO5: to provide recommendations on effective strategies a firm can employ to recruit and retain a skilled, diverse workforce. The next chapter will go on to outline the findings related to the ideal worker narratives for each case study firm and discuss these in relation to the wider academic landscape of ICT worker stereotypes.

Chapter Five: Ideal worker narratives

5.0 Introduction of the ideal worker narrative

Significant to achieving the aim of this piece of research is an exploration of the ideal worker narrative; or the collection of trait and demographic characteristics, be they explicit or implicit, which are presented as key to success within a particular context (Acker 1990). Thus, research objective two was established:

RO 2: To assess to what extent there are specific expectations of an ideal worker with preferred qualities, demographics and characteristics in Scottish ICT firms.

To meet this objective, a specific understanding of the ideal worker narrative in each case study firm was needed. Thus, data was collated from multiple perspectives as illustrated in the following figure.

Interpretation of the ideal worker

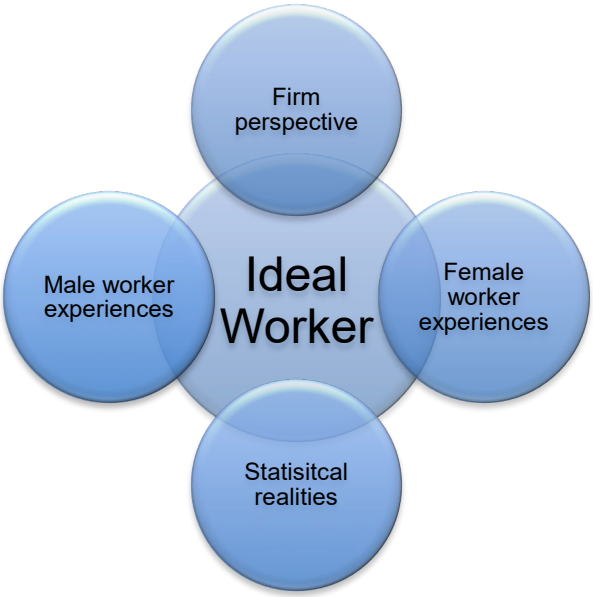

Figure 19 source: adapted from Acker 1990, Kelly et al. 2010

Introduced in chapter two, literature highlighting the nuances of the ideal worker narrative have begun to provide key insights into the way in which gender is performed and reinforced in the ICT industry wherein accepted masculinities tend to differ from historical assumptions of hegemony and hypermasculinity (Acker 2004, Whitehouse and Preston 2005, Kelan 2009, Kelan 2010, Carter and Silva 2011). This study has built upon this research to investigate nuances in the ideal worker narrative described for three firms in the Scottish ICT industry who have used EDI policies and practices to attract and retain minority workers. Several data collection methods were used to adequately examine multiple perspectives of the ideal worker

narrative. The firm perspective was composed from interviews with leadership and an analysis of employer branding as well as the statistical realities of the workforce while majority and minority worker perspectives were derived from interviews with male and female workers. The remainder of this section will delve into the ideal worker narratives specific to each firm, subsequently drawing comparisons across organisations and wider literature.

5.1. The ideal worker narrative: organisational perspectives

As introduced in chapter one, demographical diversity is at the forefront of the ICT recruitment narrative in westernised countries, with an emphasis placed on increasing the number of women in technical positions. Research has linked the social movement for gender equality with positive business benefits such as increased innovation and a better understanding of the customer base within the workforce (Monks 2007) as well as lower rates of risk at the board level (Galbreath 2018). As such, three ICT organisations were chosen for this study who were considered to be at the forefront of diversity work in the Scottish ICT sector.

Whilst findings related to gendered job divisions were presented in the previous chapter (section 4.1), a review of this data is presented alongside an analysis of employer branding, job postings and advertised employee benefits to derive an understanding of the current reality as well as the aspirational goals for each firm's diversity and inclusion work. The findings across case study firms regarding the statistical reality of the workforce, in parallel with their positioning as EDI leaders in the industry, suggest a need to further investigate differences between the aspirational ideal worker narrative prescribed by the organisation as well as the implicit narrative of workforce realities. The following subsections will present the findings for the organisational perspective of the ideal worker narrative for each case study firm.

5.1.1 Demographical workforce realities

The gendered job divisions presented in chapter four provide some insight into the statistical reality of the workforce both horizontally and vertically. High levels of gendered job divisions were identified across participating firms, following wider industry trends. Women remain underrepresented in ICT positions across firms, representing 18%, 14% and 13% of ICT positions at Beets Co., Muckduk Inc. and Vance Ltd. respectively. Pay gap data demonstrates the impact of rigid gender divisions, with higher levels of women represented in the lowest pay quartiles of all three firms. Moreover, women are underrepresented in leadership roles, with six out of twenty-five executive and board positions filled by women at Beets Co., two out of ten executive positions held by women at Vance Ltd. and no female representation at the leadership level at Muckduk Inc. Following academic discourses that male-dominated roles receive higher levels of prestige and pay (Acker 1990, Ashcraft and Mumby 2003), it can be

suggested that the ideal worker narrative for each case study firm is influenced by the disproportionate number of men in leadership and technical positions. This is further supported by the justifications presented by case study firms in their pay gap reporting. Thus, despite each firm's call for diversity in this respect, the reality of workforce compositions across case study firms suggests a need to revaluate the efficacy of EDI practices on creating a gender-diverse workforce.

5.1.2 Aspirational worker traits

To gather insight into the universal worker traits and characteristics sought after by each case study firm, a review of job postings, employer branding and leadership interviews was conducted. At the time of the data collection, Beets Co. had five job openings located within Scotland, Muckduk Inc. had nine and Vance Ltd. had thirteen. Skills and certifications specific to a particular role were not included in the analysis as the objective of this analysis was to gather common traits regardless of worker role. Additional data on the ideal worker narrative was derived from interviews with members of leadership who were asked to describe sought-after traits which aligned with the intended culture of the firm. A complete accounting of sources included in this aspect of the analysis is presented in the following table.

Sources included in ideal worker analysis: firm perspective			
🔎	Beets Co.	Muckduk Inc.	Vance Ltd.
Job postings	5	9	13
Employer branding webpages	31	3	2
Social media posts	40	49	0
Leadership Interviews	1	1	1

Table 42 source: author generated

In total, twenty-eight instances of twelve different ideal worker characteristics were identified from the firm perspective for Beets Co., fifty-seven instances of fifteen different terms from Muckduk Inc. and one hundred and twenty-five instances of eighteen different terms from Vance Ltd. Of the traits identified, six were used across case study firms to describe the ideal candidate: communicative, resilient, driven, fast, self-driven and a lifelong learner. However, the frequency of use varied firm by firm. The following table provides a complete accounting of the terms used in the firm perspective of the ideal worker, organised by commonality across firm and total instances of use.

Ideal worker traits: firm perspective

	Beets Co.	Muckduk Inc.	Vance Ltd.	Instances (total)
Commonalities across case study firms				
Communicative/personable	7	9	11	27
Resilient	5	7	3	15
Driven	4	8	3	15
Fast/Good time management	1	2	12	15
Self-motivated	2	2	10	14
Lifelong learner	1	1	6	8
Agreement across two firms				
Technophile	0	8	15	23
Innovative	0	1	16	17
Talented/maverick	0	5	12	17
Self-promoting/ambitious	0	5	5	10
Problem-solver	1	0	4	5
Team player/helpful	1	0	3	4
Open to feedback	1	0	2	3
No agreement across firms				
Analytical	0	0	13	13
Customer-focused	0	0	5	5
Able to provide constructive criticism	0	4	0	4
Thoughtful	0	0	3	3
Optimistic	2	0	0	2
Curious	0	2	0	2
Empathetic	2	0	0	2
Single-use, single-firm terms				
Gritty	0	1	0	1
Detail-orientated	0	1	0	1
Entrepreneurial	0	0	1	1
Organized	0	0	1	1
Patient	1	0	0	1
Solution-oriented	0	1	0	1

Table 43 source: author generated

Seven additional commonalities were identified between at least two case study firms, whilst thirteen traits were used by one firm alone. While similar terms across case study firms align the findings from this study with academic knowledge of the ideal ICT worker (Ashcraft and Ashcraft 2015), the prevalence of different characteristics for each case study firm additionally supports the understanding that the ideal worker narrative is influenced to some extent at the organisational level (Vianen and Fischer 2010, Puncheva-Michelotti, Hudson and Jin 2018). Additionally, the emergence of terms such as helpful, team player and empathetic mirror findings shared by similar studies which depict the ideal ICT worker as shifting from the lone coding maverick (Woodfield 2000) to a more team-orientated worker with a strong passion for

tech (Kelan 2007). Academic discourses have debated the impact of this shift, with some seeing the rise in feminine characteristics as aligned with a reprioritisation of female workers whilst others highlight that such skills have yet to be associated with comparable pay and prestige (Hardey 2019). Regardless, ample evidence remains in this study to support an enduring preference for the tech maverick, particularly at Muckduk Inc. and Vance Ltd.

5.2 Worker perspectives on the ideal worker narrative

The data collection process also sought to understand the worker perspective on key characteristics for success. This produced interesting results, with the findings indicating ideal worker narratives distinct to each firm, with varying levels of agreement between the firm and worker perspectives. While key trends were established across firms and largely coincided with studies of the ideal worker in ICT (Woodfield 2000, Kelan 2007), differences between narratives demonstrate the role of the organisation in the reinforcement or divergence from the established hypermasculine narrative often used to describe the typical technical worker. The remainder of this section will delve into these aspects of the ideal worker narrative, with a comparison of the firm and worker perspectives to follow.

5.2.1 Visual signals of the ideal worker

Research on the ideal worker, particularly in ICT, often associates demographical characteristics such as gender with the perception of the ideal worker (Brumley 2019). Whilst workers were not specifically asked to incorporate demographical characteristics into their description of their ideal worker narrative, some interview participants chose to do so spontaneously. This was evidenced in two of the three case study firms, Beets Co. and Muckduk Inc., where the ideal worker was associated with being male by four out of sixteen participants and three out of fourteen participants respectively. Firm findings diverged in relation to age, where two participants from Beets Co. felt that the ideal worker must be ‘young’ and two participants from Muckduk Inc. felt they must be ‘old’. Muckduk Inc. was the only firm where ethnicity was addressed, with two workers also describing the ideal worker as white. Interestingly, there were no participants from Vance Ltd. who used demographic characteristics to describe the ideal worker. The following table shows the distribution of demographics used by firm and interview participant gender.

Demographic characteristics introduced by interview participants											
Beets Co.				Muckduk Inc.				Vance Ltd.			
	M	F	Total		M	F	Total		M	F	Total
Male	2	2	4	Male	0	3	3	Male	0	0	0
Young	2	0	2	Old	0	2	2	Age	0	0	0
White	0	0	0	White	0	2	2	White	0	0	0

Table 44 source: data collection

Interestingly, there were no male workers who used demographic descriptors such as gender, race or age to describe the ideal worker at Muckduk Inc. In contrast, female technical workers were cognisant of the fact that there had not been a woman in a technical upper-management or leadership position for several years, with just one woman holding the position in the firm's history. One interview participant expressed that the historical lack of women in technical leadership positions was noticeable, but that being male was not an explicit requirement to progress into leadership:

> *I think possibly because those were the sort of people that started it then it's sort of older, American business school men are mainly make up the senior team. I don't think that that's sort of the formula you need to do well I just think that sort of demographic has done well and have stuck with the company.*
>
> *Muckduk Inc. female technical worker*

Another female interview participant at Muckduk Inc. felt a bit differently regarding the same issue, going on to explain that the lack of women in leadership suggested their gender might preclude them from progressing within the company.

> *It makes me sort of question whether I would be able to progress within the company just because there hasn't been an instance apart from one of the founders. There is not an instance of a woman getting to that position within the engineering sphere. So, it makes me question whether I would just because I have nothing to reference for it.*
>
> *Muckduk Inc. female technical worker*

Less of a gender divide was present in those who used demographics to describe the ideal worker at Beets Co., with two of nine male participants and two of seven female participants using a gender descriptor. Notably, interview participants often focused on the hypermasculinity presented in sales teams rather than technical teams:

> *It just feels so full of testosterone. It's a lot of salespeople as well. You know suited and booted and the swagger. I think some of them think they're rock stars.*
>
> *Beets Co. female non-technical worker*

Additionally, female interview participants at Beets Co. who used gender to describe the ideal worker were more likely than their male counterparts to associate gender with a firm preference for hypermasculine, or aggressive traits:

> *In the sales teams you will see the character types that do very well, generally male. All male in fact.*
>
> *Beets Co. female non-technical worker*

One male worker described the organisation as 'paternal' rather than aggressive however similarly felt that men comprised the majority of high-profile positions:

> *I think we are quite paternal. There's a lot of men, particularly in sales and technical positions… but really quite a few of the higher positions in general.*
>
> *Beets Co. male technical worker*

This sentiment seemed to correspond with a higher level of importance placed on the sales team at Beets Co. than that of Muckduk Inc. and Vance Ltd, where sales were secondary to technical roles. This introduced some levels of competing masculinities, with aggression aligned more so with the salesman than the tech worker. Research shows strong evidence to support this, with studies identifying sales teams as centres of hypermasculinity (Morgan and Martin 2006) associated with highly gendered banter (Collinson and Collinson 1996) and sexual harassment (Blackstone, Uggen and McLaughlin 2009) amongst colleagues.

Specific to Beets Co. was the finding that not all female-dominated departments similarly reflected female dominated management teams. Specifically, one female participant who had worked in marketing and communication roles for several decades with the firm, reflected that she rarely had worked under a female line manager:

> *I think the gender breakdown is quite unusual because I've always worked in quite male dominated environments and I would say that you know PR is seen as something that women go into but in my experience most of the leadership is male. Which is surprising. I've only worked for one female boss then the entire time I've been at [Beets Co.] and at least four male ones.*
>
> *Beets Co. female non-technical worker*

Workers in female-dominated departments in Vance Ltd. and Muckduk Inc. did not express similar findings, however pay gap data presented in the previous chapter suggest that this is most likely the case across firms to some extent.

5.2.2 Worker perspectives on ideal worker traits

Interview participants were asked to provide descriptions of the ideal worker from their perspective to analyse critical differences and similarities between firm and worker perspectives as well as male and female participant perspectives. After data from each case study firm was analysed, commonalities and disparities were identified between case study firms. The majority of interview participants in this study across all three firms had clear opinions on the traits necessary to do well within the firm, however this was not often extended to gendered implications, particularly amongst male interview participants. Thus, the data compiled from the worker perspective provided thought-provoking insights to further the understanding of gendered implications on the ICT worker stereotypes presented in literature (Woodfield 2000, Acker 2004, Kelan 2010).

5.2.3 Alignment of traits across firms

Worker perspectives across case study firms varied more so than the firm perspectives presented in the previous section. As workers were asked to describe the ideal worker narrative without any direction, synonyms were grouped together during the analysis of interview data. Traits mentioned by only one participant and exclusive to one firm were not used in the comparison. Traits which align with a need to be collaborative and sociable were used by workers across all firms while six additional characteristics were used by participants in at least two firms. The remainder were present in only one case study firm. The following table provides a complete accounting of the traits identified through worker interviews and the frequency with which they were used.

Ideal worker traits: worker perspective

	Beets Co.	Muckduk Inc.	Vance Ltd.	Total (all firms)
Commonalities across all case study firms				
Collaborative/communicative/personable	3	8	6	17
Agreement across two firms				
Driven/hard worker	5	12	0	17
Technophile	0	6	8	14
Talented/Maverick	2	6	0	8
Overachiever/willing to work overtime	0	4	4	8
Self-promoting/ambitious	3	0	4	7
Innovative	0	2	2	4
No agreement across firms				
Open to feedback	0	0	8	8
Lifelong learner	0	5	0	5
Aggressive/Testosterone-filled	5	0	0	5
Financially driven	4	0	0	4
Self-motivated	0	0	4	4
Confident	3	0	0	3
Enthusiastic	0	2	0	2
Detail orientated	0	2	0	2
Resilient	0	2	0	2
Problem Solver	0	0	2	2

Table 45 source: author generated

Interestingly, the singular trait used seventeen times across all case study firms is aligned with a valuing of communal leadership styles which Eagly and Karau (2002) ascribe a feminine gendering. Some scholars further posit that the increasing importance of collaborative and interpersonal skills will naturally increase the value of women within the sector (Lim 2016, Rodriguez and Lehman 2017). Used with the same frequency, workers at Muckduk Inc. and Beets Co. used terms such as ‘driven’ and ‘hard worker’ to describe the ideal worker narrative, with such terms used five and twelve times by participants in each firm respectively. A participant at Muckduk Inc. summarized this trait as “doing what is required, not what is on their job description” (Muckduk Inc. male technical worker). Research highlights the implicit difficulty in demonstrating one’s mastery of such traits for those with competing responsibilities outside of the workplace (Mokhtarian, Bagley and Salomon 1998). Primarily, this becomes a gendered issue when women are more likely to be responsible for household duties and childcare in addition to their work (Cha 2010, Chung and van der Horst 2018).

5.2.4 Gendered differences in the ideal worker narrative across firms

Amongst male and female interview participants, notable differences in the ideal worker narrative did emerge. When compared across firms, men and women were equally likely to

describe the ideal worker as ‘collaborative’, ‘driven’ and a ‘lover of technology’. Men were more likely to include terms such as ‘talented’ and ‘overachiever’ whilst women were more likely to use the term ‘innovative’. The following table provides an accounting of descriptors broken down by participant gender.

Ideal worker traits: worker perspective by gender						
	Beets Co.		Muckduk Inc.		Vance Ltd.	
	M	F	M	F	M	F
Collaborative/communicative/personable	2	1	7	1	1	5
Driven/hard worker	3	2	6	6	0	0
Technophile	0	0	2	4	4	4
Talented/Maverick	0	2	6	0	0	0
Overachiever/willing to work overtime	0	0	4	0	2	2
Open to feedback	0	0	0	0	4	4
Self-promoting/ambitious	2	1	0	0	2	2
Lifelong learner	0	0	2	3	0	0
Aggressive/Testosterone-filled	2	3	0	0	0	0
Innovative	0	0	0	2	0	2
Financially driven	1	3	0	0	0	0
Self-motivated	0	0	0	0	2	2
Confident	2	1	0	0	0	0
Enthusiastic	0	0	0	2	0	0
Detail orientated	0	0	2	0	0	0
Problem Solver	0	0	0	0	0	2
Resilient	0	0	2	0	0	0

Table 46 source: author generated

As introduced in the previous section, workers across firms used communal traits to describe the ideal worker, however the gender of those who used such a descriptor varied from firm to firm. At Muckduk Inc., men were more likely to use communal terms, with seven male participants using such descriptors compared to one female participant. Conversely, one male participant and five female participants did so at Vance Ltd. Workers at Beets Co. were least likely to use communal terms, however male and female participants were roughly equally likely to do so. Male and female participants within each respective firm were similarly likely to use descriptors such as ‘driven’, ‘aggressive’ and ‘lifelong learner’, whilst male and female workers at Vance Ltd. were most likely to use similar terms across the board. The implications of these findings are compared with firm descriptors and discussed in greater detail against the wider literature landscape for the remainder of this chapter.

5.3 Positioning between firm aspirations and worker experiences of the ideal worker narrative

Whilst difficult to encapsulate, it was important to assess levels of alignment between different groups (firm, male workers and female workers) in their descriptions of the ideal worker. Some limitations are present in the statistical comparison between perspectives. Specifically, the inclusion of document analysis from a specific point in time (particularly job advertisements and social media posts) may influence the firm descriptors to some extent. This was mitigated somewhat through the inclusion of leadership interviews and static recruitment pages in the identification of ideal worker descriptors.

Using a red, amber and green system, the level to which each characteristic was used by each group was compared. A red classification was ascribed to descriptors which were used by the firm but not by the workers as this signified a significant lack of alignment between the firm and worker perspectives. An amber classification was used for traits mentioned by both the firm and worker (broken down by gender) but to varying extents to signify medium levels of alignment. Traits cited by both the firm and worker (broken down by gender) with similar levels of frequency were given a green classification to signify high levels of alignment.

Whilst these findings are presented next for each descriptor, the following figure summarises the big picture presented by this analysis first.

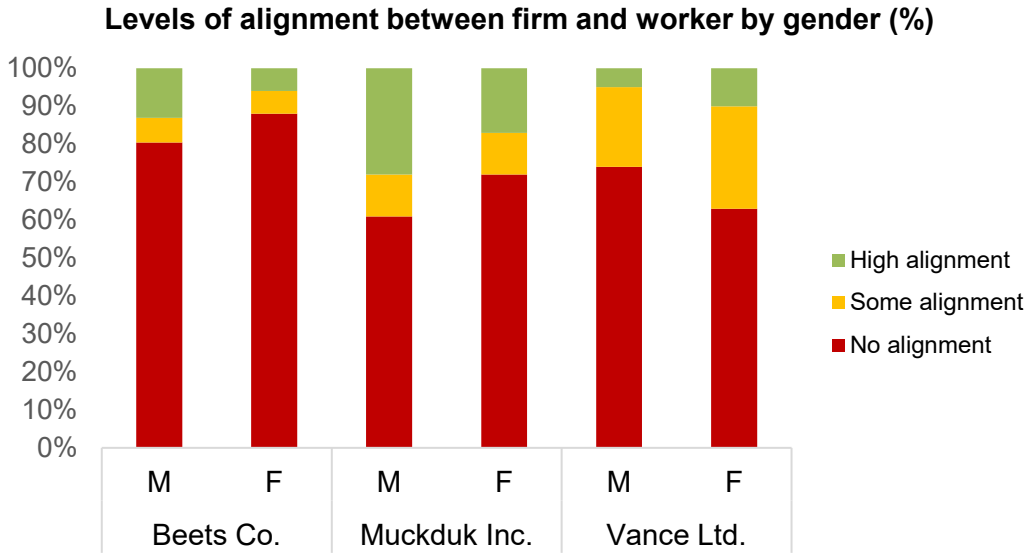

Figure 20 source: author generated

As demonstrated above, high levels of alignment were identified between worker (both male and female) perspectives and firm perspectives of the ideal worker across firms. Generally, this was more pronounced for firm comparisons with female workers than firm comparisons with male workers. At Beets Co., high levels of alignment between the firm and female workers were found in 6% of ideal worker descriptions, while some alignment was found in an additional

6% of descriptions, resulting in no alignment between the firm and female workers in 88% of the descriptors used. Results for Muckduk Inc. were marginally better where high levels of alignment were found between female workers and the firm in 17% of descriptors used, some level of alignment was found in an additional 11% of descriptors and no alignment in 72%. At Vance Ltd., high levels of alignment between the firm and female workers were found for 10% of descriptors and some alignment for another 27%, with 63% of descriptors showing no alignment.

Male workers at Beets Co. were also the least likely to agree with firm descriptions of the ideal worker (78%) whilst male workers at Muckduk Inc. were the most likely to show medium to high levels of alignment with the firm ideal worker narrative at 37%.

Beets Co.

Whilst Beets Co. had the highest levels of alignment between male and female interview participants, this did not extend to alignment with the firm. This finding suggests that the aspirational culture of the firm is not necessarily reflected in the perceptions of workers, however male and female workers are both cognizant of the shortcomings within the firm.

This is further evidenced by the data presented in the following table which shows levels of alignment between Beets Co. and its male and female interview participants for each characteristic. Data is presented first for descriptors which were used by all three demographics (firm, male and female workers), followed by descriptors used by male and female workers but not the firm, followed by descriptors used by only one demographic and finally outlines descriptors used only by the firm. The highest levels of alignment were identified for the characteristic ‘driven’ with men using this trait three times, women using it twice and the firm using it four times in the ideal worker narrative.

Comparison of ideal worker perspectives: Beets Co.			
	Male	Female	Firm
Descriptors used by firm, male and female workers			
Collaborative/communicative/personable	2	1	7
Driven/hard worker	3	2	4
Descriptors used by male and female workers but not the firm			
Aggressive/Testosterone-filled	2	3	0
Confident	2	1	0
Financially driven	1	3	0
Self-promoting/ambitious	2	1	0
Descriptors used only by one demographic			
Talented/Maverick	0	2	0
Descriptors used by firm but not by workers			
Empathetic	0	0	2
Fast/Strong time management	0	0	1
Lifelong learner	0	0	1
Open to feedback	0	0	1
Optimistic	0	0	2
Patient	0	0	1
Problem Solver	0	0	1
Resilient	0	0	5
Self-motivated	0	0	2
Team player/helpful	0	0	1

Table 47 source: author generated

Muckduk Inc.

While there were high levels of disagreement for both male and female workers at Muckduk Inc. when compared to the firm ideal worker narrative, male workers were, in aggregate, more likely to use similar terms to the firm than female workers. Male workers showed high levels of alignment with five characteristics and medium levels of alignment with two. In contrast, female workers showed high levels of alignment for three traits and medium levels of alignment for two. In total, male workers showed no alignment with the firm across eleven terms whilst female workers showed no alignment across thirteen terms as shown in the following table.

Comparison of ideal worker perspectives: Muckduk Inc.			
	Male	Female	Firm
Descriptors used by firm, male and female workers			
Collaborative/communicative/personable	7	1	9
Lifelong learner	2	3	1
Technophile	2	4	8
Descriptors used by male and female workers but not the firm			
Driven/hard worker	6	6	0
Descriptors used by the firm and one gender of worker only			
Enthusiastic	0	2	0
Detail orientated	2	0	1
Innovative	0	2	1
Overachiever/willing to work overtime	4	0	0
Resilient	2	0	7
Talented/Maverick	6	0	5
Descriptors used by the firm but not workers			
Able to provide constructive criticism	0	0	4
Curious	0	0	2
Driven	0	0	8
Fast/Strong time management	0	0	2
Gritty	0	0	1
Self-motivated	0	0	2
Self-promoting/ambitious	0	0	5
Solution-oriented	0	0	1

Table 48 source: data collection

Vance Ltd.

Finally, female interview participants at Vance Ltd. were the most likely to show alignment with the firm ideal worker narrative compared to women at Beets Co. and Muckduk Inc. Male workers were less likely to align with the firm ideal worker narrative, however there was a general agreement across perspectives for terms such as ‘open to feedback’, ‘technophile’, ‘self-promoting’ and ‘self-motivated’. A full accounting is included in the following table.

Comparison of ideal worker perspectives: Vance Ltd.			
	Male	Female	Firm
Descriptors used by firm, male and female workers			
Collaborative/communicative/personable	1	5	11
Open to feedback	4	4	2
Self-motivated	2	2	10
Self-promoting/ambitious	2	2	5
Technophile	4	4	15
Descriptors used by male and female workers but not the firm			
Overachiever/willing to work overtime	2	2	0
Descriptors used by the firm and one gender of worker only			
Innovative	0	2	16
Problem Solver	0	2	4
Descriptors used by the firm only			
Analytical	0	0	13
Customer-focused	0	0	5
Driven	0	0	3
Entrepreneurial	0	0	1
Fast/Strong time management	0	0	12
Lifelong learner	0	0	6
Organised	0	0	1
Resilient	0	0	3
Talented/Maverick	0	0	12
Team player/helpful	0	0	3
Thoughtful	0	0	3

Table 49 source: data collection

Cumulatively, comparisons between the ideal worker narratives can be used to better understand how perspectives differ based on one's gender. As presented in the previous chapter, gendered barriers to inclusion were most prominent with Muckduk Inc. and least prevalent at Vance Ltd. Interestingly, the results of the ideal worker narrative indicate similar findings, with female workers at Muckduk Inc. showing high levels of disagreement with the firm ideal worker narrative and the highest levels of agreement between female workers and the firm for Vance Ltd. In addition to this quantitative comparison of agreement between interview participant and firm ideal worker narratives there was a need to explore key themes which emerged from the data. Five key traits were identified for an in-depth analysis based on their prominence in the findings and the wider literature on the ideal ICT worker.

Studies have shown that some preferred worker traits are either more prevalent in male workers (Cech 2014), more easily accessible by male workers (Chung and van der Horst 2018), or rewarded in male workers to a greater extent than in female workers (Kulik and Olekalns 2012). Of the five tropes explored in the following subsections, four align with such findings: the driven worker, the technophile, the self-promoter and the innovator. The fifth trait explores the communal skills identified across case study firms as part of the ideal worker

narrative and further elevated in organisational theory research as a promising trend for the advancement of women in ICT (Schwab 2017).

5.3.1 The driven, ambitious worker

The identification of the ideal worker as 'driven' across firms highlights the gendered implications of seemingly gender-neutral characteristics. Kelly et al. (2010) note that commitment to the firm is often characterised by working long hours and the pursuit of opportunities which require sacrifice and support from the family. Similarly, Damaske (2011) finds that middle-class workers are more likely to work beyond a forty-hour work week, at times without additional pay, to demonstrate organisational dedication and rely on the support of others to assist in childcare duties.

The findings show that the ideal worker narrative across all case study firms is highly aligned with being career driven, an over-achiever or willing to go above and beyond for the firm. This characteristic was cited 32 times in total and was used across firms by male workers, female workers and the firm itself. For example, the following worker ascribed the need to 'live and breathe' their work:

> *I think what we're looking for is people that are very driven, and they don't just kind of rock up to work. They live and breathe it. They enjoy what they do. It is effectively an extension to their life.*
>
> *Muckduk Inc. male technical worker*

This was most easily achieved by workers with few responsibilities outside of the workplace or workers with partners able to take on the preponderance of care work in the home:

> *A few years ago, we had a discussion about the best way to manage the demands upon us as parents, given we both had busy roles and felt our three children needed more support. We decided together that the best thing for our family would be for him to take a break from his job to focus on our children, and I would focus on my role at [Vance Ltd.]*
>
> *Vance Ltd. female technical worker*

The 'driven, ambitious worker' narrative often precludes those who utilise flexible working to balance parental duties with their work, the majority of whom are women (Durbin and Tomlinson 2010). Indeed, the expectation realistically includes the need to work extended hours which research has shown is disproportionately more difficult for women (Cha 2010).

This was evidenced by interview participants in Beets Co. who felt that in addition to demonstrating a strong work-ethic, individual strategies towards career management could impede or elevate their position wherein workers who could take on professional development and extra work outside of their normal day-to-day duties progressed faster:

> *The type of person who would do well in the team is someone that knows their skills and weaknesses. It's someone who can go and learn and develop themselves using resources that are available.*
>
> *Beets Co. male technical worker*

This sentiment and its prominence amongst interview participants at Beets Co. suggest that those who have caring responsibilities in addition to their work commitments may not have the opportunity to achieve this level of commitment and therefore would not progress as quickly. Whilst workers regardless of gender can moderate their responsibilities and priorities to demonstrate that they are driven in the workplace, the decision to do so is often more accessible for men (Correll et al. 2014). As such, the findings from this study coincide with literature which underlines the importance of demonstrating commitment to the firm and the difficulty of doing so for working mothers who often are able to remain in the workforce but unable to progress their careers (Williams and Neely 2018). This will be explored further in the following chapter.

5.3.2 The technophile

The idea of the technophile was used prominently across workers and firm descriptions of the ideal worker narrative in two of the three case study firms: Muckduk Inc. and Vance Ltd. In worker interview sessions, six participants from Muckduk Inc. (two out of six male participants and four out of eight female participants) and eight from Vance Ltd. (four of eight male participants and four of eight female participants) independently put forth a passion for technology as a vital aspect of success. For example, one female interview participant described why she found this type of work engaging:

> *I've always had a passion for where technology can take us as a culture and the benefits that it can bring and also the issues that it can bring when you get it wrong, which is obviously important for me [because of my role].*
>
> *Vance Ltd. female technology worker*

This was equally cited as a preferred trait by male and female interview participants within Vance Ltd.:

> *I just really like programming. I discovered programming as a hobby during my degree and thought it would be fun to get into that as a job. I think that's important here.*
>
> *Vance Ltd. male technology worker*

Interestingly, this was not limited to those in tech-orientated roles but also extended to workers outside of technical roles such as administration, human resources, marketing and customer management. For example, the following product manager had previously come from the finance industry with degrees in geospatial information systems and geography:

> *I was quite inspired to work for them…it's quite exciting because people actually use [our product] and you know we're releasing frequently and making new products. There's a lot going on.*
>
> *Muckduk Inc. female non-technical worker*

Another non-technical interview participant had worked in a role which required some technical knowledge but was outside of the technology industry. Her primary motivator in working for Muckduk Inc. was the ability to apply her skills in a technical field with a customer orientated focus:

> *I was originally an illustrator and then I wanted to get more into the tech industry. I tried learning to code and tried the engineer path but I'm quite a visual learner and quite visual with how I like to think about things and I was also more interested in creating things in tech according to user needs. So that drew me here.*
>
> *Muckduk Inc. female non-technical worker*

Notably, when asked specifically to describe the ideal worker, interview participants at Beets Co. did not include a passion for technology. However, participants, both within and without technical roles, expressed a love of technology personally during other portions of their interview. This is represented in the following excerpt wherein one interview participant in a non-technical role selected Beets Co. because of their positioning at the forefront of technological applications.

> *I was really interested in technology and at the time when I decided to come to [Beets Co.] I was considering a couple of other job offers. One was in the finance market and the other was on a national newspaper and I decided that what really appealed to me was learning about technology and particularly the ability to run an intranet site. At the time very few people had heard of intranets; the internet was only just becoming something people were aware of and making use of. And I felt that [Beets Co.] was very much at the cutting edge of technology, which appealed to me far more than the finance aspect of the other job that I was seriously considering.*
>
> *Beets Co. female non-technical worker*

Thus, while workers did not associate a love of technology with success within Beets Co., there is a trend amongst interview participants who personally chose to work for and remain at the firm because of their positioning as a technologically innovative firm.

Of equal importance is the contrast between the importance of loving tech and the lack thereof for the product and services provided by Muckduk Inc. and Vance Ltd. Interview participants rarely expressed an interest in the products of their firm and also did not feel that this was a qualifying factor for the ideal worker narrative:

No, I think being in an office full of engineers, we're not here because of our love of [product] we're here because of our love of tech.
Muckduk Inc. female technical worker

Unique to Vance Ltd., the emphasis on a passion for technology was paralleled in an emphasis on providing a strong customer experience.

The heightened importance of technological advancements is particularly reinforced by the implied acceptable uses of a key benefit offered to employees in both Muckduk Inc. and Vance Ltd. known as passion project time. This time is set aside for workers to participate in personal development such as learning new coding libraries or to work on a project which may benefit the company long-term but falls out with their day-to-day responsibilities. This benefit is modelled after Google's 20% time and has been adopted to some extent by many ICT organisations as a means of engendering an innovative culture for employees (Walker 2011). It is important to note that passion project time, while formally offered to everyone, is rarely taken up by non-technical workers at both Muckduk Inc. and Vance Ltd. It can be argued that this has some strong gendered implications wherein male-dominated tech workers are given regular opportunities to advance their professional development whilst this is less acceptable in female-dominated non-technical roles. The importance of this becomes increasingly apparent through studies such as Kesen (2016) which found high levels of correlation between professional development and a reduction in employee turnover. As such, the findings suggest that when the majority of technical workers are both male and the only workers encouraged to utilise passion project time, female workers implicitly experience barriers to career progression through limited access to professional development.

Similar results to those found in this study have been reported by researchers regarding the professionalisation of the ICT worker persona. Woodfield (2000 p 13) describes them as someone "for whom computers eclipse everything". Moreover, this characterisation has endured and become engrained in social expectations for decades as shown by Weizenbaum's 1976 (p 116) description of tech workers who exist "only through and for the computers" and continue through to contemporary assertions of the ICT ideal worker narrative (Kelan 2009, Ensmenger 2010, Ashcraft and Ashcraft 2015, Kenny and Donnelly 2019).

5.3.3 The aggressive self-promoter

Academic literature often includes a characteristic of aggressive self-promotion in the construction of the ICT ideal worker (Woodfield 2000, Kelan 2007). This was visible to a lesser extent in this study, wherein workers across firms reported some level of self-promotion was necessary to continuously progress their careers. This was particularly true for Beets Co. where three workers (two men and one woman) used the term 'aggressive' and three (two men and one woman) used the term 'self-promoting' to describe the ideal worker. For example,

one entry-level female employee felt that self-promotion was an important characteristic for success within the firm:

> *I think the person who does the best is very aggressive. And the person who shouts the most about what they're doing. So, I would say aggressive or alpha male type are the kind of people that don't get judged and they don't get as much criticism because they shoot it down. They don't take any feedback and there's no further dialogue after that if that makes any sense. Whereas somebody who's looking for you know a bit of feedback, for a little bit of feedback you get a lot of criticism. And if you allow it to be given to you then you're allowing it to be constantly given to you.*
>
> *Beets Co. female non-technical worker*

While female participants acknowledged the need to promote oneself for recognition, they were less likely to engage in this behaviour, opting rather to move into less competitive roles or to demonstrate their work ethic through extended hours and higher standards of working. For example, one female participant shared that they had moved into their role at Muckduk Inc. from a more senior position out with the company:

> *I was in a much more senior position before I came here. The kind of opportunities for growth seemed kind of very open so I hope to progress eventually.*
>
> *Muckduk Inc. female technical worker*

The inclusion of self-promotion in the ideal worker narrative was true to a lesser extent at Vance Ltd. where two workers (one male and one female) used the term ‘self-promoting’ in their ideal worker descriptions. For example, one interview participant felt that there was a growing recognition for self-promotion as it aligned with the ability of the firm to elevate their status at the forefront of technical advancements:

> *They've hired a lot of people recently who are very shouty about the things they do. They give you no reason to respect them in terms of their engineer marks or whatever they're doing but they keep telling you how good it is even though you don't see a lot of it. But those people get on quite well because people like people who seem to be doing great things.*
>
> *Vance Ltd. male technical worker*

The findings from this study demonstrate gendered differences in self-promotion and suggest that the locus of change needed to create gender equality must sit at the organisational level. This is based on research which purports that women who moderate their character to engage in self-promotion face a backlash effect as individuals respond negatively to women using methods deemed masculine (Rudman 1998, Guadagno and Cialdini 2007, Kulik and Olekalns 2012). This sentiment was echoed by a female worker within Muckduk Inc.:

> *I've realized recently the things that you need to achieve to move kind of to the next level. And I made it very clear when I saw the draft of these things that I didn't think they were inclusive. They were rewarding a certain kind of trait or characteristic that is, whether they realise it or not, different based on gender. So, for example being able to openly communicate and debate problems or just speaking about engineering with a code base team. We know for a fact that when you have one woman sitting in a room with twenty men, she is less likely to speak up. Penalizing her for that isn't really conducive to change. And it kind of keeps that we promote a certain kind of person. And I don't think that that's healthy. I did express my concern with that to management and that didn't go anywhere.*
>
> *Muckduk Inc. female technical worker*

The strategies used by female and male workers to progress are further developed in chapter six, however it is important to note in relation to the ideal worker narrative that gendered differences exist in how workers describe successful individuals within the firm.

5.3.4 The Twenty-first century (wo)man

In addition to technical skills, an increased educational focus has been placed on the need for "21st Century Skills": creativity, communication, critical thinking and collaboration (Trilling and Fadel 2009). Primarily a pedagogical shift in education away from memorization, 21st Century Skills are meant to prepare the future workforce to interact with technology and leverage innovation to make meaningful contributions in their work (Rotherham and Willingham 2010). This shift is particularly embraced by the ICT community wherein communication and knowledge transfer are integral to the delivery of the firm (Schwab 2017).

All three case study firms used language in their job postings aligning the ideal candidate with 21st Century Skills. For example, Vance Ltd. included the phrase, "you make others better through code reviews, documentation, technical guidance and mentoring" in each technical job posting and more general characteristics such as: "extremely creative", "empathy" and "helpful" in both technical and non-technical postings. Similarly, Muckduk Inc. job openings include phrases such as, "able to work collaboratively within an agile team", "high levels of self-awareness and a good understanding of the behaviour relating to the environment" particularly in technical job postings. Beets Co. job postings had the strongest emphasis on collaboration and communication out of the three case study firms. Job postings in non-technical roles which had high levels of customer interaction include phrases such as "you will be supportive and personal" and "you should have a natural flair for conversation, genuine empathy and the resilience to address customer issues". Technical postings had less emphasis in this respect, but included phrases such as, "good customer relationship skills" and "able to build and maintain relationships both internally and externally". Interview participants across firms used terms such as 'personable' to describe the ideal worker (see table 45), although this was done

to a lesser extent than the firms. Moreover, all three firms utilised project-based teams with communal deliverables and goals which reinforced a team-centric approach.

The emphasis on skills such as collaboration and communication has had a decidedly gendered impact on the ideal worker narrative in ICT as such characteristics are most often given a feminine gendering. Some research suggests that the growing importance of collaborative skills provides an additional argument for the increase of women into ICT and therefore suggest a reduction of the gender pay gap (Lim 2016, Rodriguez and Lehman 2017). However, this is not universally supported in contemporary research. Whilst 21st Century Skills are recognised as important within the industry, they continue to be relegated to lower status roles in tech and aligned with less desirable traits such as “emotional” and “irrational” (Ashcraft and Ashcraft 2015, Hardey 2019). Thus, the inclusion of communal traits in firm ideal worker narratives most likely remains aspirational rather than a true reflection of qualities highly sought-after in ‘promotable’ employees irrespective of gender.

Nevertheless, the identification of traditionally feminine characteristics as favourable aligns with a heightened need to shift from a gender binary approach to worker marginalisation in ICT to a more nuanced understanding of the ideal worker narrative. Specifically, this is supported by research arguing the need to separate characteristics from gender and the dynamic co-construction of identity (Tonso 2006, Burke and Stets 2009, Kelan 2009, Rodriguez and Lehman 2017). In this way, business studies of gender can progress to more effectively address the nuances of gender and the impact of that nuance on the further marginalisation of some female workers compared to others. Moreover, this approach aligns with wider academic shifts to analyse gender identity as a spectrum rather than binary (Messerschmidt et al. 2018).

5.3.5 The Innovator

Finally, innovation was used as a key requirement in the purposive selection of firms for this case study as this mirrors the importance of innovation in highly competitive ICT sectors (Hoyrup et al 2012, Gressgard et al. 2014). The findings reflect this emphasis in two of three case study firms, with the term used 21 times in total, 17 times in the firm perspectives and another 4 by workers. In fact, Whelan et al. (2011) cite that large ICT firms such as Cisco Systems and Intel utilise open innovation strategies to retain market leadership. This strategy, which elevates employee-driven innovation, is encouraged by all three case study firms, often through the adoption of passion project time or individual support for workers who pitch new ideas to the firm. It is moreover established in employer branding across all three firms (see table 43), wherein the term ‘innovative’ was used fifteen times by Vance Ltd. and eight by Muckduk Inc. Workers at Beets Co. recognised the importance of innovation within the business, but did not feel that this was a trait particularly engendered at the individual level, thus no participants described the ideal worker as such. Whilst Beets Co. does not have a

formal policy regarding passion projects, innovation is recognised as a key tool to remain competitive in their market:

> *Innovation has always been at the core of our business – and we backed this commitment with a £560m investment in 2012.*
>
> *Beets Co. internal report*

This was recognised by all three interview participants (two male and one female) in the apprenticeship and graduate programmes, although this was not perceived as a necessary characteristic to progress within the firm:

> *They like the younger people within the organisation to be innovative with the current products that we sell, the current process that we have. So, if you want to change something people will support your progress within that and then help move it forward.*
>
> *Beets Co. female technical worker*

This sentiment was not echoed by workers out with the graduate and apprenticeship programmes.

The need to be innovative was cited spontaneously by two workers at Muckduk Inc. whilst two workers at Vance Ltd. similarly felt the ideal worker needed to be a strong problem solver. Interestingly, this trait was cited by women in both firms and not by men. One male interview participant at Vance Ltd. felt that whilst they had been encouraged to be innovative in the past, recent growth within the firm had removed some of this focus and did not include it in the ideal worker description:

> *Technology wise, you are encouraged to be innovative, but I think as we're moving forward it's maybe becoming a bit more constrained on that side of it.*
>
> *Vance Ltd. male technical worker*

It should also be noted that tangential to this trait is the culture of blamelessness which is highly cited by workers at Vance Ltd. In total, eight interview participants (four men and four women) felt that the ideal worker must be willing to make mistakes and to moreover admit to them (classified as 'open to feedback' in sections 5.1.2 and 5.2.2). As such, workers are encouraged to think outside the box rather than conform to tested procedures as they are not punished for mistakes made in this regard:

> *We will admit to our failings when something is wrong and work to make it better. It's not a blame culture, it's: "how does it work, how can we move forward, what do we learn, what can we take from this to make us better"? That also brings that opportunity to try because you're not going to be reprimanded if it goes wrong. It's nice having that opportunity; it makes a difference.*
>
> *Vance Ltd. female technical worker*

The importance of innovation has interesting significance in regards to gender. Pecis (2016 p 2131) argues that gender and innovation research associate innovation with masculinity, however their findings show that in the process of innovation "femininities and masculinities are simultaneously enacted in innovation-related activities and destabilise the gender order that positions a specific of masculinity as the norm in innovation". Similarly, Hwang (2014) describes strong innovation ecosystems built upon feminine traits such as communication and collaboration. This is not, however, necessarily reflected in the findings from this study, with the majority of employee innovation undertaken during passion project time on an individual basis. Moreover, passion project time is taken up more frequently by male employees than female employees across both Vance Ltd. and Muckduk Inc. where the benefit was provided. As such, there is an opportunity to elevate the alignment between 21st century skills often associated with a feminine gendering and the ability of firms to engender innovation amongst their teams through a repositioning of passion project time.

5.4 Summary and discussion of the ideal worker narrative

In this chapter, the construction of the ideal worker narrative was investigated within each firm in alignment with research objective two. Evidence across case studies allowed for a comparison of the demographics and characteristics perceived as important for long-term success. Extant trends in the male-dominated leadership teams across firms were supported by trends in the way in which ideal worker narratives were constructed. Specifically, the majority of traits and characteristics used in the construction of ideal worker narratives were aligned with masculinity (Kelan 2007, Kulik and Olekalns 2012, Ashcraft and Ashcraft 2015) whilst a rising value placed on feminine-gendered communal traits (Schwab 2017) was also identified across all three firms.

Comparisons between the ideal worker presented by the firm and female workers showed an interesting trend which coincided with the level to which gendered barriers to inclusion were identified in the previous chapter. For example, Vance Ltd. had the lowest overall signs of gendered barriers and also had the highest level of alignment between the firm and female worker ideal narratives. Conversely, there was a lack of alignment between the ideal worker presented by Muckduk Inc. and the ideal worker presented by female workers and, indeed, male workers as well. This suggests that there is some incongruence between the way in which

Muckduk Inc. presents inclusivity for their workforce and the lived experiences of marginalised workers.

In summary of the findings presented in this chapter, the following table presents the two key indicators of a masculinised ideal worker narrative and the level to which they are present in each case study firm.

Assessment of gendered indicators by case study firm		
	Indicators of gendered ideal worker in firm narratives: statistical and aspirational	Agreement of Narrative (female workers and firm)
Muckduk Inc.	Status: Highly gendered Women over-represented in the lowest pay quartile and unrepresented in leadership and board roles. High indicators of preference for masculine traits in ideal worker narrative.	Status: Highly gendered Low levels of alignment between female workers and the firm perspective, with higher levels of agreement between male workers and the firm.
Beets Co.	Status: Medium indicators of gendered preference Highest levels of gender parity at the leadership level across case study firms. Strong attention to gender diversity in employer branding, minimising gendered implications in the aspirational ideal worker narrative.	Status: Medium indicators of gendered preference Gender neutral alignment to firm with both male and female workers showing limited alignment to the firm ideal worker narrative.
Vance Ltd.	Status: Medium to high indicators of gendered preference Women over-represented in lower pay quartiles and under-represented in leadership and ICT roles. Aspirational ideal worker narrative in the main demonstrates some gender neutrality however masculinised traits remain present in the narrative.	Status: Low indicators of gendered preference Female workers indicate higher levels of alignment with the firm ideal worker narrative than in other case study firms.

Table 50 source: author generated

These indicators will be used in the next chapter to provide context for each case study firm regarding the impact of a masculinised ideal worker narrative in parallel with indicators of gendered barriers to inclusion for workers based on gender. Shifting discourses on gender seek to depart from the rigidity of gender as binary, unchanging and aligning with personality traits inherent to men or women (Butler 2004, Tong and Botts 2018). This paradigm is central to the findings of this study which demonstrate the influence of nuanced gender roles and expectations on the ideal worker narrative rather than an explicit identification of men as ideal workers. Kelan (2009 p 104) found in a similar study which explored the ideal worker narrative of two Swiss ICT firms that “through the construction of the ideal ICT worker as gender neutral, the way in which gendered behaviour is read means that men are more likely to appear to be the ideal ICT worker despite being gendered feminine in different parts of the interviews”.

Contextual differences between ideal worker narratives amongst firms with highly similar approaches to equality, diversity and inclusion, bounded by a singular location and sector, elevates the need to understand organisational influences on the marginalisation and idealisation of workforce subsets. The next chapter will provide the final set of findings from this study which delve deeper into this aspect. The results seek to identify the impact of ideal worker narratives and gendered institutional norms on the career aspirations, self-efficacy and character moderation of traditionally marginalised workers and elicit organisational best practices for supporting them.

Chapter Six: Impacts of gendered substructures and ideal worker narratives on individual workers

6.0 Introduction

The findings from the previous chapters have identified the ways in which gendered barriers to inclusion are expressed as well as the way in which workers can become marginalised or idealised based on their gender. This chapter seeks to understand the way in which this can influence an individual's career and identify key issues to retention of female workers in ICT. This goal is reflected in the third research objective:

RO 3: To evaluate the extent to which the gendered substructures of a firm can affect worker behaviours, aspirations and success in the context of the Scottish technology industry.

This objective was heavily influenced by Eagly and Karau's (2002) theory of role congruity and, more specifically, contemporary studies which extend the understanding of role dissidence beyond woman and leader to explore the impact on gender minority workers in highly segregated professions (Faulkner 2001, Ayre, Mills and Gill 2013, Hawthorne 2018). For clarity, the following figure visually outlines the relationship between findings in chapters four, five and six.

Impact of organisational factors on the marginalisation of workers

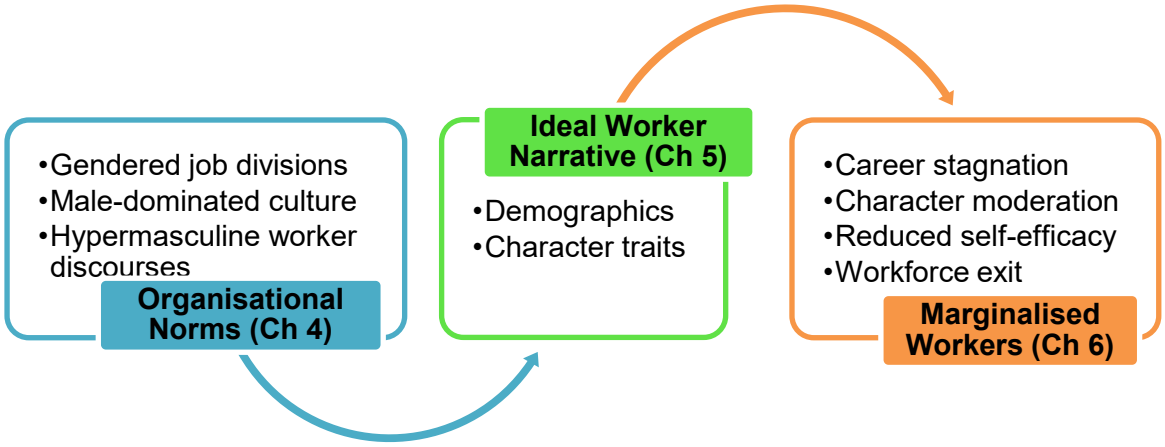

Figure 21 source: adapted from Acker 1990, Eagly and Karau 2002

Additionally, the experiences of marginalised workers presented in this chapter allow for a review of the efficacy of EDI initiatives taken by each firm (see sections 3.4.1, 3.5.1 and 3.6.1) to address research objective five:

RO5: To provide recommendations on effective strategies a firm can employ to recruit and retain a skilled, diverse workforce.

As detailed in the literature review, studies show that women working in male-dominated industries such as ICT are more likely to leave the field compared to both men working in ICT (Mackenzie 2015) and women working in female-dominated or gender-balanced industries (Herman and Lewis 2012). Similarly, statistics show higher instances of career stagnation for the same population (McIntosh et al. 2012). Of particular interest to this research objective is the postfeminist debate in recent academic discourse which seeks to situate the primary factors for such phenomena between the realm of gendered differences in priorities and preferences and the persistence of institutionalised sexism resulting in disparate realities in female and male career agency (Williams 2000, Agapiou 2002, Iacuone 2005, Stone 2007, Ceci, Williams and Barnett 2009, Lewis, Benschop and Simpson 2017, Adamson and Kelan 2018).

In order to meet this objective, male and female interview participants were asked to share the primary determinants for lateral and forward career changes they have pursed, the impact of their experiences within the organisation on their own self-efficacy as a skilled professional and notable ways in which they developed or moderated their behaviours to become more aligned with the ideal worker narrative. Interesting themes emerged through the comparison of case study firms which support the need to mitigate marginalising factors at the organisational level in order to support the long-term aspirations of minority workers. The remainder of this chapter will briefly revisit the firm evaluations determined from the findings in previous chapters and position male and female worker perceptions and experiences within that context.

6.1 Revisiting the relationship between gendered substructures and the ideal worker

As outlined in previous chapters, a cross-case analysis of findings provided some insight into the ways in which Scottish ICT firms create and reinforce gendered barriers to inclusion. In chapter four, each case study firm was assessed on the level to which key indicators related to a gendered institution were found through interviews with workers, leadership and a review of relevant documentation. In chapter five, the ideal worker narrative was outlined for each case study firm and levels of alignment or lack thereof between firm, male workers and female workers was assessed. The following table provides a summary of those ratings originally explicated in chapters four and five regarding key indicators of gendered institutions as well as the alignment between aspirational and experienced ideal worker narratives of each firm.

Summary of gendered indicators by case study firm

	Evidence of gendered barriers			*Alignment of ideal worker narratives*	
	Low	Medium	High	Aspirational/ statistical	Female workers/firm
Muckduk Inc.	0	2	5	Red	Red
Beets Co.	0	5	2	Yellow	Yellow
Vance Ltd.	3	3	1	Yellow	Green

Table 51 source: author generated

Whilst each firm was selected for this study based in part on their position at the forefront of EDI work for the Scottish ICT sector, the assessments presented in the table above indicate clear differences in the efficacy of each firm's efforts when analysed under the theoretical framework of this study. Most notably, Muckduk Inc. has been assessed to have high levels of gendered barriers to inclusion across job divisions, culture and worker discourses. Additionally, both the aspirational and experienced ideal worker narratives showed incongruency between male, female and firm perspectives with significant emphasis placed on attributes more accessible to men.

Beets Co. demonstrated some indicators of gendered barriers to inclusion, particularly related to organisational culture and worker discourses. However, the firm has shown some progress towards gender inclusivity related to gendered job divisions which was bolstered by an aspirational ideal worker narrative well-aligned with their goal of increasing the number of women in technical and leadership positions. This did not necessarily translate to the ideal worker narrative expressed by female interview participants however, suggesting some disparity between the EDI goals of the firm and the efficacy of their approach.

Finally, Vance Ltd. demonstrated the least significant barriers to inclusion across the assessed criteria and moreover evidenced high levels of alignment between the male and female ideal worker narratives. Some levels of misalignment were found between worker and firm ideal worker narratives; however, EDI was recognised across data collection methods as an important aspect of firm culture.

The assessments across firms act as a means of aligning the findings from each case study with the wider theoretical framework used to conduct this research and moreover to provide context to the cross-case findings for this section. The remainder of this chapter will utilise the assessments of each case study firm to compare and contrast organisational impacts on workers' self-efficacy, career progression and aspiration.

6.2 Ideal workers, marginalised workers

Following Kelan's (2009) ethnographic study of the ideal ICT worker, it was necessary not only to understand how workers perceive the ideal worker but also the potential differences in impact dependant on one's proximity to the narrative. Through this process, three themes emerged wherein marginalised workers identified impacts on their career choices and self-efficacy. First, female interview participants articulated their experiences balancing parenthood with work differently than their male counterparts. Secondly, female interview participants were more likely to make lateral career choices after experiences of harassment in the workplace. Finally, female interview participants shared experiences of modifying their behaviours and personalities to align more closely with the ideal worker narrative or express a decrease in self-efficacy based on their distance from that narrative. These themes will be presented further in this chapter and will then conclude by assessing the impact of EDI initiatives based on worker experiences.

6.2.1 Balancing work and caring roles

Across industries, clear gender differences emerge when workers begin to balance careers and parenthood. Hodges and Budig (2010) highlight that when white male workers become fathers they are likely to receive a pay increase or promotion. In contrast, motherhood has been correlated to a reduction in work hours, trading career progression for flexibility and exiting the workforce (Budig and England 2001). In male dominated industries, gender differentials in progression and retention due to parenthood exacerbate existing gender disparities and contribute to further divisions at higher levels (Benard and Correll 2010). This is evidenced in higher gender pay gaps for the ICT industry in comparison to national averages (see section 4.1.1.1).

Interviews with male and female workers provided insight into the impact of parenthood on individual careers across case study firms. The following table presents a summary of data which compares the number of male and female workers who spontaneously cited caring duties as having a positive or negative impact on their career. Workers who cited parental duties but did not discuss this as having an impact on their career were considered neutral.

Impact of parenthood on career						
	Beets Co.		*Muckduk Inc.*		*Vance Ltd.*	
	M	*F*	*M*	*F*	*M*	*F*
Caregivers	2	3	3	1	2	1
Positive	2	0	0	0	0	0
Neutral	0	1	3	1	1	0
Negative	0	2	0	0	1	1

Table 52 source: author generated

Whilst four workers at Muckduk Inc. cited parental duties, there was no impact suggested on their ability to balance work and caring duties. It should be noted, however, of the interview participants who were caregivers, the majority had been with the firm for less than one year and none had utilised parental leave while at the firm. As such, there was a lack of data on the long-term impacts of career progression, however this trend does align with the liberal approach to flexible working ascribed by the firm.

Conversely, participants at Beets Co. had longer tenures within the firm and offered interesting insights into the impact of parenthood on their careers. For example, one male interview participant had experienced a positive impact on their career whilst planning for fatherhood. At the time of the interview, the worker had recently taken on a new role within the firm and had achieved a pace of career progression which exceeded their expectations. The participant's partner planned to reduce her work hours after giving birth and it had been decided that he would seek a raise to balance the loss in their household income:

> *When I was in the service management role my wife, she was going to go part-time so I was quite keen to progress. Just in terms of having a bit more financial security was probably the key driver. So, I looked for opportunities outside of my department and had been accepted to do the role of a senior product manager. When I spoke with my current boss and said that I'd been offered a new role, he offered me my current role to get me to stay in the contract. So that's the business director role and I was actually quite shocked to get offered the role because it was quite a jump from where I came from.*
>
> *Beets Co. male technical worker*

Another male interview participant at Beets Co. cited that they had children and a stay-at-home partner and as such chose not to work from home. Similarly, they had reached an upper management position which required frequent travel and felt able to remain in the post as their partner took on the role of primary caregiver. Whilst they did not cite fatherhood aiding in their career progression, the participant did feel that their career was uninhibited by fatherhood due to the support he had from his spouse. This trend highlights the importance of external social factors which contribute to organisational imbalances, wherein social norms and family

circumstances influence the way in which domestic work is balanced between partners (Acker 1992).

Female interview participants at Beets Co. expressed less favourable experiences in their careers upon becoming mothers. In particular, one female interview participant indicated that caring responsibilities triggered a career change to allow for a more relaxed or flexible schedule which reduced their income:

> *It was quite difficult to be a salesperson. A lot of pressure. A lot of stress. Targets and things like that which…although you're working as part of a team, you have your own target and I just felt I really just wanted to back off. There was a lot of travelling and at that time I had two young children. It all just seemed too much so I wanted to have something that was a bit more structured, bit more rigid. Into the office, do my business and leave rather than spend long hours in a car away from home. That really was the focus for the move.*
>
> *Beets Co. female non-technical worker*

Another interview participant felt that career progression within the firm was unattainable based on her caregiving role and the need to relocate for upper management positions:

> *I have led the team here in Edinburgh for the last eight years but never been promoted into a leadership post. There's been other opportunities that have come up where it's maybe not been because of your gender but maybe because of your location. I think had I been willing to relocate to London for instance I probably would have had more opportunities within [Beets Co.] but I chose not to relocate because I was looking after not just my children but my elderly grands. So, I had caring responsibilities which weren't compatible with a pursuit of career opportunities outside Scotland. And I think that's been the greater issue for me. But I do actually really believe as well that I probably would have progressed faster if I hadn't been a mother.*
>
> *Beets Co. female non-technical worker*

Clear gender distinctions emerged from worker interviews at Beets Co. which largely align with the wider literature presented earlier. Interestingly, this was not the case for workers at Vance Ltd.

Two interview participants with caregiving roles, one male and one female, particularly expressed that while they were happy with their career in regards to flexibility and the wider organisational culture, there was some concern around their ability to progress. A female interview participant who had reached a management position felt that balancing motherhood and management had been particularly difficult.

> *So, I think it does limit things and certainly the discussion when I came back [from maternity leave] ... The real concern was to have someone in a manager role four days a week would be okay-ish but anything below that made people nervous. Actually, I think it worked fine. I think it is a limiting factor but there's also the psychological piece in there of how much you actually limit yourself by virtue of always convincing yourself that you then can't do more. But I think there is a level of limitation, I think.*
>
> *Vance Ltd. female technical worker*

Similarly, a male interview participant cited that he was the primary caregiver of his young child as he had greater work flexibility than his partner:

> *They're very supportive of me as a parent. It's very good for that. They let me take time off and help me sort out having a young baby.*
>
> *Vance Ltd. male technical worker*

He did feel, however, some frustration in his career progression. This was primarily cited to be caused by a lack of access to key decision makers within the firm which was further hampered by the need to prioritise childcare over 'extra' work events such as charity participation and socialisation out with work hours.

The experiences shared by interview participants across firms in balancing their career with caring responsibilities highlights two key points. First, as social norms continue to be challenged and men slowly become increasingly likely to take on the primary caregiver role, there is a need to support both mothers and fathers in balancing work with personal duties rather than just mothers. Indeed, research shows that improvements in gender equality is often achieved when parity is sought for both men and women (Connell 2003, Bjorn and Apama 2010, Javaid 2018).

Second, there is a need for organisations to better understand the impact of being a primary caregiver on an individual's ability to progress and the key ways in which the firm can mitigate those barriers so as to retain and promote skilled workers (Halrynjo and Lyng 2009). This was particularly evidenced through the experiences of workers at Beets Co., wherein interview participants regularly cited the ability to work flexibly and to move throughout the organisation as a primary reason for remaining with the firm. However, female caregivers within the firm also cited that barriers remained in taking up some flexible working which led to some trade-offs between their work aspirations and caring duties. This demonstrates the need for firms to both have robust flexible working policy as well as a strong system for its implementation.

6.2.2 Lateral career choices

Studies show that women are more likely to experience career stagnation than their male counterparts for reasons out with parenthood as well. Particularly, studies show that women are more likely to make a lateral career move due to experiences of harassment (Salman,

Adbullah and Saleem 2016, Sarkar 2017). As such, participants were asked to share their career history and the motivations behind any significant career changes. The following table provides an overview of interview participants across firms who had made a lateral career choice based on these factors at any time in their career and includes experiences shared by participants out with the context of case study firms.

The impact of harassment on career choices						
	Beets Co.		*Muckduk Inc.*		*Vance Ltd.*	
	M	*F*	*M*	*F*	*M*	*F*
Experience of harassment	1	2	0	5	2	2
Lateral career choices (related to harassment)	0	1	0	4	1	2

Table 53 source: author generated

Overall, female interview participants were more likely than male participants to make lateral career choices due to incidents of harassment either during their time at a case study firm or in prior employment. Seven women across firms cited that they sought alternative employment in part to remove themselves from an uncomfortable work environment. As highlighted in chapter four, the majority of those who cited lateral career moves due to incidents of harassment were more likely to cite unfavourable outcomes to formal reporting or a lack of confidence in formal reporting systems:

> *I never thought I'm going to report that just I end up rolling my eyes. And maybe that was wrong actually.*
>
> *Beets Co. female technical worker*

One male interview participant also left a previous position for a similar reason, citing that the firm culture was a primary draw when accepting the job offer from Vance Ltd.:

> *I left both because they were really highly macho environments and not welcome ones at all. And it's totally different here.*
>
> *Vance Ltd. male technical worker*

Whilst experiences shared by participants prior to entering case study firms provide valuable insight into the impact of such incidents on their career, it was also important to isolate incidents which were specifically experienced whilst the participant worked for a case study firm. Thus, the following table isolates incidents specifically experienced by participants within case study firms which caused them to seek employment elsewhere within the firm or out with the company:

Experiences of harassment within case study firms						
	Beets Co.		*Muckduk Inc.*		*Vance Ltd.*	
	M	*F*	*M*	*F*	*M*	*F*
Experiences of harassment	1	2	0	3	1	0
Lateral career choices (related to harassment)	0	1	0	3	0	0

Table 54 source: author generated

Women at Muckduk Inc. were most likely to experience harassment and make a career move based on that experience. This was followed by women at Beets Co., where two women cited harassment, one of whom chose to transfer to a new department based on the experience. One male at Beets Co. and one male at Vance Ltd. also reported experiences of harassment, however this did not impact their career choices. Across firms, the data shows that both men (2) and women (5) have experienced notable harassment, with some gender differences present in the impact of such experiences. Whilst neither male participants who reported experiences of harassment cited this impacting their career choices, four of the five women who experienced harassment made career changes largely due to it. The experiences of interview participants both within case study firms and in prior organisations suggest that whilst women are more likely to experience harassment and more likely to make lateral career decisions due to those experiences, it is an issue which impacts both male and female workers to some extent. Iacuone (2005) demonstrated similar findings in the investigation of harassment in a hypermasculine profession (construction) where harassment impacted both female workers as well as male workers who did not align with the accepted discourses and behaviours prescribed by the hegemony.

Similarly, there was some evidence of frustration regarding career progression due to the flat organisational structure at Vance Ltd. This was primarily articulated in Glassdoor employee reviews but was additionally discussed by one male interview participant:

> *I'm in a situation essentially where my manager who's on my team and the rest of my team would all say they're surprised I'm not a senior software engineer. But I can't be promoted until somebody very senior is able to say the same which I haven't had enough exposure to get. So, it's definitely sort of an appeal to somebody who's in a position that's much higher than me who would have to get on my side.*
>
> *Vance Ltd. male technical worker*

While there were no participants at Vance Ltd. who felt they had made career transitions to remove themselves from a toxic environment within the firm, seven interview participants, three male and four female, cited making lateral career transitions into Vance Ltd. due to negative experiences in previous male-dominated firms. For example, the following anecdote was

shared by a female worker who had previously worked for a financial institution and had reported an incident of sexual harassment whilst working there:

> *I had been sexually harassed by a co-worker and reported it to HR [in my old job]. After months of procedures, it had been decided that it was his word against mine and they could not take any action against him. I was expected to work with him on a regular basis after that and be a few desks away on the same floor. I decided to give my notice as soon as the decision was made. I was actually escorted out of the offices by a senior manager who called me precious for quitting.*
>
> *Vance Ltd. female non-technical worker*

The participant went on to attribute her tenure with Vance Ltd. to the positive culture engendered within the firm. Another female worker similarly felt that while hypermasculine cultures were common within the tech industry, Vance Ltd. was able to achieve a more inclusive environment in spite of the male-dominated workforce:

> *I left both of my previous jobs because they were really macho environments and not welcome ones at all. And it's totally different here. It's quite male dominated like the industry is but you don't get that really hypermasculine vibe around the office.*
>
> *Vance Ltd. female technical worker*

Gendered differences in career choices were more prevalent within Beets Co., with the majority of participants citing room for progression within the firm whilst female interview participants did cite making lateral career choices, often within the firm, due to poor line-manager relationships or toxic departmental cultures. For example, one participant had been experiencing conflict with an employee who was more senior to her. She ultimately chose to transfer to a different part of the organisation as she did not feel she would be supported by her line manager in addressing the situation:

> *In my opinion [my line manager] has the other guy in his pocket so he's not exactly unbiased. And I don't feel like my feelings and problems would be dealt with in any other way than a shamble. You have to pick your battles.*
>
> *Beets Co. female non-technical worker*

6.2.3 Impacts on self-efficacy and character moderation

Finally, interview participants shared that experiences of marginalisation over a period of time had an impact on their assessment of their own work and the need to alter their behaviours to better align with the ideal worker narrative. This sentiment aligns with Acker's (1990) theory of gendered substructures which includes disparities between male and female self-efficacy and aspiration as an indicator of hypermasculinised cultures. Through the synthesis of the ideal worker narrative with Eagly and Karau's (2002) role congruity theory, greater clarity was

achieved regarding organisational impacts on marginalised workers with the understanding that men and women are expected to have gender-appropriate leadership styles, affinities, talents and aspirations. Whilst this was more difficult for interview participants to pinpoint, some workers were able to describe incidents in which they specifically felt marginalised. For example, one female interview participant at Beets Co. shared that, as a manager, she felt that women were hired into specific roles to fill a quota, which led her to feel that women within the workforce were seen as less qualified:

> *When a woman does get the job there's a thought that she only has the job because there's a quota. So, these women who have now joined the team and they're not there because of merit, they're there because the team had to put them there. So, there's more women on the team but I know from a director's perspective why they are employing them.*
>
> *Beets Co. female non-technical worker*

Another participant shared that the way in which her manager interacts with her has a strong impact on how she perceives her own ability to complete her work effectively:

> *I've experienced being spoken down to and being spoken over. I have a manager who has an aggressive way of communicating and he finds absolute pleasure in talking over me and just shooting me down. Doesn't give me any constructive feedback it's just criticism. About my line of thought, my train of thought. Just shoots it down. So, it leaves me shut down. I don't get anything out of it. I don't get any positivism out of it.*
>
> *Beets Co. female non-technical worker*

The participant shared that she was currently looking to transfer to another department so that she would not need to interact with her current line manager in the future. Another female interview participant at Beets Co. felt that she needed to realign the commitments she took on out with work hours to coincide with firm priorities. In the past, this individual had participated in community outreach to encourage young girls to consider careers in STEM but found that pressure from management, as well as increased workloads, did not allow for her to continue doing so:

> *They encourage you to volunteer but they don't give you any time to do it. And at the moment I'm so busy and I'm often working evenings as it is so just trying to free up my time to do extra work is just not an option… You know in the past that would have been something that would have been, 'well that's brilliant, well done'. But [my manager] is just more interested in, 'ok as long as it doesn't interfere with your day job'. So, attitudes are changing because we're so busy. it's not completely synchronized with what you hear from the top.*
>
> *Beets Co. female technical worker*

This sentiment was reflected to a lesser extent by an additional two female participants, however the impact was more so reflected in balancing remote working with shifting expectations of presenteeism.

Within Muckduk Inc., six out of eight female interview participants shared that whilst they were not always sure of the root cause, they often felt that they needed to prove their competence due to their gender:

> *I do find that as a woman I definitely have experienced biases. I think even with promotions and career progression. I do feel like there is more mistrust towards me being a woman, my opinions. Sometimes I feel that I have to shout twice as loud to be heard.*
>
> *Muckduk Inc. female technical worker*

In comparison, no male participants identified similar sentiments. Two female participants additionally expressed shifting their behaviours due to experiences within the firm. For example, one participant felt that her career goals would be hindered if she expressed gender equality concerns to her line managers:

> *I feel much more comfortable speaking with upper management than middle management because I think when I had this conversation with some middle management, they give the impression that they think that I'm just trying to claw my way in.*
>
> *Muckduk Inc. female technical worker*

Another female participant felt that the way in which individuals are assessed for promotions within the firm contributed to the lack of diversity in leadership:

> *As I've been here, I've realized the things that you need to achieve to move kind of to the next level… And I made it very clear when I saw the draft of these things that I didn't think they were inclusive. They were rewarding a certain kind of trait or characteristic that is, whether they realise it or not, different based on gender. So, for example being able to openly communicate and debate problems and asserting oneself about engineering a code base. We know for a fact that when you have one woman sitting in a room with twenty men, she's less likely to speak up. Penalizing her for that isn't really conducive to change. And it kind of keeps the standard of 'we promote a certain kind of person'. I don't think that that's healthy, and I did express my concern with that to management and that didn't go anywhere.*
>
> *Muckduk Inc. female technical worker*

Additionally, one participant shared her experience with a recruiter who had extended a job offer to her for a different firm:

> *There was a recruiter who sent an e-mail to me offering me an opportunity for a job and saying, 'I understand you have this many years of experience' and then afterwards he sent the same e-mail to another guy but accidentally put my e-mail in the send to line… but he also replaced the salary offer with a higher number. And the guy had the same amount of experience as me. When I spoke to [the recruiter]'s manager about it he said, 'don't make it a sexism thing. Don't make this about gender'. And I said, 'well, it kind of is'.*
>
> *Muckduk Inc. female technical worker*

This experience led the participant to feel more generally unsure of her position in the ICT sector and the way in which she should negotiate roles going forward.

Male workers at Muckduk Inc. did not report instances of character moderation or increased uncertainty regarding their professional skills either within the firm or in prior positions.

In addition to experiences within the firm, two female interview participants shared sexist experiences at previous organisations which led them to seek alternative employment and moderate their behaviours in some way. For example, the following participant began changing the way she dressed based on an interaction with her manager at her previous firm:

> *I had a boss a couple of years ago because of whom I actually started dressing more conservatively and I still do to this day. I was wearing a skirt one day and the next day I was wearing trousers and he asked why I wasn't wearing a skirt because it made his day at work a little bit brighter.*
>
> *Muckduk Inc. female technical worker*

While alone this was not the cause of the worker choosing to leave the organisation, it did negatively impact her relationship with her manager. This experience demonstrates the way in which even microaggressions or unintended sexist comments can have long term impacts on the way in which a worker presents herself going forward and ultimately their position within the firm.

A second participant, who did not have children, experienced sexist discourses which impacted her feelings of efficacy regarding maintaining field expertise if she were to become a mother:

> *In my previous company it was a bit weird that I was the only girl. There were some colleagues of mine who had a belief that a female cannot be as good as a male person in this job. Software engineering job. So, I had a colleague that one day he said to me in front of my face that, "I don't believe that you can be as good as a male" and I asked him, "why do you think that this is true"? And he said to me, "I cannot explain that. I just think that the female mind is not designed to make decisions or to think like a male designer, like a male mind. Or maybe you can think that a male can be more focused but a female at some point maybe has to think about family, about children. So, she doesn't want to be as focused on the software engineering as much as a male. Or maybe you can think that maybe I'm going home and then I spend like three hours before going to bed reading for a new technology but from some point thereafter you will not be able to do that. If you choose to have a family. So, I can prove to you that you are not able to be as good as I am." So yeah, you know, this was a hard talk. but I'm thinking of it like maybe there is some truth behind this because, indeed, if a female chooses to have a family at some point and have children…then, yeah, most of the jobs in the house it's on the mom not on the dad.*
>
> *Muckduk Inc. female technical worker*

These experiences out with the case study firms impacted female participants to varying extents and thus continued to moderate their self-beliefs in their abilities to align their profession with personal pursuits even when moving to a new ICT firm.

This phenomenon was mirrored by both male and female interview participants at Vance Ltd. as well. Particularly, one participant shared that they decided to leave a previous employer and apply to Vance Ltd. as she had been informed by others in the LGBTQ community that the company's cultural environment was progressive and inclusive. At the time she was in the process of transitioning from male to female and did not feel she would be able to do so safely in her previous role:

> *My [previous employer] felt quite parochial and quite...this is all anonymous yeah? Kind of misogynistic. The owner was pretty obnoxious, and I felt like I didn't have a lot of places to... I didn't have a great relationship with some of my colleagues and didn't have a lot of places to go.*
>
> *Vance Ltd. female technical worker*

This experience was not limited to marginalised workers, with two male interview participants also citing hypermasculine organisational cultures as a reason for leaving previous employment. One participant provided insight into the importance of distinguishing between the hypermasculine cultures of their previous employers and the male-dominated workforce of Vance Ltd.:

> *I left both because they were really like highly macho environments and not welcome ones at all. And it's totally different here. It's quite male dominated like the industry is but you don't get that really hypermasculine vibe around the office. It's much more relaxed.*
>
> *Vance Ltd. Male technical worker*

Another male interview participant was encouraged to apply to Vance Ltd. by a former co-worker. He had previously been with the same organisation for over a decade but felt that the culture was no longer tenable:

> *We were expanding rapidly and that was fine but there was a switch probably about two years ago in the style of people that they were bringing on. And they went from people that were more so used to working in smaller companies, more dedicated to companies… you know, that sort of culture to people from the finance houses. And as soon as that happened the culture changed very, very quickly. The company no longer cared about people, they cared about results. They put in a lot of management layers for no real discernible reason. The culture was ripped apart. So huge numbers of people left and I stayed on as long as I could stomach it and then looked around for somewhere else. One of the senior managers who had left [my former employer] came to work with [Vance Ltd.} and a few months after she started here, I got a phone call suggesting that I should be applying here too. So, I did.*
>
> *Vance Ltd. male technical worker*

Anecdotes such as this, shared by both male and female employees, reaffirm the findings from this study which suggest that EDI has been well-assimilated into the culture of Vance Ltd., as workers indicate that it was a primary draw for them after leaving a previously hypermasculinised environment. Indeed, studies show that firms with strong showings of equality, diversity and inclusion are more likely to attract diverse workforces (Avery 2003). Thus, the findings from this study are linked to wider academic theories which highlight the importance of incorporating EDI policies and initiatives across ICT applicant recruitment and branding.

6.3 Evaluation of EDI initiatives through worker experiences

Based on the worker experiences presented in this section, some conclusions can be made regarding the efficacy of EDI initiatives across case study firms. Specifically, this section seeks to identify what actions taken by each firm were recognised by workers as positively contributing to recruiting and retaining female workers. The worker experiences presented in this chapter inform both the practical implications of this study for organisations going forward as well as the aspects of the theoretical framework which are most prominently addressed by current EDI initiatives and those which persist in creating barriers for workers outside the ideal worker narrative:

Relationship of worker experiences and study implications

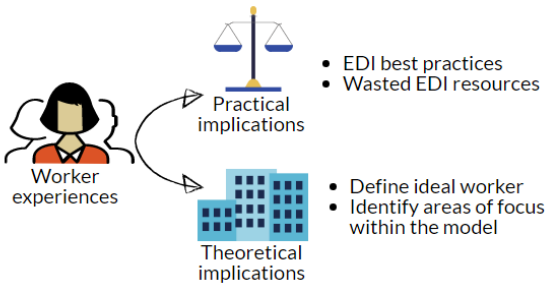

Figure 22 source: author generated

Common themes emerged across case study findings from the experiences of workers and were compared against the initiatives by their respective firms as introduced in chapter three. It should be noted that a particular limitation to this approach lies in the assessment of recruitment materials and efforts as the majority of workers could not speak to recent hiring experiences and thus were not greatly impacted by EDI efforts regarding employer branding and targeted recruitment. As such, recruitment findings are not addressed in this section. The following table provides a summary of the key findings related to EDI practices across case study firms based on worker experiences and categorises the aspects of the theoretical framework which are highlighted through these findings.

Best practices derived from worker experiences		
EDI Practices	**Worker impact**	**Theoretical alignment**
Diversity training	Across all firms, diversity training programmes were acknowledged but cited as ineffective. The majority of workers, including those who would qualify for targeted attendance (i.e. people managers), had not attended.	Worker discourses Firm culture
Minority networks	The gender equality network at Beets Co. was primarily attended by female workers and was seen as a positive opportunity for minority workers to interact. Muckduk Inc. did not have a regular networking group, however some female workers expressed that gathering limited to female workers within the firm would be welcomed as social events were at times intimidating as a gender-minority. Vance Ltd. utilised an online discussion forum for worker discussions of gender equality issues which was actively engaged by both male and female workers. This was seen as an asset which increased awareness of the issues faced by women in the field and promoted allyship in male workers.	Firm culture Worker discourses
Parental support	Flexible working was seen as a strong asset for parents who need to balance their professional and private commitments. While all three firms had robust and liberal flexible working policies, some key factors were identified in facilitating their use. Informal arrangements at the line-manager level were the primary way that flexible working was used. This was more effective at Vance Ltd. and Muckduk Inc. where ad-hoc use of flexible working was pre-approved for all workers. Beets Co. required similar arrangements to be approved on a case by case basis between employees and their managers and this was seen as a barrier to use as not all managers were amenable to it. Additionally, workers at Beets Co. who used flexible working often cited moderating their character and not disclosing microaggressions/disagreeable behaviours from their managers so as not to put the benefit at risk.	Firm culture Ideal worker
Reporting systems	Across EDI initiatives, it was identified that whilst policies acted as the tools for enacting and reinforcing diversity, they were only as useful as the individuals enacting them. As such, leadership support is key. This was particularly true for reporting harassment and counter-culture behaviours. Workers who felt supported by leadership viewed experiences of harassment and discrimination as counter-culture acts of 'bad apples' whilst workers who did not feel supported by leadership were much more likely to seek alternative employment.	Firm culture Ideal worker
Active promotion of minority workers	Female technical workers, particularly at Muckduk Inc. expressed that the lack of women in leadership roles led them to question their own ability to progress within the company. Active progression towards a more gender balanced leadership team was cited by both Beets Co. and Vance Ltd. Workers at Beets Co. particularly noted the participation of high-ranking female leaders in the gender networking group, although this was not directly tied to their own aspirations within the firm.	Ideal worker Job divisions

Table 55 source: author generated

Similar to the conclusions of wider academic literature, the findings from this study indicate a lack of efficacy for unconscious bias trainings (Bezrukova et al. 2016). This was found across all firms and stemmed from two key pitfalls. First, whilst external reporting indicated the availability, either mandatory or voluntary, of unconscious bias trainings, there was a lack of evidence that such trainings were taken up, even by workers who were targeted for attendance (namely people managers and recruitment teams). Second, interview participants who had attended or even organised unconscious bias trainings did not evaluate their impact highly. Thus, the evidence indicates that resources applied to such trainings would be better spent elsewhere. It should be noted that the method of interviewing both male and female workers for this study allowed for the inclusion of such findings, as unconscious bias trainings are largely targeted towards male workers.

The findings from this study also suggest that the effectiveness of both harassment and discrimination policies and flexible working policies are contingent upon the position of individual managers. Worker interviews depicted managers as playing a positive role in reinforcing an accepting and blameless culture within Vance Ltd. through the way in which reports of harassment were handled while workers at Muckduk Inc. cited management as promoting counter-culture ideals of competitiveness and aggression. This was disproportionately reported by female workers who cited having their work appropriated by members of leadership and the lack of action which came from the formal report as a primary reason for seeking employment out with the company. This is perhaps aligned with the trend of shorter worker tenures within Muckduk Inc. compared to the other case study firms and higher numbers of female interview participants who had left the firm during the period of data collection.

Moreover, policy allows for an institutionalisation of equality and diversity culture rather than a reliance on individual workers to do so. Vance Ltd. proved an interesting site of exploration for this phenomenon, where men were actively engaged as allies through participation in equality conversations and discouraging sexist behaviours in co-workers as needed. Whilst this was viewed by female interview participants as positive, research suggests that there are some pitfalls in this approach (Kelan 2010). As such, it is critical to integrate a robust set of policies and reinforce their implementation at the leadership level in addition to promoting awareness of the barriers faced by women in tech and ways in which male co-workers can proactively act as allies in breaking these barriers. Indeed, Vance Ltd. demonstrated evidence of both robust policies and leadership support which allowed for male allies to support rather than instigate an inclusive workplace culture.

Study participants at Beets Co. highlighted the importance of a strong relationship with line management in the ability to take up flexible working policies as the majority of arrangements were made informally at a local level. This procedure created some inequality in access to

flexible working as well as a feeling for workers who did have local agreement that they must overcompensate through extended working hours and choosing not to 'rock the boat'. Cumulatively, these findings present a strong case that firms need to find alternative routes to flexible working arrangements to widen accessibility. Research suggests this may be done through the alignment of management goals with equality and diversity initiatives as well as an external channel for workers to formally request flexible working opportunities which would allow a third-party to reasonably mediate the needs of the department with the needs of the worker (Chung and van der Horst 2018).

A similar finding, specific to the reporting of counter-culture behaviours (such as sexism, harassment and discrimination), is the efficacy of low-stakes reporting with the opportunity of anonymity reinforced by leadership behaviours. Vance Ltd. had fully integrated such a system as a part of their formal reporting procedures which aligned with high levels of study participant satisfaction with the process. A similar tool had been implemented in Muckduk Inc. just a few months prior to data collection and had also seen some early success. Whilst there is limited research which investigates the impact of such nascent tools on the reinforcement of equality and diversity issues, the findings from this study present some positive results which can be developed for investigation in future studies.

Across EDI efforts, there is strong evidence that support at the leadership level is essential to the successful implementation of policy into practice. Indeed, the importance of leadership buy-in is well-reflected in the literature as well (Dennissen, Benschop and van den Brink 2018). This was most evident in the comparison of Muckduk Inc., which showed low levels of leadership support for EDI efforts, and Vance Ltd., which demonstrated high levels of leadership support. While EDI efforts were similar in both firms, there were notable differences in their implementation. For example, experiences of harassment were highlighted by workers at both firms, however those at Vance Ltd. felt that such behaviour was strongly discouraged by leadership whilst workers at Muckduk Inc. often reported such behaviours coming from members of leadership themselves.

Additionally, the findings from this research agrees with studies concluding that women are more likely to make lateral career moves due to experiences of harassment (Leskinen, Rabelo and Cortina 2015, Salman, Abdullah and Saleem 2016). Whilst workplace harassment is often underreported by both male and female victims (Sarkar 2017) the data presented from worker interviews suggest that female participants were both more likely than their male counterparts to experience harassment and also to seek alternative employment due to an incident of harassment, sexism or discrimination.

6.3.1 Reflection of gendered barriers to inclusion in worker experiences

The findings from this study further highlight that some substructures were cited more frequently across firms as barriers to equality by female workers. Specifically, organisational culture was very important, particularly through the articulation of EDI policies and the way in which firm leadership supported and implemented equality initiatives. Worker discourses were similarly prominent, wherein workers cited experiences of, and were impacted by, negative behaviours, however the impact of such experiences was either mitigated or exacerbated by the firm's response to it. Thus, the findings suggest that organisational culture is of primary importance for firms seeking to address gaps in their diversity plans. While there was a strong presence of gendered job divisions across firms, this did not significantly impact gender minority workers on its own. However, some aspects which arose due to severe gender divisions, such as gender pay gaps and male-dominated networking opportunities, were cited by some as disappointing or intimidating. This was perhaps moderated by the fact that the wider technology sector demonstrates similar gender divisions and thus participants did not feel this was a direct reflection of the firm's efforts. Finally, it is important to recognise the impact of the ideal worker narrative on workers as well. As this narrative is created and reinforced by the gendered substructures, the cumulative impact has shown to be of considerable importance. As such, the findings suggest that addressing gendered impacts created by ideal worker narratives are of primary import for firms seeking to create an inclusive culture. The following figure depicts an adaption of the theoretical framework to highlight the weighted importance of each substructure resulting from the analysis of worker interviews. Evidence which emerged from worker experiences which informed these weightings have been included to the left of each substructure to demonstrate the key areas of investigation for each category.

Evidence of organisational barriers from worker interviews

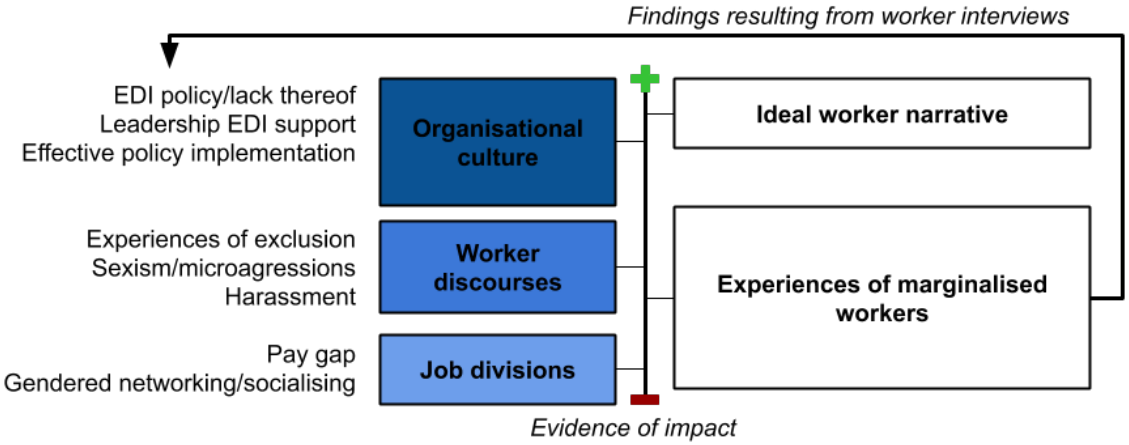

Figure 23 source: author generated

Overall, interviews with male and female workers across firms align with the wider findings that female workers are more likely to be influenced by gendered substructures within a firm. That said, participants with children at Beets Co. were most likely to feel that parenthood impacted their careers, with women more likely to feel this impact was negative. Unique to Beets Co., one male participant with children felt that parenthood had positively impacted his career. This is perhaps explained by existing literature which suggest men often see promotions and pay increases when they become fathers (Hodges and Budig 2010). Both male and female caregivers at Muckduk Inc. did not feel that parenthood impacted their career significantly one way or another, however it should be noted that three of four participants with children were male and their time with the firm was quite short. Surprisingly, whilst the lowest levels of gendered substructures were found at Vance Ltd., two of three workers felt that parenthood negatively impacted their career, with one worker reporting no impact either way. Of those who reported negative impacts, one participant was male and the other female. Both, however, cited themselves as primary caregivers. This finding agrees with the contention that, whilst men are still in the minority of primary caregivers, additional reform is needed to better support primary caregivers across genders (Pedersen 2015, Javaid 2018).

In alignment with the literature, women were also more likely to experience harassment than men in the main, however this result varied across case study firms. Female participants at Muckduk Inc. were most likely to share experiences of harassment (3), followed by female participants at Beets Co. (2), with the majority of those workers reporting lateral career moves instigated by the experience. No female participants shared experiences of harassment at Vance Ltd., however one male worker did so. Additionally, one male worker at Beets Co. identified an experience of harassment however neither male reported making a career change due to the experience. No male workers at Muckduk Inc. shared experiences of harassment during their time with the firm.

6.3.2 Tool for firm evaluations of EDI practices

The findings from this study regarding the impact of gendered substructures on marginalised workers lends itself to an evaluation tool which can be used by firms to determine the efficacy of their EDI efforts. As introduced earlier, the impact of gendered substructures and ideal worker narratives was revisited based on worker experiences. Experiences shared by marginalised workers was aligned with aspects of gendered job divisions, organisational culture and worker discourses to assess the impact of each aspect. The findings demonstrated cumulatively that gendered ideal worker narratives have a strong impact on worker experiences and career progression. Additionally, the importance of an inclusive organisational culture was prominently supported through the need for a strong formal set of policies, demonstrations of support at the leadership level and effective implementation of policy into

practice. Gendered worker discourses were also strongly represented across case study firms, however the impact of experiences in this category was strongly influenced by the way in which a firm handled such behaviours. Specifically, individuals who experienced gendered discourses were more likely to feel this was abnormal and the result of a 'bad actor' rather than a systemic issue if they felt that the firm successfully addressed the behaviour. Finally, evidence of job divisions was likewise present across all firms, however workers cited the least amount of impact based on factors which fell under this category, such as male-dominated tech and leadership teams and gendered differences in pay.

The following table depicts the key areas of assessment which have been derived from the theoretical framework of this study. Specifically, the tool uses the findings summarised in this chapter to highlight the key ways in which marginalised workers experience gendered barriers to inclusion using a relative weighting system based on the level of importance assigned to each substructure. Weights were determined using paired comparison analysis, wherein the importance of each factor was compared against one another. As such, factors which fall under the ideal worker narrative were given a weighting of 6, organisational culture a weight of 4, gendered discourses a weight of 2 and job divisions remained at the baseline with no weighting. The areas of investigation mirror the evaluation of each firm's gendered substructures as presented in section 4.4. A simple point system has been used to award three points for a green rating, two for a yellow rating and one for a red rating. The average of each criteria is used for each substructure as there are disparate numbers of evaluation metrics which do not necessarily reflect the importance of that particular subsection. This allows for the firm to benchmark their progress over time and pinpoint the areas which need change, by the importance of the associated substructure. The scores of each case study firm have been included in the table to exemplify the application. For brevity, Beets Co. scores are indicated with a 'B', Muckduk Inc. with an 'M' and Vance Ltd. with a 'V'.

Evaluation criteria and results by firm				
			Firm assessment	**Weighted total**
Ideal worker				**x6**
Indicators of gendered ideal worker in firm narratives	Green 3pts	Statistical evidence of diversity across the business and in leadership positions. Strong evidence of a diversity-centric approach to preferred ideal worker traits.		
	Amber 2pts	Some evidence of female representation in leadership and technology roles. Some diversity demonstrated in preferred ideal worker traits.	BV	
	Red 1pt	Women over-represented in the lowest pay quartile and unrepresented in leadership and board roles. High indicators of preference for masculine traits in ideal worker narrative.	M	
Agreement of Narrative (female workers and firm)	Green 3pts	Female workers indicate higher levels of alignment with the firm ideal worker narrative than in other case study firms.	V	
	Amber 2pts	Gender neutral alignment to firm with both male and female workers showing limited alignment to the firm ideal worker narrative.	B	
	Red 1pt	Low levels of alignment between female workers and the firm perspective, with higher levels of agreement between male workers and the firm.	M	
Substructure score (18 possible points weighted)[6]			*B 2* *M 1* *V 2.5*	*B 12* *M 6* *V 15*
Job divisions				**x0**
Horizontal	Green 3pts	Gendered divisions and pay gap data reflective of Scottish workforce		
	Amber 2pts	Gendered divisions and pay gap data reflective of Scottish ICT industry		
	Red 1pt	Gendered divisions and pay gap data below industry average	BMV	
Vertical	Green 3pts	At least 30% of Executive team and Board of Directors held by women		
	Amber 2pts	At least one female on both the Executive team and Board of Directors	BV	
	Red 1pt	Lack of female representation on either the Executive team or board of directors	M	
Substructure score (3 possible points weighted)			*B 1.5* *M 1* *V 1.5*	*B 1.5* *M 1* *V 1.5*

[6] *total points divided by number of criteria (average) multiplied by the substructure weight*

Organisational culture				x4
Policy and EDI initiatives	Green 3pts	EDI policies and initiatives in place with evidence of effective implementation. High levels of alignment between worker experiences and firm aspirational culture.	V	
	Amber 2pts	EDI policies in place with some evidence of contradictory practices. Some alignment between worker experiences of culture and firm aspirational culture.	B	
	Red 1pt	A lack of EDI policies or strong evidence that policies are not implemented in practice. Little to no alignment firm aspirational culture and the lived experiences of workers.	M	
Recruitment	Green 3pts	Demonstrated efforts to recruit more women, particularly into ICT roles and evidence of employer branding concentrated on equal representation		
	Amber 2pts	Demonstrated efforts to recruit more women, particularly into ICT roles or evidence of employer branding concentrated on equal representation	B M V	
	Red 1pt	A lack of female representation in employer branding efforts and no evidence of recruitment efforts targeted at increasing the number of women in the firm		
Substructure score (12 possible points weighted):			*B 2* *M 1.5* *V 2.5*	*B 8* *M 6* *V 10*
Gendered discourses and behaviours				**X2**
Gendered banter/ microaggressions	Green 3pts	Reports of such behaviour are considered counterculture/infrequent and informal/low consequence reporting channels can be used to report such experiences	V	
	Amber 2pts	Worker experiences of such behaviours are considered intermittent and misaligned with the wider firm culture	BM	
	Red 1pt	Workers report frequent experiences of such behaviours which reflect the lived culture of the firm		
Harassment/sexism	Green 3pts	Well-established formal reporting measures; infrequent experiences shared by interview participants and/or a positive experience resulting in the use of the reporting system	V	
	Amber 2pts	Formal reporting measures are established, however there is some disparity in the experiences of	B	

		participants who have needed the system		
	Red 1pt	Reporting experiences are poor, or workers opt out of reporting explicitly due to a lack of confidence in the system. Evidence of workers leaving the firm due to such incidents.	M	
Equality backlash	Green 3pts	EDI initiatives are supported by both male and female workers		
	Amber 2pts	Some levels of gendered disagreement regarding the need and efficacy of EDI policies	V	
	Red 1pt	High levels of gendered differences in the need for EDI policies and the impact on male and female workers	BM	
Substructure score (6 possible points weighted):			*B 1.7* *M 1.3* *V 2.7*	*B 3.4* *M 2.6* *V 5.4*
Evaluation total (sum of substructure scores) ***39 possible points weighted***				***B 24.9*** ***M 15.6*** ***V 31.9***

Table 56 source: author generated

As demonstrated above, the tool provides some guidance for firms to assess the efficacy of their EDI efforts and allows them to pinpoint the areas which need improvement. For example, whilst Vance Ltd. has a fairly high score of 31.9 out of 39 possible points, some aspects of their score are weaker than others. Specifically, the firm's worst substructure score lies with job divisions and thus the firm may seek to generate new initiatives to improve the number of women in technical and leadership positions, even though this substructure is weighted lower than the others. In contrast, Muckduk Inc. received a score of 15.6 and had low scores across several criteria. As such, it would be most impactful for the firm to focus on aspects of the ideal worker narrative and organisational culture as the findings from this study argue that resources spent on these aspects would be the most effective.

It should be noted that this scoring metric should be used as a benchmarking tool to highlight which areas need further targeted EDI efforts and does not necessarily evaluate the EDI tools themselves. As such, the way in which each firm gather the information to assess their firm should heavily rely on frequent feedback from the workforce, particularly those in marginalised demographics.

6.4 Conclusion

In this chapter, the summary of findings for this study was concluded. The impact of gendered substructures and ideal worker narratives on the self-efficacy and career aspirations of marginalised workers was outlined for each case study firm and trends across firms were extracted from the findings to identify phenomena most likely to be transferable within the

Scottish ICT industry. This investigation was conducted using an integrated theoretical framework which seeks to explore organisational influences on workers in the context of ideal worker narratives. In the next and final chapter, a review of the aim and objectives will be assessed against the findings of the study and a discussion of the study's contribution to both academic discourse and ICT industry best practices will be outlined. It will conclude by identifying the limitations of the study and discussing opportunities for future research.

Chapter Seven: Conclusion

7.0 Introduction

The previous three chapters have detailed the findings from this study and considered the emergent trends in relation to current academic discourses. Now, the final chapter of this thesis will conclude this project first by addressing each research objective and summarise the extent to which each was met. Next, it will present implications for practice as well as the academic contributions to knowledge made by this study. Finally, it will conclude by outlining the limitations of the study and opportunities for future research.

7.1 Addressing the research aim and objectives

The aim of this study was to investigate gendered organisational barriers in the Scottish technology industry in an effort to understand the impact on workers who fall outside of the ideal worker narrative and to identify effective practices for firms looking to retain a diverse workforce. The findings demonstrated that several gendered barriers to inclusion, first introduced by Acker's (1990) gendered institutions theory continue to persist thirty years on in male-dominated firms and contribute to the marginalisation of female workers in the industry. Moreover, this is perpetuated implicitly through the favouring of certain worker traits over others which are either valued in men and not women or more easily accessible to men. The conclusions of this study follow the findings derived through the investigation of five research objectives and are addressed as such in this section.

RO1: To establish the validity of claims that gender differentially influences the experiences of workers in technology firms in Scotland through an updated framework for the analysis of those potential differences in a contemporary context.

To meet this objective, the study sought to answer the question: do firms in the Scottish ICT sector exhibit signs of gendered barriers to workforce participation? (RQ1). This question mirrors the purpose set out in objective one and was applied to investigate the validity of a meso-level investigation of the organisational influences on gendered differences in attraction and retention of marginalised workers in the Scottish ICT sector.

Centrally, this objective adds to contemporary debates in gender and organisation research in opposition to postfeminist theories which seek to shift the focus of gender studies solely to the individual rather than the institution (Hakim 2002, Williams 2000, Stone 2007, Ceci, Williams and Barnett 2009, Lewis, Benschop and Simpson 2017, Adamson and Kelan 2018). Indeed, this study finds that despite increased social and legislative attention to promoting gender

equality at work and particularly in STEM fields, institutional factors remain within the sector which marginalise some workers and idealise others.

This finding was derived from the application of gendered institutions and role congruity theories, coupled with a multi case study methodology, which allowed this study to focus on the organisational factors which contribute to and perpetuate gender imbalances (Acker 1990, Eagly and Karau 2002). These aspects were covered through establishing each case study firm's commitment to equality and diversity, particularly through tackling gender imbalances in the technology sector and establishing their role as best-practice firms for equalities in the sector. Data was collected to ascertain the initiatives instituted by each case study firm to support marginalised workers and the experiences of male and female workers in relation to them. The firm perspective was analysed through interviews with members of leadership and an investigation of employer branding, reports and internal policies and procedures. Worker experiences were primarily obtained through semi-structured interviews and supplemented through third-party evaluations of the firm as an equal opportunity employer.

The adoption of gendered institutions theory and the ideal worker narrative proved most relevant to this study as the application allowed for an informed investigation of the critical areas where gender is experienced in an organisation (Acker 1990) and used this lens to better understand the nuanced way in which preferred characteristics and traits implicitly favour male workers. The inclusion of role congruity theory moreover allowed for the consideration of how workers out with the ideal worker narrative were impacted by this such as character moderation, altered career choices and reduced self-belief in their ability to work effectively.

The persistence of gendered differences in worker experiences and the disparity between firm aspirations and the experience of marginalised workers indicate that meso-level barriers remain despite legal, social and organisational shifts meant to provide equal footing across genders. For example, this was evidenced in chapter six, wherein female interview participants were categorically more likely to report negative career impacts due to motherhood and lateral career movements due to experiences of harassment. Moreover, the impact of such experiences was compounded by a lack of leadership support for equality and diversity initiatives, as demonstrated by the majority of female workers seeking alternative employment after such experiences at Muckduk Inc. (see table 53). This finding was ascertained through the application of an updated theoretical framework based on theories of gendered institutions, role congruity and ideal worker narratives which captured institutional factors, presented in chapter five, as well as the experiences of male and female workers in light of those factors. Thus, it was concluded that these barriers could be effectively investigated through the selected theoretical framework using a multi-method approach to data collection which solicited the perspectives of the firm, marginalised workers and ideal workers.

RO2: To assess to what extent there are specific expectations of an ideal worker with preferred qualities, demographics and characteristics in Scottish ICT firms.

To meet this objective, the study sought to answer the question: how can the term 'ideal worker' be defined within a firm in the Scottish ICT industry? (RQ2). This endeavour builds on the body of research which adapts existing theory and seeks to "provide deeper insight into the notion that organisational roles carry explicit and implicit images and characteristics of the kinds of people that occupy them" (Williams 2000, Kelly et al. 2010, Reid 2015, Nkomo and Rodriguez 2019 p 13). Semi-structured interview questions were formed to ascertain the culture of the firm, character traits, work patterns and physical demographics which were common amongst successful workers and the aspirations and professional choices of interview participants made in light of their understanding of what is necessary to achieve success within the firm. The findings indicated that perspectives of the ideal worker varied considerably across interview participants in each firm, with some levels of gendered differences. The findings aligned with wider ideal worker narratives for ICT workers (Woodfield 2000) which demonstrated preferences for masculine traits or worker habits more easily accessed by male workers (Kelan 2007, Kelan 2009). Common traits across firms described the ideal worker as driven, self-promoting, innovative, communicative and a lover of technology. As outlined in chapter five, many of these traits are more difficult for individuals to demonstrate, particularly if they have responsibilities outside of the workplace competing for their time (driven), whilst others are only rewarded in male workers (innovative, self-promoting) and still others, whilst considered feminine, are not remunerated with pay and career advancement (communicative).

Additionally, participants in two of three case study firms indicated that gender itself played a role in worker success, with men being more likely to achieve a leadership position than women in their firms. This finding, coupled with the high levels of gendered job divisions wherein male workers are predominantly found in technical roles, leads to the finding that gender is both explicitly and implicitly embedded in the ideal worker narrative through demographic representation and masculine characteristics, even while firms present high levels of equality and diversity in their aspirational culture.

Additionally, the findings from this study found that communication and people-centred skills are of increasing importance across case study firms, aligning with research which suggests some promising developments in the ideal worker narrative, placing a greater emphasis on the 'hybrid' technical worker who is able to balance business needs with technical knowledge (Whitehouse and Preston 2005, Moore et al. 2008, Kelan 2009). Such traits have been historically undervalued and are often relegated to female ICT workers, suggesting that the rising value in the work will inherently benefit them. However, some caution must be considered as women often become displaced when professions rise in value, with specific

evidence of this in technical and computing roles (Faulkner 2001, Ashcraft and Ashcraft 2015, Hicks 2017).

RO3: To evaluate the extent to which the gendered substructures of a firm can affect worker behaviours, aspirations and success in the context of the Scottish ICT industry.

To meet this objective, the study sought to answer the questions: how do the gendered substructures of a masculinized organisation affect the behaviours of men and women within the organisation and how do gendered substructures affect the self-efficacy and aspirations of workers based on their gender? (RQ3, RQ4). These questions were formulated to understand the relationship between firm culture and job divisions as well as worker interactions and worker aspirations and behaviours. The application of role congruity theory in this context aligns with the advancement of literature which adopts this framework to understand the impact of gender minority status on self-efficacy for both women in male-dominated work as well as men in female-dominated work (Eagly and Carli 2007, Diekman et al. 2017). As such, the majority of time spent in interviews with workers centred on establishing their perception of firm culture and positioning their experiences in relation to it. Interview guidance included questions on why workers chose to apply to their current role, their interest in working in the tech industry, their experiences with flexible working, interactions with management as well as co-workers and informal and formal networking and socialisation opportunities.

The findings demonstrated three key areas in which marginalised workers reported the highest levels of differentiation. First, primary caregivers, the majority of whom were female, reported dissidence in firm policies to support parents and the ability to utilise them effectively. This was particularly evident with caregivers at Beets Co. who felt that leadership was providing conflicting messaging regarding the right to work flexibly, with current trends encouraging workers to return to more traditional work patterns. Primary caregivers across firms, and indeed genders, cited the need to make changes in their career aspirations as well as frustrations regarding career progression. Second, female interview participants were more likely to make lateral career moves after experiences of harassment or repeated sexism. This was most evident with workers at Muckduk Inc. where three female participants experienced sexism at the firm and did not feel supported after reporting it. All three workers sought employment out with the firm subsequently. Third, workers who did not align themselves with the firm's ideal worker narrative reported some level of character moderation which manifested in a variety of ways. For example, female participants reported a range of moderations from the physical, such as changing the way they dress, to the behavioural, such as the way in which they chose to participate in formal meeting spaces. Some workers additionally became less sure of their ability to work effectively, as demonstrated by primary caregivers who sought less ambitious

roles and female managers who reported feelings of tokenism when selected for promotions and recruitment teams.

These findings were built upon to understand worker aspirations and the extent to which interview participants have felt supported by the firm or have felt the need to moderate their behaviours or professional goals in order to remain at the firm. The findings suggest the experiences of female workers across each case study varied in relation to the day-to-day culture of the firm, their interactions with co-workers and the ability to utilise firm initiatives meant to create a more supportive environment for a diverse workforce. Whilst each of the case study firms had a similar approach to tackling equality and diversity issues, the study suggests that EDI initiatives have been most effectively embedded into the day-to-day practices of Vance Ltd. For example, both male and female workers were actively engaged in the online discussion platform for equality and diversity and interview participants shared experiences wherein they felt comfortable using and supported by formal reporting processes when counter-culture behaviours arose in co-worker interactions. Alternatively, both Beets Co. and Muckduk Inc. have shown some progress towards cultivating opportunities for women within their firm, however disparities between male and female worker experiences indicate a significant need to further investigate the efficacy of their approaches. This is particularly true of Muckduk Inc., wherein female workers expressed high levels of misalignment between the attitudes of leadership and the firm's position as a best practice diversity employer in the Scottish ICT industry. Thus, it can be concluded that EDI initiatives are only effective to the extent to which they are appropriately applied in the day-to-day business practices of the firm and supported by the actions of leadership.

RO4: To establish how firms are currently working to create more equitable workplace cultures for men and women in the technology industry.

To meet this objective, the study sought to answer the question: what steps are firms currently taking to create equitable opportunities for both men and women? (RQ5). The purpose of this question was to elicit the specific initiatives undertaken by each case study firm to tackle gender diversity to later compare against worker experiences. The collection of data was guided and supported by existing literature regarding organisational approaches to diversity training and minority worker support (Rynes and Rosen 1995, Lenard et al. 2014, Lagerberg 2015, Dobbin and Kalev 2016, Atiyah 2016, Julian and Ofori-Dankwa 2017).

To adequately respond to this question, data was collected through interviews with leadership as well as a review of written policy around employee conduct and reporting, parental leave, work/life balance, gender pay gap reporting, harassment and discrimination cases and pertinent data shared in annual reporting. Additionally, interview participants were asked to share the initiatives they were aware of that had been undertaken by the firm as a means of

finding ways in which the firm addressed the needs of marginalised workers out with the official equality and diversity work they have established.

As previously noted, all three firms took similar approaches to equality and diversity including targeted recruiting, unconscious bias or diversity training opportunities, networks and events aimed at raising the profile of marginalised workers, support for workers with caring duties and finally reporting systems for those who experience harassment (excluding Muckduk Inc.). However, the extent to which workers were aware of and utilised the initiatives varied across firms. Notably, the disparity of perspectives between male and female interview participants at Muckduk Inc. underlines that the lack of women in leadership positions, particularly within technical leadership positions, contradicts the diversity initiatives put forth by Muckduk Inc. to encourage more women to work for the organisation. This is compounded by the lack of transparency and acknowledgement of issues faced by women in tech, particularly by leadership (see section 4.3.3). In contrast, both Vance Ltd. and Beets Co. provided greater transparency regarding the lack of women in leadership as well as their annual pay gap data. This information was shared in tandem with the initiatives currently being taken to redress the imbalances. Thus, whilst all three firms demonstrated distinct gendered divisions in work and pay, the way in which this disparity was addressed at the leadership level had an impact on worker perceptions. The findings provided a commonality for cross-case analysis and allowed for the identification of potential best practices within each firm.

RO5: To provide recommendations on effective strategies a firm can employ to recruit and retain a skilled, diverse workforce.

To meet this objective, the study sought to answer the question: what can organisations in the Scottish ICT sector do to become a more gender-inclusive environment? (RQ6). This question was formulated in alignment with research objective five in order to derive effective strategies that could be applied to firms out with the study. Best practices were identified through establishing the current work undertaken by each firm and evaluated based on worker experiences and the results shared in relevant firm reporting. The exception to this was the firm approach to recruitment as the assessment of these initiatives were more accurately reflected in their current employer branding. As such, the use of multiple data collection methods allowed for a more thorough evaluation of the suite of EDI initiatives. A tool was proposed (see section 6.3.2) to assist firms in identifying gaps in their EDI strategy based on these findings and uses a weighting system to direct firm efforts not only where they are most needed for the firm but also where they will make the biggest impact based on the worker experiences gathered in this study.

Changes to employer branding and recruitment practices was a primary action taken across case study firms in their work to increase the number of women in technical positions and

reduce their gender pay gap (see section 4.2.2). As such, targeted recruitment efforts are critical to increasing the number of female applicants for technical roles. The findings from this study highlight that targeted recruitment would be most impactful through non-traditional recruitment routes. Specifically, the findings agree with industry reports which suggest that higher levels of gender parity are found with computing and technical certification programmes when compared to traditional college and university degree programmes (Eggleston 2018, Seibel 2018, Lyon and Green 2019). This approach was taken up by one case study firm, Muckduk Inc., and was cited by leadership as an effective recruitment strategy. As such, it can be concluded that targeting such certification courses results in a higher probability of reaching skilled female applicants for technical positions.

Additionally, whilst all three firms participated in rebranding efforts of their employer recruitment pages to reflect an aspirational culture of gender inclusivity, these efforts were only effective long term when a review of materials for equality and diversity initiatives was incorporated into the regular procedures of the firm. This supports findings presented by Kalev, Dobbin and Kelly (2006) through their systematic analysis of diversity policies and is echoed by subsequent studies on the effectiveness of diversity policies (Bezrukova et al. 2016, Heilman and Caleo 2018).

Next, all three firms reported the use of diversity and unconscious bias trainings aimed at increasing awareness of the barriers faced by marginalised workers and the ways in which individuals inherently discriminate against others. Current literature regarding unconscious bias training suggests that companies which utilise the training see very little impact on changing perceptions of workers (Kalev, Dobbin and Kelly 2006, Noon 2018). Bezrukova, Spell and Perry (2016) reported in their meta-analysis of 40 years of diversity training research that there is a lack of evidence that such trainings can provide long-term improvements and are only effective in the short-term when coupled with wider equality and diversity work. This academic finding sits in contrast to government sponsored reporting which seeks mandated unconscious bias trainings similar to mandatory pay gap reporting as well as corporate trends to provide such trainings (McGregor-Smith 2017). The findings from this study reflect the wider academic notion that unconscious bias training lacks lasting impact on workers and the wider organisational culture. Through the opportunity to speak with both male and female workers, this study confirms a lack of effectiveness across case study firms where both marginalised and idealised workers were either unaware of the unconscious bias trainings available to them or had attended and felt they had been widely ineffective. As such, the study concludes that organisations looking to address unconscious bias with their employees would most likely not see a positive return on their investment in this type of training.

The participating firms from this study considered minority networks and events as an important means to connect marginalised workers within the firm, however this was

approached differently by each firm. Generally, there was a shift from exclusivity for marginalised workers to the incorporation of allies in networking and awareness-raising events. Whilst most workers representing both the majority and minority population across firms met this shift with positivity or indifference, contemporary research suggests some drawbacks to the ally mentality. Most notably, Kelan (2018) finds that boundaries can become unclear, crossing the line from ally to saviour and limiting the perceived agency of female workers, particularly in regard to male leadership. Whilst the findings from this study lack evidence to support or deny this theory, an interesting trend emerged wherein female workers reported high levels of effectiveness when requesting intervention from males they perceived as allies who were organisationally at the same hierarchical level within the firm. Nevertheless, the role of the ally must be carefully investigated as the inclusion of majority workers within minority networking groups can dilute the ability for minority workers to connect and raise their visibility within the firm.

In parallel, the study also finds evidence that support at the leadership level for EDI policies, particularly regarding flexible working and harassment reporting, is critical to their successful implementation. Indeed, this is mirrored in the literature regarding the implementation of new policy within a firm (Dennissen, Benschop and van den Brink 2018). This is further extended to people managers as they are often given the opportunity to either support or deny the use of flexible working for their employees. Moreover, workers are less likely to feel comfortable making a formal report after experiencing harassment if they do not feel they will be supported by their manager. Emerging tools wherein workers could anonymously, or by name, make a report either of counter-culture microaggressions or wider organisational issues also demonstrated early success for Vance Ltd. and Muckduk Inc. In both firms, the application of such tools was supported by members of leadership acting on the reports. Thus, the study concludes that a robust set of reporting tools, supported at the leadership level, can increase employee use of harassment and discrimination policy.

7.2 Contributions to knowledge

There are a number of contributions to contemporary academic research on gender and organisational behaviour. Whetton (1989 p 493) suggests that “theoretical insights come from demonstrating how the addition of a new variable significantly alters our understanding of the phenomena by reorganizing our causal maps”. With this perception, the theoretical contributions of this paper endeavour to advance concepts pertinent to current gender and organisational theory research and provide an updated framework through which to measure worker advantage and disadvantage (Gergin 1982). Specifically, this is reflected in the aim of this study; to explore gendered barriers to inclusion at the organisational level in Scottish ICT

firms and to use this data to better understand the impact on workers who fall outside the ideal worker narrative. This is directly correlated to the call for future research wherein the goal is to “focus less on demonstrating the existence of gendered organisations and more on theorising changing gender inequalities”, shifting towards a wider body of gender and organisational research which embraces the gender spectrum and seeks to incorporate intersectionality into research which is otherwise limited to a narrative driven by white, middle-class perspectives (Nkomo and Rodriguez 2019 p 14). The findings of this study address this call to contribute to feminist organisational theory through investigations of contemporary gender barriers in a male dominated industry, implications of gender on the ideal worker narrative and additions to academic debates between micro theories of the self and theories of institutional sexism.

7.2.1 Persistent barriers to inclusion

First, this paper contributes to a small body of research which has applied Acker’s theory of gendered institutions in its entirety to singular firms (Acker 1992). Whilst the theory of gendered institutions is highly regarded and widely applied to the theoretical underpinnings of contemporary gender research, it is rarely applied in its entirety due to the breadth of aspects presented in the gendered substructures model and thus the complexity of data collection (Benschop and Doorewaard, 1998, Benschop and Doorewaard 2012, Dye and Mills 2012, Festing, Kornau and Schäfer 2014, Dwivedi, Joshi and Misangyi 2018). As such, an in-depth case study approach is required to capture the data necessary to analyse the firm from several perspectives. As noted by Yin (2009 p 18), the case study is an "empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context”. Accordingly, the analysis resulting from this approach to data collection provides unique insights into the application of the theoretical model in three contemporary firms operating in a male-dominated industry and suggests that regardless of advancements to gender equality since the inception of Acker’s theory in 1990, gendered substructures persist even in contexts where conscious efforts to support diversity have been attempted. This empirical contribution attempts to assist in closing the gap between the established construct of barriers perpetrated at the organisational level to female worker’s progression, self-efficacy and career aspirations and questions raised of its continued relevance by post-feminism theoretical positionings (Genz and Brabon 2009, Lewis and Simpson 2016).

The site of exploration further contributed to academic discourses of gender and organisational theory both in the locus of study and the method of data collection. Specifically, studies of the ICT sector have primarily focused on the larger hubs of activity such as Silicon Valley which do not necessarily reflect the same cultural, social and legislative factors as the Scottish ICT sector. This is of particular importance as external influences have a strong influence on the organisational culture and how workers perceive gender equality issues. Correspondingly,

through a case study analysis of organisations considered leaders in equality and diversity practices for the Scottish ICT sector, this study has provided a holistic investigation of these practices and their impact on the day-to-day experiences of male and female workers. The findings progress from findings which establish the persistence of gendered barriers to inclusion for women working in the tech sector onward towards the importance of examining the efficacy of equality and diversity best practices.

7.2.2 Implications of gender performativity from the ideal worker narrative

The in-depth investigation of ideal worker narratives across three ICT firms conducted as part of this study moreover adds to feminist discourses of gender performativity and the consequences of gendered identities in the workplace (Butler 1990). Specifically, the findings demonstrate that characteristics aligned with male behaviours, such as aggression and ambition, are valued in the form of greater pay, prestige and promotion and further that women cannot necessarily moderate their own gender performativity to conform to masculine traits and receive the same rewards. This analysis of gender performativity, which separates investigations of institutional sexism based on one's biological sex from studies of institutional contributions to gender inequalities based on socially-prescribed gender traits, contributes to a fuller understanding of the ways in which these barriers are expressed and the nuanced impact on marginalised workers (Woodfield 2000, Eagly and Karau 2002, Kelan 2007).

Moreover, the theoretical framework, wherein ideal worker narratives are compared to worker experiences, provides some insight into the incorporation of intersectionality in gendered organisational theory studies. Particularly, the application of ideal worker narratives provides a more complex set of insights which add to discourses of multiple areas of discrimination. Such a framework is not meant to replace or circumvent studies which highlight intersectionality as their primary theoretical framework but rather to heighten awareness of such differences in studies which are unable to provide robust findings related to the intersection of gender, race and class (Crenshaw 1989, Bell and Nkomo 2001). Indeed, this is exemplified in the application of this study's theoretical framework as it was limited in its ability to gather a diverse set of experiences out with gender given the limitations of the sample available in the Scottish ICT sector with minimal representation of minorities in the industry overall. Additionally, the findings show the benefits of understanding characteristics beyond gender which influence the ideal worker narrative and marginalise those outside of that description.

Finally, this research contributes theoretically to the academic shift from binary gender studies which rely on a traditional understanding of hegemonic masculinity to the incorporation of multiple disadvantages and the gender spectrum through an exploration of the ideal worker construct. Current research struggles to assimilate the theories of intersectionality and the

increase in individuals disengaging from traditional gender performativity and sex identification with traditional gender research. As such, this research project explored the opportunity of defining the ideal worker narrative specific to each firm through an investigation of gendered substructures and interpret worker experiences based on their proximity to that definition. Future research which focuses on sample diversity can further this exploration and continue to develop a way to incorporate essential differences experienced by workers based on features beyond, and in addition to, their gender through an exploration of the traits which distinguish them from the ideal worker as defined by the firm.

7.2.3 Theories of the self

In addition to the theoretical contributions of ideal worker narratives to the impact of gender performativity, the findings from this study also highlight significant gaps in theories of individual preference regarding one's ability to prioritise their career over other responsibilities based on gender (Hakim 2010, Rottenberg 2014, Gill and Orgad 2018). As this study gathered data from multiple perspectives on both the male and female worker experience, the findings were able to clearly delineate greater social and economic pressures on female workers to balance their career with familial responsibilities than on male workers. For example, female respondents were more likely to make lateral career moves due to sexist or aggressive experiences, seek part-time or reduced hours to take on primary caretaker duties (see section 6.2) and receive less pay than their male counterparts (see section 4.1.1).Therefore the findings contribute to the argument that wider social forces have yet to adequately minimise barriers to inclusion for women and as such do not allow for equal opportunities to fully prioritise one's career (Hodges and Budig 2010, Berdahl and Moon 2013).

7.3 Implications for practice

This piece of research is focused on providing a robust set of conclusions transferrable at the organisational level. As previously noted, the approach for these case study findings is aligned with the academic school of thought which highlights the value of providing insights to be interpreted by the reader and applied to circumstances designated as similar based on their understanding of the research and their own objectives (Mahoney and Goertz 2006, Tsang 2013, Pelz 2019). Thus, the role of the researcher is to provide a robust understanding of the findings and the circumstances within which they were observed.

7.3.1 The role of the organisation

There is strong evidence that social, historical, cultural and legislative factors out with the organisation impact the number of women working in ICT (Ceci and Williams 2010). However,

an over-reliance on these trends to explain institutional phenomena was particularly evidenced in the pay gap reporting of case study firms as well as leadership and worker explanations for the lack of women in technical positions. Whilst this study agrees that ICT organisations alone cannot eliminate inequalities in the sector, it does suggest that firms at the forefront of EDI best practices should act as catalysts for change through targeted initiatives to increase the number of women in leadership and technical roles and decrease gender pay differentials. A strong example of this was presented by Muckduk Inc., wherein the firm aimed to increase the number of female applicants for technical positions through recruitment events with organisations with higher numbers of female graduates. Whilst at the organisational level Muckduk Inc. is unable to control the gender diversity of the wider ICT applicant pool, research shows that targeted recruitment efforts can assist in capturing a higher percentage of minority applicants and signal that the firm is committed to gender diversity (Avery and McKay 2006).

7.3.2 EDI process implementation

Findings across firms indicate that the impact of EDI policies and initiatives are dependent upon the way in which they are implemented in practice. This is well-supported in the literature (Hubbard 2004, Kalev, Dobbin and Kelly 2006, Rhode and Williams 2007, Paluck and Green 2009, Bezrukova et al. 2016, Scott, Klein and Onovakpuri 2017) and was particularly evident in the findings of this study related to flexible working initiatives and formal reporting systems (see section 7.1). Flexible working opportunities were outlined across case study firms by both leadership and workers, as well as by the literature (Durbin and Tomlinson 2010), as a primary tool for female worker retention. However, some issues arose regarding universal access to flexible working as well as a perceived trade-off with the findings highlighting that some participants saw the ability to work flexibly as a privilege, leading to feelings of not wanting to ‘rock the boat’. Thus, this study highlights trends presented by work/life balance scholars (Rhode and Williams 2007) which identify the need to investigate the role of the manager as gatekeeper and shift management evaluations to focus not only on productivity but also how well they are meeting the needs of their employees.

More generally, this study agrees with academic discourses which contend that EDI initiatives are most effective when implemented across the business in alignment with existing procedures (Hubbard 2004, Bezrukova et al. 2016) and with support from members of top leadership (Whelan-Berry, Gordon and Hinings 2003, Scott, Klien and Onovakpuri 2017). As such, this finding concludes that robust EDI policies are not necessarily indicative of an inclusive organisational culture, rather the implementation of such policies is.

Finally, a rich set of information was derived from interviews with workers regarding the impact of EDI policies, however this was not a resource utilised by any case study firm in the evaluation of their initiatives. As such, it can be concluded that organisations can capture

valuable insights through seeking regular feedback from worker experiences across the business and identify key areas where barriers exist, finding institutional solutions to address those barriers.

7.3.3 Evaluation of EDI policies and initiatives

The enduring barriers to inclusion evidenced in this study suggest a need to refocus and revaluate the efforts taken by organisations to attract and retain a gender-diverse workforce. Such efforts will require a rigorous set of mutually-identified and agreed upon goals between firm members across the business. Through the application of goal-setting theory which theorises a positive "relationship between conscious performance goals and level of task performance", it is suggested that the impact of gender-equality work would be amplified through a more strategic and streamlined focus across stakeholders (Locke and Latham 2002 p 705). Thus, the findings from this study suggest that firms may benefit from an evaluation of current EDI practices. Indisputably, this must be done systematically, with the findings from this study suggesting the following approach:

1) Map the external landscape to identify the opportunities and barriers currently facing the local industry in regards to workforce diversity.
2) Inventory current EDI practices within the firm as well as any gaps which need to be addressed.
3) Evaluate the efficacy of EDI practices through employee reviews and gender workforce statistics across the business.
4) Review findings regularly and make informed changes to EDI practices where needed.
5) Provide transparency of the results to the workforce in parallel with steps to be taken to address negative feedback.

With this in mind, a tool was created to assist firms in the practical application of this study's findings (see section 6.3). This tool outlines the key areas of investigation which should be included in the evaluation, with the importance of each factor weighted based on the feedback from worker experiences. The red, amber and green rating system used to identify gendered barriers to inclusion was adapted for this purpose, allowing firms to assess their efforts holistically and focus their future endeavours on highly-weighted aspects which need improvement. Thus, this tool is a strong practical contribution made based on the findings from this study.

7.3.4 Contributions to public policy

While the locus of investigation for this study was the ICT firm, some findings are additionally pertinent to wider Scottish public policy. Evident at the legislative level is the need to continue with mandatory gender pay gap reporting to continue gathering data across industries and

over time on the progress of reducing key factors which contribute to the gap. Thus far, pay gap reporting has highlighted the contributions of gendered job divisions and higher levels of female employees in part-time roles. The reporting of gender divisions across pay quartiles by firms can provide valuable insights into the effectiveness of equality and diversity work but is rarely undertaken by firms not legally obligated to do so.

Additionally, this research project adds to literature which asserts that a key impetus for change in an individual's self-assessment of their workplace efficacy and career aspirations is entry into parenthood (Jaeckel et al. 2012, Weiss, Freund and Wiese 2012). Social norms persist with women often taking on the primary care role and men taking on the primary breadwinner role. As such, mothers are more likely to shift to part-time work, move into less demanding roles or forfeit career progression for increased flexibility. As introduced in chapter two, this social norm is reinforced by differences in parental leave legislation for mothers and fathers (MyGovScot 2019). Whilst partners who are both legally entitled to parental leave can opt to transfer their leave to their partner, wider social norms and employer assumptions remain as a barrier to uptake. Furthermore, data suggests that the gender pay gap persists and as such, there is a financial incentive for the primary earner to continue working. Indeed, this study's findings demonstrate that female participants were more likely to take on primary caregiver roles and thus refocus their career aspirations whilst male participants with children were more likely to cite that their partner was the primary caregiver. One male participant reported being the primary caretaker and reported similar issues to his female counterparts in balancing his career and childcare duties. This finding advocates for a review of legislation to shift from unequal maternity and paternity leave to generalized parental leave as a means of increasing the agency of parents in the division of caretaking tasks and reducing employer assumptions that male employees will be less affected by parenthood than their female counterparts.

7.4 Limitations

Inherent to the research process, external factors and constraints have impacted this study at various points of data collection, analysis and presentation (Simon 2011). Fundamental to the case study methodological approach is the limitation of the application of findings. As the scope of the study is limited to Scotland and medium to large sized firms within the technology sector, the findings are most suited to firms within the same context. Whilst it was necessary to limit the scope in order to achieve the intended aim and objectives, future research on male-dominated industries or technology sectors operating out with Scotland can build upon this study utilising similar processes.

Additionally, the success of the data collection process was largely reliant on the level of participation agreed upon with the case study firms and the extent to which they were willing

to provide access to confidential policies and employees. Whilst the majority of requests were granted, there was a lack of male participants willing to engage in an interview session for Muckduk Inc. As such, the majority of male interview participants were sourced through additional data collection means such as outreach through professional networking. Whilst this method of data collection ultimately added to the triangulation of data and was expanded to elicit additional interviews with males and females across each case study firm, this posed a challenge to the timeliness of the data collection process and required a rigorous comparison of interviews solicited through firm gatekeepers against those solicited through professional networks.

Moreover, access to case study participants were granted under the caveat that firm anonymity would be assured. This level of confidentiality allowed for rich data collection while concurrently limiting the depth of the presentation of findings. Accordingly, it was necessary to omit some details and artefacts which may have led to the identification of participating firms, for example, photographs taken of the offices of each case study firm.

Finally, the wide breadth of data collection needed to address the aims of this study under the theoretical framework presented posed a risk to the timeliness of data collection. The careful management of resources of both the researcher and the participating case study firms was imperative to the success of this study which ultimately provided some limitations to the time spent in the data collection and the number of case studies that could be considered.

7.5 Recommendations for future studies

The findings from this study have introduced a need for further investigation of organisational-level contributions to the homogeny of the technology workforce. Specifically, future research has the opportunity to apply the theoretical framework of the ideal narrative to capture rich data which extends beyond a gender binary to include narratives of multiple disadvantages and the current shift towards a gender spectrum.

Additionally, highly homogenous workforces across a multitude of industries can benefit from further investigation of the efficacy of equality and diversity initiatives. This study has furthered the understanding that similar policies carried out across firms can have highly varying levels of effectiveness when put into practice, yet the majority of equality and diversity evaluations are akin to a box-checking exercise. Further research must be done to capture relevant data regarding the evaluation of diversity policies and the impact of such changes in the evaluation of industry goals.

Finally, as time series data continues to accrue regarding the gender pay gap across industries in the United Kingdom, further research into ways to bridge the gap should be undertaken. This is particularly true as a means of addressing the job divisions presented in this research

and the impact of such divisions on pay. Future projects have the opportunity to investigate the impact of reassessing pay scales for female-dominated roles in organisations and the wider pay gap evidenced in male-dominated industries.

7.6 Concluding remarks

The combined use of gendered institutions and role congruity theories has provided a valuable lens through which organisational-level factors impacting the gender divide in the Scottish tech industry could be explored in relation to the lived experiences of workers. The findings highlighted that equality and diversity initiatives are more successful when they are embedded in wider firm processes, supported by senior leadership and evaluated regularly. Whilst wider social pressures will most likely continue to negatively impact gender parity within the industry, some best practices have been identified to provide companies with the opportunity to attract and retain a diverse workforce. As paradigms shift from the gender binary to the gender spectrum and social roles around caring are decoupled from gendered assumptions of responsibility, firms who engender diversity in their day-to-day working culture have the opportunity to capture an under-utilised source of skilled workers historically marginalised within the industry.

References

AALTIO, I. and HEILMANN, P., 2010. Case study as a methodological approach. In: A.J. MILLS, G. DUREPOS and E. WIEBE, eds. *Encyclopedia of case study research*, Thousand Oaks, CA: SAGE Publications, Inc., pp. 67-77.

ABBATE, J., 2012. *Recoding Gender: Women's Changing Participation in Computing*. Cambridge: Massachusetts Institute of Technology Press.

ACKER, J. and VANHOUTEN, D.R., 1974. Differential recruitment and control: The sex structuring of organizations. *Administrative science quarterly*, 19(2), pp. 152-163.

ACKER, J., 1990. Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations. *Gender and Society*, 4(2), pp. 139-158.

ACKER, J., 1992. From sex roles to gendered institutions. *Contemporary sociology,* 21(5), pp. 565-569.

ACKER, J., 1998. The Future of 'Gender and Organizations': Connections and Boundaries. *Gender, Work & Organization*, 5(4), pp. 195-206.

ACKER, J., 2000. Revisiting class: Thinking from gender, race, and organizations. *Social Politics: International Studies in Gender, State & Society,* 7(2), pp. 192-214.

ACKER, J., 2004. Gender, capitalism and globalization. *Critical sociology*, 30(1), pp. 17-41.

ACKER, J., 2005. Living Wages, Equal Wages: Gender and Labor Market Policies in the United States. *Gender, Work & Organization*, 12(3), pp. 291-294.

ACKER, J., 2006. Inequality Regimes. *Gender & Society,* 20(4), pp. 441-464.

ACKER, J., 2008. Helpful men and feminist support: More than double strangeness. *Gender, Work & Organization*, 15(3), pp 288-293.

ACKER, J., 2012. Gendered organizations and intersectionality: problems and possibilities. *Equality, Diversity and Inclusion: An International Journal,* 31(3), pp. 214-224.

ACS, 2018. *ACS Australia's Digital Pulse*. [online]. Australia: ACS. Available from: https://www.acs.org.au/content/dam/acs/acs-publications/aadp2018.pdf [Accessed: 24 February 2019].

AGAPIOU, A., 2002. Perceptions of gender roles and attitudes toward work among male and female operatives in the Scottish construction industry. *Construction Management and Economics*, 20(8), pp. 697-705.

AHLQVIST, S., LONDON, B. and ROSENTHAL, L., 2013. Unstable Identity Compatibility. *Psychological Science,* 24(9), pp. 1644-1652.

AHUJA, M., 2002. Women in the information technology profession: a literature review, synthesis and research agenda. *European Journal of Information Systems*. 11, pp. 20-34.

AITON, A. 2018. *Earnings in Scotland: 2018*. [online]. Scotland: Scottish Parliment (SPICe). Available from: https://sp-bpr-en-prod-cdnep.azureedge.net/published/2018/11/29/Earnings-in-Scotland--2018/SB%2018-80.pdf [Accessed: 24 February 2019].

ALFREY, L., and TWINE, F.W., 2017. Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry. *Gender & Society*, 31(1), pp. 28–50.

ALLEN, T.D., 2001. Family-supportive work environments: The role of organizational perceptions. *Journal of Vocational Behavior*, 58, pp. 414-435.

ALNIAÇIK, E. and ALNIAÇIK, Ü. Identifying Dimensions of Attractiveness in Employer Branding: Effects of Age, Gender, and Current Employment Status. *Procedia - Social and Behavioral Sciences*, 58, pp. 1336-1343.

ALVESSON, M. and BILLING, Y.D., 1997. *Understanding gender and organisations*. London: Sage.

ANNABI, H. and LEBOVITS, S., 2018. Improving the retention of women in the IT workforce: An investigation of gender diversity interventions in the USA. *Information Systems Journal.* 28(6), pp. 1049–1081.

ANTEBY, M., CHAN, C.K. and DIBENIGNO, J., 2016. Three Lenses on Occupations and Professions in Organizations: Becoming, Doing, and Relating. *Academy of Management Annals*, 10(1), pp. 183-244.

ANTWI, S.K. and HAMZA, K., 2015. Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European Journal of Business and Management*, 7(3), pp. 217-225.

APFELBAUM, E.P., STEPHENS, N.M. and REAGANS, R.E., 2016. Beyond one-size-fits-all: Tailoring diversity approaches to the representation of social groups. *Journal of Personality and Social Psychology*, 111(4), pp. 547-556.

ARCHER, J., 2004. Sex differences in aggression in real-world settings: a meta-analytic review. *Review of General Psychology*, 8(4), pp. 291-322.

ARMENIA, A., GERSTEL, N. and WING, C., 2013.Workplace Compliance with the Law: The Case of the Family and Medical Leave Act. *Work and Occupations*, 41(3), pp. 277-304.

ARNDT, M. and BIGELOW, B., 2005. Professionalizing and Masculinizing a Female Occupation: The Reconceptualization of Hospital Administration in the Early 1900s. *Administrative Science Quarterly,* 50(2), pp. 233-261

ASHCRAFT K.L. and MUHR, S.L., 2018. Coding military command as a promiscuous practice? Unsettling the gender binaries of leadership metaphors. *Human Relations,* 71(2), pp. 206-228.

ASHCRAFT, C., MCLAIN, B. and EGER, E., 2016. *Women in Tech*. [online]. Colorado, US: NCWIT. Available from: https://www.ncwit.org/sites/default/files/resources/womenintech_facts_fullreport_05132016.pdf [Accessed: 24 February 2019].

ASHCRAFT, K. and MUMBY, D.K., 2003. *Reworking gender: A feminist communicology of organization.* USA: Sage Publications.

ASHCRAFT, K.A. and ASHCRAFT, C., 2015. Breaking the Glass Slipper: What Diversity Interventions Can Learn from the Historical Evolution of Occupational Identity in ICT and Commercial Aviation. In: V. SCHAFER and B. THIERRY, eds. *Connecting Women: Women, Gender and ICT in Europe in the Nineteenth and Twentieth Century*. USA: Springer.

ASHCRAFT, K.L., 2007. Appreciating the ‘work’ of discourse: Occupational identity and difference as organizing mechanisms in the case of commercial airline pilots. *Discourse & Communication,* 1(1), pp. 9-36.

ASHCRAFT, K.L., 2013. The Glass Slipper: "Incorporating" Occupational Identity in Management Studies. *Academy of Management Review*, 38(1), pp. 6-31.

ASHFORTH, B.E., SCHINOFF, B.S. and BRICKSON, S.L., 2018. “My company is friendly,” “mine’s a rebel”: Anthropomorphism and shifting organizational identity from “what” to “who”. *Academy of Management Review*, 45, pp. 29-57.

ATIYAH, L.A.R., 2016. The Relationship Between the Diversity of Employees and Organizational Performance. *Cross Cultural Management Journal*, 2, pp. 151-163.

AVERY, D.R. and McKAY, P.F., 2006. Target Practice: An Organizational Impression Management Approach To Attracting Minority And Female Job Applicants. *Personnel Psychology*, 59(1), pp. 157-187.

AVERY, D.R., 2003. Reactions to diversity in recruitment advertising-are differences black and white? *Journal of Applied Psychology*, 88(4), pp. 672–679.

BAILEY, K., 2008. *Methods of Social Research*. 4th ed. USA: Simon and Schuster.

BANDIAS, S. and WARNE, L., 2009. *Women in ICT–retain and sustain: an overview of the ACS-W survey*. [online]. AIS. Available from: http://aisel.aisnet.org/acis2009/103 [Acessed 20 May 2019].

BANDURA, A., 2009. Cultivate self-efficacy for personal and organizational effectiveness. In: E.A., LOCKE, *Handbook of Principles of Organization Behavior*. 2nd ed. Oxford, UK: Blackwell, pp. 179-200.

BANET-WEISER, R.G. and ROTTENBERG, C., 2019. Postfeminism, popular feminism and neoliberal feminism? Sarah Banet-Weiser, Rosalind Gill and Catherine Rottenberg in conversation. *Feminist Theory,* 21(1) pp. 3-24.

BARKER, K., 1993. Changing assumptions and con-tingent solutions: The costs and benefits of women working full and part-time. *Sex Roles*, (28), pp. 47–71.

BEAS, M.L. and SALANOVA, M., 2006. Self-efficacy beliefs, computer training and psychological well-being among information and communication technology workers. *Computers and Human Behaviors*, 22(6), pp. 1043-1058.

BEASLEY, C., 2008. Rethinking Hegemonic Masculinity in a Globalizing World. *Men and Masculinities*, 11, pp. 86-103.

BEDDEWELA, E. et al., 2017. Embedding responsible management education – Staff, student and institutional perspectives. *The International Journal of Management Education,* 15(2B), pp. 263-279.

BEHAM, B., STRAUB, C. and SCHWALBACH, J. 2011. Managing diversity in organizations. *Z Betriebswirtsch,* 82, 1-2.

BELGORODSKIY, A. et al., 2012. The gender pay gap in the ICT labour market: comparative experiences from the UK and New Zealand. *New Technology, Work and Employment*, 27, pp. 106-119.

BELL, E.L.J.E. and NKOMO, S.M., 2001. *Our Separate Ways: Black and White Women and the Struggle for Professional Identity. USA:* Harvard Business School Press.

BENARD, S., and CORRELL, S.J., 2010. Normative discrimination and the motherhood penalty. *Gender & Society*, 24(5), pp. 616– 646.

BENSCHOP, Y. and DOOREWAARD, H., 1998. Covered by equality: the gender subtext of organizations. *Organisation Studies,* 19(5), pp. 787-805.

BENSCHOP Y. and DOOREWAARD, H., 2012. Gender subtext revisited. *Equality*, *Diversity and Inclusion: An International Journal*, 31(3), pp. 225-235.

BERDAHL, J.L. and MOON, S.H., 2013. Workplace mistreatment of middle-class workers based on sex, parenthood, and caregiving*. Journal of Social Issues*, 69(2), pp. 341-366.

BERGER, P.L. and LUCKMANN, T., 1966. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. NY: Doubleday & Company.

BEYER, S., 2018. Low awareness of occupational segregation and the gender pay gap: No changes over a 16-year span. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, 37(1), pp. 373–389.

BEZRUKOVA, K., SPELL, C.S. and PERRY, J.L., 2016. A meta-analytical integration of over 40 years of research on diversity training evaluation. *Psychological Bulletin*,142(11), pp. 1227–1274.

BIELBY, W.T. and BARON, J.N., 1986. Men and women at work: Sex segregation and statistical discrimination. *American Journal of Sociology*, 91(4), pp. 759–799.

BLACKSTONE, A., UGGEN, C. and MCLAUGHLIN, H., 2009. Legal Consciousness and Responses to Sexual Harassment. *Law & Society Review*, 43(3), pp. 631-668.

BLOOMBERG, L.D. and VOLPE, M., 2016. *Completing Your Qualitative Dissertation: A Road Map from Beginning to End.* 3rd ed. USA: Sage Publications, Inc.

BOWEN, G.A., 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal,* 9(2) pp. 27-40.

BOYATZIS, R.E., 1998. *Transforming qualitative information: thematic analysis and code development*. USA: Sage Publications.

BRAND, V., 2009. Empirical Business Ethics Research and Paradigm Analysis. *Journal of Business Ethics,* 86(4), pp. 429–449.

BRANDS, R.A. and FERNANDEZ-MATEO, I., 2016. Leaning out: How negative recruitment experiences shape women's decisions to compete for executive roles. *Administrative Science Quarterly*, 62, pp. 405-442.

BRASS, D.J., 2017. Intraorganizational Power and Dependence. In: J.A.C. BAUM, ed. *The Blackwell Companion to Organizations*. Oxford: Blackwell. pp. 138–157.

BRETT, J.F., ATWATER, L.L. and WALDMAN, D.A., 2005. Effective delivery of workplace discipline: Do women have to be more participatory than men?. *Group and Organization Management*, 30, pp. 487-513.

BRIGGS, C.L., 1986. Studies in the social and cultural foundations of language, No. 1. *Learning how to ask: A sociolinguistic appraisal of the role of the interview in social science research*. UK: Cambridge University Press.

BRITTON, D.M., 2000. The Epistemology of the Gendered Organization. *Gender & Society*, 14(3), pp. 418-434.

BROWN, K., 2018. *To Retain Employees Focus on Inclusion Not Just Diversity*. Harvard Business Review. [Online]. Available from: https://hbr.org/2018/12/to-retain-employees-focus-on-inclusion-not-just-diversity.

BROWN, S. and KELAN, E.K., 2020. *Gender and Corporate Boards: The Route to A Seat at The Table*. NY: Routledge.

BRUMLEY, K. M., 2014. "It Was Like a Revolution": Women's Perceptions of Work–Family Practices at a Mexican Multinational Corporation. *Journal of Family Issues*, 35(6), pp. 776–807.

BRUMLEY, K.M., 2019. "It's More Appropriate for Men": Management and Worker Perceptions of the Gendered Ideal Worker. *Sociological Spectrum*, 38(6), pp. 406-421.

BRUSSEVICH, M., DABLA-NORRIS, E. and KHALID, S., 2019. Is Technology Widening the Gender Gap? Automation and the Future of Female Employment. *IMF Working Paper*, 19(91).

BRYMAN, A. and BELL, E., 2007. *Business Research Methods*, 4th ed. Oxford: Oxford University Press.

BUCHANAN, D.A. and HUCZYNSKI, A.A., 2017. *Organizational Behaviour.* UK: Pearson.

BUDIG, M.J. and ENGLAND, P., 2001. The Wage Penalty for Motherhood. *American Sociological Review*, (66)2, pp. 204-225.

BURKE, R.J. et al., 2006. Barriers to advancing female careers in the high-tech sector: empirical evidence from Ireland. *Women in Management Review*, 21(1), pp. 28-39.

BURKE, R.J. and MAJOR, D.A., 2014. *Gender in Organizations: Are Men Allies or Adversaries to Women's Career Advancement?.* Cheltenham: Edward Elgar Publishing.

BURKE, P.J. and STETS, J.E., 2009. *Identity Theory*. Oxford: Oxford University Press.

BURRELL, G., 1984. Sex and Organizational Analysis. *Organizational Studies*, 5(2), pp. 97-118.

BURY, R., 2010. Women, work and Web 2.0: a case study. *New Technology, Work & Employment*, 25(3), pp. 223-237.

BUTLER, J., 1990. *Gender Trouble*. New York: Routledge.

BUTLER, J., 2004. *Undoing Gender.* New York: Routledge.

Cambridge English Business Dictionary, 2011. UK: Cambridge Press.

CARSON, C.M., MOSLEY, D.C. and BOYAR, S.L., 2004. Goal orientation and supervisory behaviors: impacting SMWT effectiveness. *Team Performance Management*, 10(7/8), pp. 152-162.

CARTER, D.A., SIMKINS, B.J. and SIMPSON, W.G., 2003. Corporate Governance, Board Diversity, and Firm Value. *Financial Review,* 38(1), pp. 33-53.

CARTER, N.M. and SILVA, C., 2011. *Myth of the Ideal Worker*. USA: Catalyst.

CATANZARO, D., MOORE, H. and MARSHALL, T.R., 2010. The Impact of Organizational Culture on Attraction and Recruitment of Job Applicants. *Journal of Business and Psychology*, 25(4), pp. 649-662.

CECH, E., 2014. Engineers and Engineeresses? Self-conceptions and the Development of Gendered Professional Identities. *Sociological Perspectives*, 58 (1), pp. 56-77.

CHA, Y., 2010. Reinforcing Separate Spheres: The Effect of Spousal Overwork on Men's and Women's Employment in Dual-Earner Households. *American Sociological Review*, 75(2), pp. 303-329.

CHAN, C.K. and ANTEBY, M., 2015. Task Segregation as a Mechanism for Within-job Inequality: Women and Men of the Transportation Security Administration. *Administrative Science Quarterly*, 61(2) pp. 184-216.

CHENG, C., 1999. Marginalized Masculinities and Hegemonic Masculinity: An Introduction. *The Journal of Men's Studies,* 7(3), pp. 295-315.

CHIRIPANHURA, B. and WOLF, N., 2019. *Long-term trends in UK employment: 1861 to 2018*. ONS. [online]. Available from: https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2019/longtermtrendsinukemployment1861to2018 [Accessed 28 February 2019].

CHO, S., CRENSHAW, K. and MCCALL, L. 2013. Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis. *Signs*, 38(4), pp. 785-810.

CHOVWEN, C., 2007. Barriers to acceptance, satisfaction and career growth: Implications for career development and retention of women in selected male occupations in Nigeria. *Women in Management Review*, 22(1), pp. 68-78.

CHUNG, H., and VAN DER HORST, M., 2018. Women's employment patterns after childbirth and the perceived access to and use of flexitime and teleworking*. Human Relations,* 71(1), pp. 47-72.

CLEMENT, J., 2019. *U.S. women in computing-related occupations 2007-2019, by ethnicity*. [online]. US: Statista. Available from: https://www.statista.com/statistics/311967/us-women-computer-workers-ethnicity/ [Accessed: 24 February 2019].

COCKBURN, C. and FÜRST-DILIC, R., 1994. *Bringing Technology Home: Gender and Technology in a Changing Europe*. Buckingham: Open University Press.

COCKBURN, C., 1985. *Machinery of Dominance: Women, Men and Technical Know-how*. London: Pluto Press.

COCKBURN, C., 1991. *In the Way of Women: Men's Resistance to Sex Equality in Organizations*. Ithaca, NY: ILR Press.

CODEBASE, 2019. *A Bit About Us.* [online]. UK: Code Base. Available from: https://www.thisiscodebase.com/ [Acessed 3 March 2019].

COE, I.R., WILEY, R. and BEKKER, L.G., 2019. Organisational best practices towards gender equality in science and medicine. *Lancet*, 393, pp. 587-593.

COLLINS, C. and SMITH, K., 2006. Knowledge Exchange and Combination: The Role of Human Resource Practices in the Performance of High-Technology Firms. A*cademy of Management Journal,* 49(3), pp. 544-560.

COLLINS, P.A. and BILGE, S.B., 2020. *Intersectionality.* 2nd ed. USA: Wiley.

COLLINSON, M. and COLLINSON, D., 1996. 'It's Only Dick': The Sexual Harassment of Women Managers in Insurance Sales. *Work, Employment and Society*, 10(1), pp. 29-56.

CONNELL, R.W., 1995. *Masculinities*. Berkeley: University of California Press.

CONNELL, R.W., 2003. *The Role of Men and Boys in Achieving Gender Equality.* 48th Session of Commission on the Status of Women. New York: United Nations.

COOMBS, G. and GOMEZ-MEJIA, L.R., 1991. Cross-Functional Pay Strategies in High-Technology Firms. *Compensation & Benefits Review*, 23(5), pp. 40-48.

COOPER, D.R. and SCHINDLER, P.S., 2003. *Business Research Methods*. 8th ed. Boston: McGraw-Hill.

CORRELL, S. J., 2004. Constraints into Preferences: Gender, Status, and Emerging Career Aspirations, *American Sociological Review*, 69(1), pp. 93–113.

CORRELL, S.J. et al., 2014. The Police Officer's Dilemma: A Decade of Research on Racial Bias in the Decision to Shoot. *Social and Personality Psychology Compass*, 8, pp. 201-213.

CORTINA, L. and WASTI, S., 2005. Profiles in Coping: Responses to Sexual Harassment Across Persons, Organizations, and Cultures. *The Journal of applied psychology,* 90(1), pp. 182-192.

COURPASSON, D., and CLEGG, S., 2006. Dissolving the Iron Cages? Tocqueville, Michels, Bureaucracy and the Perpetuation of Elite Power. *Organization*, 13(3), pp. 319–343.

COZZA, M., 2011. Bridging Gender Gaps, Networking in Computer Science. *Gender, Technology and Development*, 15(2), pp. 319–337.

CRABTREE, B.F. and MILLER, W.L., 1999. *Doing Qualitative Research*. 2nd ed. USA: SAGE Publications.

CRAIG, L., POWELL, A. and CORTIS, N., 2012. Self-employment, work-family time and the gender division of labour. *Work, Employment and Society*, 26(5), pp. 716–734.

CRANE, A., MATTEN, D. and SPENCE, L., 2008. *Corporate Social Responsibility: Readings and Cases in a Global Context.* London: Routledge.

CRENSHAW, K., 1989. Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum*, 1(8) pp. 139-167.

CRESWELL, J., 1998. *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: SAGE Publications, Inc.

CROSS, C. and LINEHAN, M., 2006. Barriers to advancing female careers in the high-tech sector: empirical evidence from Ireland. *Women in Management Review*, 21(1), pp. 28-39.

CROSS, C., LINEHAN, M. and MURPHY, C., 2015. The unintended consequences of role-modelling behaviour in female career progression. *Personnel Review,* 46(1), pp. 86-99.

CRUMP, B.J., LOGAN, K.A. and MCILROY, A., 2007. Does Gender Still Matter? A Study of the Views of Women in the ICT Industry in New Zealand. *Gender, Work & Organization*, 14, pp. 349-370.

DAMASKE, S., 2011. A “major career woman”? How Women Develop Early Expectations about Work. *Gender & Society*, 25(4), pp. 409-430.

DANIELS, J., 2009. Rethinking Cyberfeminism(s): Race, Gender, and Embodiment. *Women's Studies Quarterly*, 37(1/2), pp. 101-124.

DAVIDSON, J., 2016. *Women and equality in Scotland: still room for improvement*. Holyrood. [online]. Available from: https://www.holyrood.com/inside-politics/view,women-and-equality-in-scotland-still-room-for-improvement_7149.htm [Accessed 22 February 2019].

DDI, 2019. *About Us*. [online]. Scotland: DDI. Available from: https://ddi.ac.uk/about-us/ [Accessed: 24 February 2019].

DECHERNATONY, L. and COTTAM, S. 2008. Interactions between organisational cultures and corporate brands. *Journal of Product & Brand Management*, 17(1), pp. 13-24.

DELLINGER, K., 2002. Wearing gender and sexuality “On your sleeve”: Dress norms and the importance of occupational and organizational culture at work. *Gender Issues* 20, pp. 3–25.

DENNISSEN, M., BENSCHOP, Y. and VAN DEN BRINK, M., 2019. Diversity Networks: Networking for Equality?. *British Journal of Management,* 30(4), pp. 966-980.

DENZIN, N., 1970. The Logic of Naturalistic Inquiry. *Social Forces*, 50(2), pp. 166-182.

DEX, S. and SMITH, C., 2001. *Employee Commitment as an Outcome of Family-Friendly Policies? Analysis of the Workplace Employee Relations Survey*. UK: University of Cambridge.

DEY, J.G. and HILL, C., 2007. *Beyond the pay gap*. Washington, DC: American Association of University Women Educational Foundation.

DICKENS, L., 2006. Re-regulation for gender equality: from ‘either/or’ to ‘both’. *Industrial Relations Journal*, 37(4), pp. 299-309.

DIEKMAN, A.B. et al., 2017. A Goal Congruity Model of Role Entry, Engagement, and Exit: Understanding Communal Goal Processes in STEM Gender Gaps. *Personality and Social Psychology Review*, 21(2), pp. 142–175.

DILLINGER, J., 2017. *Top Countries In The Information and Communication Technology Development Index*. [online]. WorldAtlas. Available at: www.worldatlas.com/articles/the-titans-of-technology-the-top-countries-in-information-and-communication-development.html. [Accessed 25 April 2017].

DIPEOLU, A.O., STORLIE, C. and JOHNSON, C., 2015. College Students With High-Functioning Autism Spectrum Disorder: Best Practices for Successful Transition to the World of Work. *Journal of College Counseling*, 18, pp.175-190.

DISCH, L. and M. HAWKESWORTH, M., 2016. *The Oxford Handbook of Feminist Theory*. USA: Oxford University Press.

D'MELLO, M., 2006. Gendered selves and identities of information technology professionals in global software organizations in India. *Information Technology for Development*, 12(2), pp. 131-158.

DOBBIN, F. and KALEV, A., 2016. Why Diversity Programs Fail and What Works Better. *Harvard Business Review,* 94(7/8), pp. 52-60.

DONALDSON, M., 1993. What Is Hegemonic Masculinity?. *Theory and Society*, 22(5), pp. 643-657.

DOWNEY, S.N. et al., 2014. Diversity practices and engagement. *Journal of Applied Social Psychology*, 45(1), pp. 35-44.

DREACHSLIN, J. and LEE, P., 2007. Applying Six Sigma and DMAIC to diversity initiatives. Journal of Healthcare Management, 52(6), pp. 361-367.

DRURY, M., 2016. Still Alone at the Table? Women Working in Technology Organizations. In: M.L. CONNERLEY and J. WU, eds. *Handbook on Well-Being of Working Women*. NY, USA: Springer.

DU PLESSIS, Y. and BARKHIUZEN, N., 2012. Psychological capital, a requisite for organisational performance in South Africa. *South African Journal of Economic and Management Sciences*, 15(1), pp. 1088-1103.

DUGAN, J.P. et al., 2013. Developing the Leadership Capacity and Leader Efficacy of College Women in Science, Technology, Engineering, and Math Fields. *Journal of Leadership Studies*, 7(3), pp. 6-23.

DURBIN, S. and TOMLINSON, J., 2010. Female part-time managers: networks and career mobility. *Work, Employment and Society*, 24(4), pp. 621–640.

DWYER, R.E., 2014. The Care Economy? Gender, Economic Restructuring, and Job Polarization in the U.S. Labor Market. *American Sociological Review*, 78(3), pp. 390–416.

DYE, K. and MILLS, A., 2012. Pleading the fifth: re-focusing Acker's gendered substructure through the lens of organizational logic. *Equality, Diversity and Inclusion: An International Journal*, 31(3), pp. 278-297.

DYE, K., 2006. *Acker through the looking glass : exploring gendered sub-structures as a method for understanding the gendering of organizations*. [online]. PhD Thesis, St. Mary's University. Available from: http://library2.smu.ca/handle/01/9031#.XsVg7ehKjUA [accessed 10 Jan 2018].

EAGLY, A., 1987. Reporting sex differences. *American Psychologist*, 42(7), pp. 756–757.

EAGLY, A., 2007. In defence of ourselves: The effects of defensive processing on attitudinal phenomena. In: M. HEWSTONE et al., eds. *The Scope of Social Psychology: Theory and Applications*. New York: Psychology Press Taylor & Francis Group. pp. 65-86.

EAGLY, A. and CARLI, L.L., 2007. *Through the Labyrinth: The Truth About How Women Become Leaders*. Boston: Harvard Business School Press.

EAGLY, A.H. and JOHANNESEN-SCHMIDT, M.C., 2001. The Leadership Styles of Women and Men. *Journal of Social Issues,* 57(4), pp. 781-797.

EAGLY, A.H. and KARAU, S.J., 2002. Role congruity theory of prejudice toward female leaders. *Psychological review,* 109(3), pp. 573-598.

EAGLY, A.H., MAKHIJANI, M.G., KLONSKY, B.G., 1992. Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, 111, pp. 3-22.

EAGLY, A. and WOOD, W., 1991. Explaining Sex Differences in Social Behavior: A Meta-Analytic Perspective. *Personality and Social Psychology Bulletin*, 17(3), pp. 306–315.

EAGLY, A.H., and WOOD, W., 2012. Social role theory. In: P.A.M. VAN LANGE, A.W. KRUGLANSKI and E.T. HIGGINS, eds. *Handbook of theories of social psychology. USA:* Sage Publications Ltd. pp. 458–476.

EDWARDS, M.R., 2010. An integrative review of employer branding and OB esser. *Personnel Review*, 39(1), pp. 5-23.

EIE, 2020. *EIE Connecting investors and high-growth tech ventures since 2008*. [online]. Edinburgh: EIE. Available from: https://www.eie-invest.com/about-eie/ [Accessed 5 May 2020].

EIKHOF, D.R., 2012. A double-edged sword: twenty-first century workplace trends and gender equality. *Gender in Management: An International Journal,* 27(1), pp. 7-22.

ENSMENGER, N., 2010. *The Computer Boys Take Over: Computers, Programmers, and the Politics of Technical Expertise*. Boston: The MIT Press.

ENSMENGER, N.L., 2015. Beards, sandals, and other signs of rugged individualism: Masculine culture within the computing professions. *Osiris*, 30(1), pp. 38-65.

Equality Act 2010. c.15.

EQUATE SCOTLAND, 2019. *Women in Science, Engineering and Technology*. [online]. Edinburgh: Equate Scotland. Available from: https://equatescotland.org.uk/ [Accessed: 24 February 2019].

ERHARDT, N.L., WERBEL, J.D. and SHRADER, C.B., 2003. Board of Director Diversity and Firm Financial Performance. *Corporate Governance: An International Review*, 11, pp. 102-111.

ERIKSSON, P. and KOVALAINEN, A., 2010. *Qualitative Methods in Business Research: A Practical Guide to Social Research*. London: Sage.

ESSER, A. et al., 2018. A female leadership competency framework from the perspective of male leaders. *Gender in Management,* 33(10), pp. 138-166.

ETZKOWITZ, H. and RANGA, M., 2011. Gender dynamics in science and technology: From the ‘‘leaky pipeline’’ to the ‘‘vanish box’’. *Brussels Economic Review*, 54(2-3) pp.131-147.

EUROSTAT, 2018. *Distribution of persons employed as ICT specialists by sex, education level and age, 2008 and 2018*. [online]. Luxembourg: Eurostat. Available from:

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:V2_Distribution_of_persons_employed_as_ICT_specialists_by_sex,_education_level_and_age,_2008_and_2018_(%25).png [Accessed: 24 February 2019].

EVANS, C. and GLOVER, J., 2012. Diversity Management Change Projects: In Need of Alternative Conceptual Approaches? *Journal of technology management & innovation*, 7(3), pp. 12-21.

EVERS, J.C. and VAN STAA, A.L., 2010. Qualitative analysis in case study. In: A.J. MILLS, G. DUREPOS and E. WIEBE, eds. *Encyclopedia of case study research*. Thousand Oaks, CA: Sage Publications. pp. 750-758.

ÈZBILGIN, M., 2009. *Equality, Diversity and Inclusion at Work: A Research Companion*. UK. Elgar.

FAULKNER, W., 2001. The Technology Question In Feminism: A View From Feminist Technology Studies. *Women's Studies International Forum*, 24(1), pp. 79–95.

FEAGIN, J., ORUM A.M. and SJOBERG, G., 1991. *A Case for the Case Study*. Chapel Hill, NC: University of North Carolina Press.

FELSTEAD, A. and HENSEKE, G., 2017. Assessing the growth of remote working and its consequences for effort, well-being and work-life balance. *New Technology, Work and Employment*. 32(3) pp. 195-212.

FELSTEAD, A. et al., 2017. *Skills and Employment Survey, 2017*. [online]. UK Data Service. Available at: http://doi.org/10.5255/UKDA-SN-8581-1 [Accessed Mar 13 2018].

FERNANDEZ, R. M. and CAMPERO, S., 2017. Gender Sorting and the Glass Ceiling in High Tech Firms*. ILR Review*, 70(1), pp. 73–104.

FERNANDEZ, R. and RUBINEAU, B., 2019. Network Recruitment and the Glass Ceiling: Evidence from Two Firms. *The Russell Sage Foundation Journal of the Social Sciences*, 5, pp. 88-102.

FESTING, M., KORNAU A. and SCHÄFER, L., 2014. Think talent – think male? A comparative case study analysis of gender inclusion in talent management practices in the German media industry. *The International Journal of Human Resource Management*, 26(6), pp. 707-732.

FIELDING, N. G. and FIELDING, J. L., 1986. *Qualitative Research Methods: Linking data*. Thousand Oaks, CA: SAGE Publications, Inc.

FINE-DAVIS, M. et al., 2004. *Fathers and Mothers: Dilemmas of the Work-Life Balance: A Comparative Study*. New York: Springer-Verlag New York Inc.

FIRTH, L. et al., 2004. How can managers reduce employee intentions to quit?. *Journal of Managerial Psychology,* 19(2), pp. 170-187.

FISHER, S. and JENSON, J., 2016. Producing alternative gender orders: a critical look at girls and gaming. *Learning, Media and Technology*, 42(1), pp. 87-99.

FORRET, M.L. and DOUGHERTY, T.W., 2004. Networking behaviors and career outcomes: differences for men and women?. *Journal of Organizational Behavior*, 25(3), pp. 419-437.

FRANSMAN, M., 2008. Innovation in the New ICT Ecosystem. *Communications & Strategies,* 68(4), pp. 89-110.

FRIEDMAN, R.A. and HOLTOM, B., 2002. The effects of network groups on minority employee turnover intentions. *Human Resource Management*, 41(4), pp. 405-421.

FUSCH, P.I. and NESS, L.R., 2015. Are We There Yet? Data Saturation in Qualitative Research. *The Qualitative Report* , 20(9), pp. 1408-1416.

GAITHER, S.E. et al., 2018. Mere Membership in Racially Diverse Groups Reduces Conformity. *Social Psychological and Personality Science*, 9(4), pp. 402–410.

GALBREATH, J., 2018. Is Board Gender Diversity Linked to Financial Performance? The Mediating Mechanism of CSR. *Business & Society*, 57(5), pp. 863–889.

GALDAS, P., 2017. Revisiting Bias in Qualitative Research: Reflections on Its Relationship with Funding and Impact. *International Journal of Qualitative Methods*, 16, pp. 1-2.

GALE, E.A., 2004. The Hawthorne studies-a fable for our times?. *QJM*, 97(7), pp. 439-449.

GAMBA, M. and KLEINER, B.H., 2001. The old boys' network today, *International Journal of Sociology and Social Policy*, 21(8-10), pp. 101-107.

GAMBLE, A., 2001. Neoliberalism. *Capital & Class,* 25(3), pp. 127-134.

GARBER, M., 2013. *Computing Power Used to Be Measured in 'Kilo-Girls': The earliest computers were human. And, more often than not, female*. [online] Washington D.C., The Atlantic. Available from: https://www.theatlantic.com/technology/archive/2013/10/computing-power-used-to-be-measured-in-kilo-girls/280633/ [Accessed 22 May 2019].

GILL, R. and ORGAD, S., 2018. The shifting terrain of sex and power: From the 'sexualization of culture' to #MeToo. *Sexualities*, 21(8), pp. 1313–1324.

GILLIS, S., HOWIE, G. and MUNFORD, R., 2007. *Third Wave Feminism.* 2nd ed. UK: Palgrave Macmillan.

GOOGLE SCHOLAR, 2019. Joan Acker. [online]. Google. Available from: https://scholar.google.com/citations?hl=en&user=3d773w0AAAAJ [Accessed March 12 2017].

GRAHAM, W. et al., 2016. Diversity and divergence: the dynamic burden of poor maternal health. *The Lancet,* 388(10056), pp. 2164-2175.

GREEN, C. and HOMROY, S., 2018. Female directors, board committees and firm performance. *European Economic Review*, 102(C), pp. 19-38.

GRESSGARD et al., 2014. Use of information and communication technology to support employee-driven innovation in organizations: A knowledge management perspective. *Journal of Knowledge Management*, 18(4), pp. 633-650.

GRIFFITHS, M. and MOORE, K., 2010. 'Disappearing Women´: A Study of Women Who Left the UK ICT Sector. *Journal of Technology Management & Innovation*, 5(1), pp. 95-107.

GRIFFITHS, M. et al., 2007. *The disappearing women: North West ICT project final report*. [online]. Manchester: University of Salford. Available from: http://usir.salford.ac.uk/id/eprint/9312/ [Acessed 15 June 2019].

GRINSTEIN, A. and GOLDMAN, A., 2006. Characterizing the technology firm: An exploratory study. *Research Policy*, 35(1), pp. 121-143.

GRUBER, J.E. and BJORN, L., 1982. Blue-Collar Blues: The Sexual Harassment of Women Autoworkers. *Work and Occupations*, 9(3), pp. 271-298.

GU, D.Y., 2016. *Intersectionality and the Culture of Science. In: Chinese Dreams? American Dreams?. Cultural and Historical Perspectives on Science Education*. Rotterdam: Sense Publishers.

GUADAGNO, R.E. and CIALDINI, R.B., 2007. Gender differences in impression management in organizations: A qualitative review. *Sex Roles: A Journal of Research*, 56(7-8), pp. 483–494.

GUBA, E.G., and LINCOLN, Y.S., 1981. *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco, CA.: Jossey-Bass.

GUEST, G., BUNCE, A. and JOHNSON, L., 2006. How Many Interviews Are Enough? An Experiment with Data Saturation and Variability. *Field Methods,* 18(1) pp. 59-82.

GUEST, G., MACQUEEN, K.M. and NAMEY, E.E., 2012. *Applied thematic analysis*. Thousand Oaks, CA: SAGE Publications.

GUMMESSON, E., 2000. *Qualitative Methods in Management Research.* 2nd ed. London: Sage Publications.

GÜRER, D., 1995. Pioneering Women in Computer Science. *Communications of the ACM*, 38(1), pp. 45-54.

HAK, A. and DUL, J., 2009. *Theory-Building With Cases*. Rotterdam, Netherlands: Erasmus Research Institute of Management.

HAKIM, C., 2002. *Work-Lifestyle Choices in the 21st Century: Preference Theory*. UK: Oxford University Press.

HAKIM, C., 2010. *Honey Money: The Power of Erotic Capital*. UK: Penguin Publishing.

HALL, C., 1992. *White, Male and Middle Class: Explorations in Feminism and History Cambridge*. UK: Polity Press.

HALRYNJO, S. and LYNG, S.T., 2009. Preferences, constraints or schemas of devotion? Exploring Norwegian mothers' withdrawals from high-commitment careers. *The British Journal of Sociology*, 60(2), pp. 321-343.

HARDEY, M., 2019. *The Culture of Women in Tech: An Unsuitable Job for a Woman.* Durham, UK*:* Emerald Publishing Limited.

HEARN, J., 2004. From Hegemonic Masculinity to the Hegemony of Men. *Feminist Theory*, 5(1), pp. 49–72.

HEGEWISCH, A., and HARTMANN, H., 2014. *Occupational segregation and the gender wage gap: A job half done.* Washington, DC: Institute for Women's Policy Research.

HEILMAN, M.E., 2012. Gender stereotypes and workplace bias. *Research in Organizational Behavior*, 32, pp. 113-135.

HEILMAN, M.E. and CALEO, S., 2018. Combatting gender discrimination: A lack of fit framework. *Group Processes & Intergroup Relations*, 21(5), pp. 725–744.

HENDERSON, J., 1987. Semiconductors, Scotland and the International Division of Labour. *Urban Studies*, 24(5), pp. 389–408.

HEPPNER, R., 2013. *The Lost Leaders: How Corporate America Loses Women Leaders*. USA: Palgrave Macmillan.

HERRING, C., 2009. Does Diversity Pay?: Race, Gender, and the Business Case for Diversity. *American Sociological Review*, 74(2), pp. 208-224.

HESSE-BIBER, S., 2012. Feminist Approaches to Triangulation: Uncovering Subjugated Knowledge and Fostering Social Change in Mixed Methods Research. *Journal of Mixed Methods Research*, *6*(2), pp. 137-146.

HEWITT, N.A., 2010. *No Permanent Waves: Recasting Histories of U.S. Feminism*. New Jersey: Rutgers University Press.

HEWLETT, S.A., MARSHALL, M. and SHERBIN, L., 2013. How diversity can drive innovation. *Harvard Business Review*, 91(12) pp. 30–31.

HICKS, M., 2009. Grace Hopper and the Invention of the Information Age*. IEEE Annals of the History of Computing,* 31(4), pp. 116-117.

HICKS, M., 2017. *Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing*. Boston, USA: MIT Press.

HICKS, M., 2018. When Winning Is Losing: Why the Nation that Invented the Computer Lost Its Lead. *Computer*, 51(10), pp. 48-57.

HIDEG, I. and FERRIS, D.L., 2016. The compassionate sexist? How benevolent sexism promotes and undermines gender equality in the workplace. *Journal of Personality and Social Psychology*, 111(5), pp. 706–727.

HIGGINS, C., DUXBURY, L. and JOHNSON, K.L., 2000. Part-time work for women: Does it really help balance work and family?. *Human Resource Management*, 39(1), pp. 17-32.

HILBRECHT, M. et al., 2008. 'I'm Home for the Kids': Contradictory Implications for Work–Life Balance of Teleworking Mothers. *Gender, Work & Organization*, 15(5), pp. 454-476.

HILL, C., CORBETT, C. and ROSE, A., 2010. *Why So Few? Women in Science, Technology, Engineering, and Mathematics*. Washington, D.C.: American Association of University Women*.*

HINZE, S.W., 1999. Gender and the Body of Medicine or at Least Some Body Parts: (Re)Constructing the Prestige Hierarchy of Medical Specialties. *The Sociological Quarterly*, 40(2), pp. 217-239.

HODGES, M.J. and BUDIG, M.J., 2010. Who Gets the Daddy Bonus?: Organizational Hegemonic Masculinity and the Impact of Fatherhood on Earnings. *Gender & Society*, 24(6), pp. 717-745.

HOMES, J., 2008*. Gendered Talk at Work: Constructing Gender Identity Through Workplace Discourse*. Malden, MA: Blackwell Publishing.

HOLMES, J. and MARRA, M., 2004. Leadership and Managing Conflict in Meetings. *Pragmatics*, 14(4), pp. 439-462.

HOLTON, R. J. and TURNER, B.S., 1989. *Max Weber on Economy and Society*. New York: Routledge.

HOOBLER, J.M. et al., 2018. The Business Case for Women Leaders: Meta-Analysis, Research Critique, and Path Forward. *Journal of Management*, 44(6), pp. 2473–2499.

HOROWITZ, R., 2013. *Boys and their toys: Masculinity, class and technology in America*. USA: Routledge.

HOUSE OF LORDS EUROPEAN UNION COMMITTEE, 2017. *Technology (ICT) Sector Report*. UK: House of Lords.

HOYLE, E., 2001. Teaching: prestige, status and esteem, *Educational Management & Administration*, 29(2), pp. 139-152.

HØYRUP, S. et al., 2012. *Employee-Driven Innovation: A New Approach*. New York, NY: Palgrave Macmillan.

IACUONE, D., 2005. '"Real Men Are Tough Guys": Hegemonic Masculinity and Safety in the Construction Industry. *Journal Of Men's Studies*, 13(2), pp. 247-266.

IBARRA, H., 1993. Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, 18, pp. 56-87.

IBARRA, H. and PETRIGLIERI, J., 2007. *Impossible Selves: Image Strategies and Identity Threat In Professional Women's Career Transitions.* Fontainebleau, France: INSEAD.

IGBARIA, M. and BAROUDI, J., 1995. The Impact of Job Performance Evaluation on Career Advancement Prospects: An Examination of Gender Differences in the IS Workplace. *MIS Quarterly*, 19(1) pp. 107-123.

INTERNATIONAL TELECOMMUNICATIONS UNION, 2017. ITU. [Online]. Available from: https://www.itu.int/net4/ITU-D/idi/2017/index.html.

IONASCU, M. et al., 2018. Women on Boards and Financial Performance: Evidence from a European Emerging Market. *Sustainability*. 10(5), pp. 1644-1662.

IRAK, D.U., KALKIŞIM, K. and YILDIRIM, M., 2020. Emotional Support Makes the Difference: Work-Family Conflict and Employment Related Guilt Among Employed Mothers. *Sex Roles*, 82(1-2), pp. 53-65.

ISMAIL, N., 2018. The biggest tech hubs in the UK – and which is right for your business?. [Online]. Available from: https://www.information-age.com/biggest-tech-hubs-uk-right-business-123472568/.

IVANCEVICH, J. M. and GILBERT, J. A., 2000. Diversity Management: Time for a New Approach. *Public Personnel Management*, 29(1), pp. 75–92.

JAMES, J., RAYNER, A. and BRUNO, J., 2015. Are You My Mentor? New Perspectives and Research on Informal Mentorship. *Journal of Academic Librarianship*. 41(5), pp. 532-539.

JANDESKA, K.E., and KRAIMER, M.L., 2005. Women's perceptions of organizational culture, work attitudes, and role-modeling behaviors. *Journal of Managerial Issues*, 17(4), pp. 461–478.

JAVAID, A., 2018. Feminism, masculinity, and male rape: Bringing male rape 'out of the closet'. *Journal of Gender Studies.* 25(3), pp. 283–293.

JNAH, A.J., ROBINSON, C.B. and DOWLING, D., 2015. Mentoring and Self-Efficacy. *Advances in Neonatal Care*, 15(5), pp. E3-E11.

JONES, S.R.G., 1990. Worker Interdependence and Output: The Hawthorne Studies Reevaluated. *American Sociological Review*, 55(2), pp. 176-190.

JONES, S., MARTINEZ DY, A. and VERSHININA, N., 2019. 'We were fighting for our place': Resisting gender knowledge regimes through feminist knowledge network formation. *Gender Work and Organization*, 26(6), pp. 789–804.

JULIAN, S. and OFORI-DANKWA, J., 2017. Context matters: Diversity's short and long term effects in fortune's 'best companies to work for'. *Strategic Management Journal*. 38(7), pp. 1557-1565.

KAHN, L.S., 1984., Group Process and Sex Differences. *Psychology of Women Quarterly*, 8(3), pp. 261-281.

KALEV, A., DOBBIN, F. and KELLY, E., 2006. Best Practices or Best Guesses? Assessing the Efficacy of Corporate Affirmative Action and Diversity Policies. *American Sociological Review*, 71(4), pp. 589-617.

KANTER, R.M., 1977. Some Effects of Proportions on Group Life: Skewed Sex Ratios and Responses to Token Women. *American Journal of Sociology*, 82(5), pp. 965-990.

KANTOLA, J., 2008. 'Why Do All the Women Disappear?' Gendering Processes in a Political Science Department. *Gender, Work & Organization*, 15(2), pp. 202-225.

KAPASI, I., SANG, K.J.C. and SITKO, R., 2016. Gender, authentic leadership and identity: analysis of women leaders' autobiographies. *Gender in Management: International Journal,* 31(5), pp. 339-358.

KARPOWITZ, C.F., MENDELBERG, T. and MATTIOLI, L., 2015. Why women's numbers elevate women's influence, and when they do not: rules, norms, and authority in political discussion. *Politics, Groups, and Identities*, 3(1), pp. 149-177.

KELAN, E., 2007. Emotions in a Rational Profession: The Gendering of Skills in ICT Work. *Gender, Work & Organization*, 15(1), pp. 49-71.

KELAN, E., 2018. Men Doing and Undoing Gender at Work: A Review and Research Agenda. *International Journal of Management Reviews*, 20(2), pp.544-558.

KELAN, E., 2009.The politics of gender and technology. In: J. K. Olsen, S. A. Pedersen and V. F. Hendricks, eds. *Companion to the Philosophy of Technology*. Oxford, UK: Wiley-Blackwell.

KELAN, E., 2010. Gender logic and (un) doing gender at work. *Gender, Work & Organization,* 17(2), pp. 174-194.

KELLY, E.L. and DOBBIN, F., 1999. Civil Rights Law at Work: Sex Discrimination and the Rise of Maternity Leave Policies. *American Journal of Sociology*, 105(2), pp. 455-492.

KELLY, E.L. et al., 2010. Gendered Challenge, Gendered Response: Confronting the Ideal Worker Norm in a White-Collar Organization. *Gender & Society,* 24(3), pp. 281-303.

KENNY, E.J. and DONNELLY, R., 2019. Navigating the gender structure in information technology: How does this affect the experiences and behaviours of women? *Human Relations*, 73(3), pp. 326–350.

KETOKIVI, M. and MANTERE, S., 2010. Two Strategies for Inductive Reasoning in Organizational Research. *AMR*, 35(2), pp. 315–333.

KIM, S., 2002. Participative Management and Job Satisfaction: Lessons for Management Leadership. *Public Administration Review,* 62(2), pp. 231 - 241.

KIM, Y., 2011. The Pilot Study in Qualitative Inquiry: Identifying Issues and Learning Lessons for Culturally Competent Research. *Qualitative Social Work*, 10(2), 190–206.

KJAER, P.F., 2018. From the Private to the Public to the Private? Historicizing the Evolution of Public and Private Authority. *Indiana Journal of Global Legal Studies*, 25(1), pp. 13-36.

KOENIG, A.M. and EAGLY, A.H, 2014. Evidence for the social role theory of stereotype content: Observations of groups' roles shape stereotypes. *Journal of Personality and Social Psychology*, 107(3), pp. 371-392.

KONRAD, A.M. and LINNEHAN, F., 1995. Formalized HRM structures: coordinating equal employment opportunity or concealing organizational practices?. *Academy of Management Journal*, 38(3), pp. 787-820.

KONRAD, A., 2003. Special Issue Introduction: Defining The Domain Of Workplace Diversity Scholarship. *Group & Organization Management*. 28(1), pp. 4-17.

KONRAD, V.W. and ERKUT, A.M., 2006. *Critical Mass on Corporate Boards: Why Three or More Women Enhance Governance*. [online]. Wellesley, MA: Wellesley Centers for Women. Available from: https://www.wcwonline.org/Publications-by-title/critical-mass-on-corporate-boards-why-three-or-more-women-enhance-governance-executive-summary [Accessed: 24 February 2019].

KONRAD, A., PRASAD, P. and PRINGLE, J., 2006. *Handbook of workplace diversity*. London: SAGE Publications Ltd.

KORNBERGER, M., CARTER C. and ROSS-SMITH, A., 2010. Changing gender domination in a Big Four accounting firm: Flexibility, performance and client service in practice. *Accounting, Organizations and Society*, 35(8), pp. 775-791.

KOSSEK, E.E., LOBEL, S.A. and BROWN, A.J., 2005. Human Resource Strategies to Manage Workforce Diversity. In: A.M. KONRAD, P. PRASAD and J.M. PRINGLE. *Handbook of Workplace Diversity.* Thousand Oaks, CA: Sage Publications. pp. 54–74.

KOWAL, E., FRANKLIN, H. and PARADIES, Y., 2013. Reflexive antiracism: A novel approach to diversity training. *Ethnicities*, 13(3), pp. 316–337.

KRAVITZ, D.A. and PLATANIA, J., 1993. Attitudes and beliefs about affirmative action: Effects of target and of respondent sex and ethnicity. *Journal of Applied Psychology*, 78(6), pp. 928–938.

KRAVITZ, D.A., 2008. The Diversity–Validity Dilemma: Beyond Selection-The Role Of Affirmative Action. *Personnel Psychology*, 61 pp. 173-193.

KREFTING, L., 1991. Rigor in qualitative research: the assessment of trustworthiness. *The American Journal of Occupational Therapy*, 45(3), pp. 214-222.

KRICHELI-KATZ, T., 2013. Choice-Based Discrimination. *Journal of Empirical Legal Studies*, 10(4), pp. 670-695.

KULIK, C.T. and OLEKALNS, M., 2012. Negotiating the gender divide: Lessons from the negotiation and organizational behavior literatures. *Journal of Management*, 38(4), pp. 1387–1415.

KULIK, C.T., PERRY, E.L. and BOURHIS, A.C., 2000. Ironic evaluation processes: effects of thought suppression on evaluations of older job applicants. *Journal of Organizational Behavior*, 21(6), pp. 689-711.

KUZEL, A.J., 1999. Sampling in Qualitative Inquiry. In: B.F. CRABTREE and W.L MILLER, W.L., eds., *Doing Qualitative Research*, 2nd ed. Thousand Oaks, CA: Sage Publications. pp. 33-45.

LACHOVER, E., 2005. The gendered and sexualized relationship between Israeli women journalists and their male news sources. *Journalism*, 6(3), pp. 291–311.

LACKEY, N.R. and WINGATE, A.L., 1998. The pilot study: One key to research success. Advanced design in nursing research. In: P.J. BRINK and M.J. WOOD. *Advanced design in nursing research*. Thousand Oaks, CA: SAGE Publications, Inc. pp. 375-386.

LAFUENTE, E. and VAILLANT, Y., 2019. Balance rather than critical mass or tokenism: gender diversity, leadership and performance in financial firms. *International journal of manpower*, 40(5), pp. 894-916.

LAGERBERG, F., 2015. *Women in business: The value of diversity*. [online]. Grant Thorton. Available from: https://www.grantthornton.global/globalassets/wib_value_of_diversity.pdf [Accessed 16 September 2017].

LENARD, M.J. et al., 2014. Impact of board gender diversity on firm risk. *Managerial Finance,* 40(8), pp. 787-803.

LENDL, C., 2012. *Bletchley Park: British Cryptanalysis during World War II*. [online]. Available at: https://www.bletchleypark.at/ [Accessed 23 January 2018].

LEVINE, F.J. and BELL, N.E., 2015. Social Science Professions and Professionalization. In: J.D. WRIGHT, ed. *International Encyclopedia of the Social & Behavioral Sciences*. 2nd ed. Berkeley, CA: Elsevier. pp. 679-687.

LEWIS, P., BENSCHOP, Y. and SIMPSON, R., 2017. Postfeminism, Gender and Organization. *Gender, Work and Organization*, 24(3), pp. 213-225.

LEWIS, S. and HUMBERT, A.L., 2010. Discourse or reality?: “Work-life balance”, flexible working policies and the gendered organization. *Equality, Diversity and Inclusion: An International Journal,* 29(3), pp. 239-254.

LEWIS, S., LANG, C. and MCKAY, J., 2007. An Inconvenient Truth: the invisibility of Women in ICT. *Australasian Journal of Information Systems*, 15(1), pp. 59-77.

LIANG, C.T. and ALIMO, C., 2005. The impact of white heterosexual students’ interactions on attitudes toward lesbian, gay and bisexual people: A longitudinal study. *Journal of College Student Development*, 46(3), pp. 237–250.

LIFF, S. and WARD, K., 2001. Distorted Views Through the Glass Ceiling: The Construction of Women's Understandings of Promotion and Senior Management Positions. *Gender, Work & Organization*, 8(1), pp. 19-36.

LIM, K.M., 2016. *Major matters: Exploration of the gender wage gap among STEM graduates*. Los Angeles, CA: University of California Los Angeles.

LINNEHAN, F. and KONRAD, A.M., 1999. Diluting Diversity: Implications for Intergroup Inequality in Organizations. *Journal of Management Inquiry*, *8*(4), pp. 399–414.

LIPS, H.M., 2013. The gender pay gap: Challenging the rationalizations. Perceived equity, discrimination, and the limits of human capital models. *Sex Roles: A Journal of Research, 68*(3-4), pp. 169–185.

LONGHURST, R., 2003. Semi-structured interviews and focus groups In: N. CLIFFORD, eds. *Key Methods in Geography*. 3rd ed. London: SAGE Publications, Inc. pp. 143-156.

LUU, T.T. ROWLEY, C. and VO, T.T., 2019. Addressing employee diversity to foster their work engagement. *Journal of Business Research*, 95, pp. 303-315.

LYNESS, K.S. and HEILMAN, M.E., 2006. When fit is fundamental: Performance evaluations and promotions of upper-level female and male managers. *Journal of applied psychology,* 91(4), pp. 777-785.

LYNGSIE, J. and FOSS, N.J., 2017. The more, the merrier? Women in top-management teams and entrepreneurship in established firms. *Strategic Management Journal*, 38(3), pp. 487-505.

MADERA, J.M., 2018. What’s in It for Me? Perspective Taking as an Intervention for Improving Attitudes Toward Diversity Management. *Cornell Hospitality Quarterly*, *59*(2), pp. 100–111.

MAINIERO, L.A. and GIBSON, D.E., 2017. The Kaleidoscope Career Model Revisited: How Midcareer Men and Women Diverge on Authenticity, Balance, and Challenge. *Journal of Career Development*, 45(4), pp. 361–377.

MAINIERO, L.A. and SULLIVAN, S.E., 2005. Kaleidoscope Careers: An Alternate Explanation for the ‘Opt-out’ Revolution. *The Academy of Management Executive (1993-2005)*, 19(1), pp. 106–123.

MARECHAL, G., 2010. Autoethnography. In: A.J. MILLS, G. DUREPOS and E. WIEBE, eds. *Encyclopedia of Case Study Research*. US: Sage Publications.

MARTIN, P. and BARNARD, A., 2013. The experience of women in male-dominated occupations: A constructivist grounded theory inquiry. *SA Journal of Industrial Psychology*, 39(2).

MARTIN, P.Y., 2001.`Mobilizing Masculinities': Women's Experiences of Men at Work. *Organization*, 8(4), pp. 587–618.

MARTINEZ DY, A., MARTIN, L. and MARLOW, S., 2018. Emancipation through digital entrepreneurship? A critical realist analysis. *Organization*, 25(5), pp. 585–608.

MASON, M., 2010. Sample Size and Saturation in PhD Studies Using Qualitative Interviews. *Qualitative Social Research*, 11(3).

MAVIN, S. and GRANDY, G., 2013. Doing Gender Well and Differently in Dirty Work: The Case of Exotic Dancing. *Gender, Work & Organization*, 20, pp. 232-251.

MAXWELL, G.A. 2005. Checks and balances: the role of managers in work–life balance policies and practices. *Journal of Retailing and Consumer Services*, 12(3), pp. 179-189.

MAYKOT, J.K., RUPP, R.F. and GHISI, E., 2018. A field study about gender and thermal comfort temperatures in office buildings. *Energy and Buildings*, 178(1), pp. 254-264.

MCCALL, L., 2001. *Complex inequality: Gender, class, and race in the new economy*. New York: Routledge.

MCCARTHY, A., DARCY, C. and GRADY, G., 2010. Work-life balance policy and practice: Understanding line manager attitudes and behaviors. *Human Resource Management Review*, 20(2), pp. 158-167.

MCCLINTOCK-COMEAUX, M., 2013. Ideal worker. In: V. SMITH, ed., *Sociology of work: an encyclopedia*. Thousand Oaks, CA: SAGE Publications. pp. 403-406.

MCDONALD, S., 2011. What's in the "old boys" network? Accessing social capital in gendered and racialized networks. *Social Networks*, 33(4), pp. 317-330.

MCDONNELL, M. and MORLEY, C., 2015. Men and women in IT entrepreneurship: Consolidating and deconstructing gender stereotypes. *International Journal of Entrepreneurship and Small Business,* 24(1), pp. 41-61.

MCINTOSH, B. et al., 2012. Motherhood and its impact on career progression. *Gender in Management,* 27(5) pp. 346-364.

MCKINSEY, 2017. *Delivering through diversity* [Online]. Available from: https://www.mckinsey.com/business-functions/organization/our-insights/delivering-through-diversity#.

MCKAY, P.F. et al., 2007. Racial Differences in Employee Retention: Are Diversity Climate Perceptions the Key?. *Personnel Psychology*, 60(1), pp. 35-62.

MCLAUGHLIN, H., UGGEN, C. and BLACKSTONE, A., 2017. The Economic and Career Effects of Sexual Harassment on Working Women. *Gender & Society,* 31(3), pp. 333-358.

MEADUS, R.J. and TWOMEY, J.C., 2007. Men in nursing: making the right choice. *Can Nurse,* 103(2), pp. 13-16.

MEDCOF, J., 1999. Identifying 'Super-Technology' Industries. *Research-Technology Management*, 42(4), pp. 1527-1543.

MEISSNER, P., SCHUBERT, M. and WULF, T., 2018. Determinants of group-level overconfidence in teams: A quasi-experimental investigation of diversity and tenure. *Long Range Planning*, 51(6), pp. 927-936.

MELODY, W. et al., 1987. *Information and Communication Technologies: Social Sciences Research and Training*. Swindon, UK: ESRC Programme on Information and Communication Technologies.

MENNINO, S.F., RUBIN, B.A. and BRAYFIELD, A., 2005. Home-to-Job and Job-To-Home Spillover: The Impact of Company Policies and Workplace Culture. *The Sociological Quarterly,* 46(1), pp. 107-135.

MERO-JAFFE, I., 2011. ‘‘Is that what I Said?" Interview Transcript Approval by Participants: An Aspect of Ethics in Qualitative Research. *International Journal of Qualitative Methods*, 10(3), pp. 231–247.

MESSERSCHMIDT, J.W. et al., 2018. *Gender reckonings: New social theory and research*. NY: NYU Press.

MEYER, C.B., 2001. A Case in Case Study Methodology. *Field Methods*, 13(4), pp. 329–352.

MICHIE, S. and NELSON, D.L., 2006. Barriers women face in information technology careers Self-efficacy, passion and gender biases. *Women in Management Review*, 21(1), pp. 10-27.

MICKEY, E.L., 2019. When Gendered Logics Collide: Going Public and Restructuring in a High-Tech Organization. *Gender & Society*, 33(4), pp. 509–533.

MILLS, A.J. and TANCRED, P., 1992. *Gendering Organizational Analysis*. CA: Sage Publications.

MIRICK, R.G. and WLADKOWSKI, S.P., 2018. Pregnancy, Motherhood, and Academic Career Goals: Doctoral Students’ Perspectives. *Affilia*, 33(2), pp. 253–269.

MOKHTARIAN, P.L., BAGLEY, M.N. and SALOMON, I., 1998. The impact of gender, occupation, and presence of children on telecommuting motivations and constraints. *Journal of the American Society for Information Science*, 49(12), pp. 1115-1134.

MONKS, K., 2007. *The Business Impact of Equality and Diversity*. Dublin: The Equality Authority.

MORGAN, G. and KNIGHTS, D., 1991. Gendering Jobs: Corporate Strategy, Managerial Control and the Dynamics of Job Segregation. *Work, Employment & Society,* 5(2), pp. 181-200.

MORGAN, L. A. and MARTIN, K.A., 2006. Taking Women Professions Out of the Office: The Case of Women in Sales. *Gender & Society,* 20(1), pp 108–128.

MORNINGSTAR, 2019. *Market Capitalization*. [online]. Chicago, Illinois: Morningstar. Available from: https://www.morningstar.co.uk/uk/glossary/98190/market-capitalization.aspx [Accessed: 24 February 2019].

MORRISON, K., 1995. Marx, Durkheim, Weber: *Formations of Modern Social Thought*. US: Sage Publications.

MORSE, J., 1994. Designing funded qualitative research. In: DENZIN, N. and LINCOLN, Y., eds. *Handbook for qualitative research*, Thousand Oaks, CA: Sage. pp. 220–35.

MUMBY, D.K. and KUHN, T.R., 2018. *Organizational Communication: A Critical Introduction*. USA: Sage Publications.

MUNSCH, C.L., 2016. Flexible Work, Flexible Penalties: The Effect of Gender, Childcare, and Type of Request on the Flexibility Bias. *Social Forces*, 94(4), pp. 1567–1591.

MYGOVSCOT, 2019. *Maternity, paternity and parental leave*. [online]. Scotland: Scottish Government. Available from: https://www.mygov.scot/maternity-paternity-parental-leave/ [Accessed: 24 February 2019].

NATOW, R.S., 2020. The use of triangulation in qualitative studies employing elite interviews. *Qualitative Research*, 20(2), pp. 160-173.

NEW ZEALAND GOVERNMENT, 2018. *Women in the Workforce 2017*. [online]. New Zealand: NZ Government. Available from: https://www.stats.govt.nz/infographics/women-in-the-workforce-2017 [Accessed: 24 February 2019].

NIELSEN, S. and HUSE, M., 2010. The Contribution of Women on Boards of Directors: Going beyond the Surface. *Corporate Governance: An International Review*, 18(2), pp. 136-148.

NKOMO, S.M. and RODRIGUEZ, J.K., 2019. Joan Acker's influence on Management and Organization Studies: Review, analysis and directions for the future. *Gender Work & Organization*, 26(12), pp. 1730–1748.

NOON, M., 2018. Pointless diversity training: Unconscious bias, new racism and agency. *Work. Employment and Society*, 32(1), pp. 198-209.

NORLYK, A. and HARDER, I., 2010. What makes a phenomenological study phenomenological? An analysis of peer-reviewed empirical nursing studies. *Qualitative Health Research*, 20(3), pp. 420–431.

O'CONNELL, P. and RUSSELL, H. 2004. *Equality at Work? Workplace Equality Policies, Flexible Working Arrangements and the Quality of Work*. Dublin: Equality Authority.

O'DONNELL, A. and SWEETMAN, C., 2018. Introduction: Gender, development and ICTs. *Gender & Development*, 26(2), pp. 217-229.

O'NEIL, D.A., HOPKINS, M.M. and SULLIVAN, S.E., 2011. Do women's networks help advance women's careers? Differences in perceptions of female workers and top leadership. *Career Development International*. 16(7), pp. 733-754.

OECD, 2017. *Skills Outlook*. [online] Paris, France: OECD. Available from: https://www.oecdskillsforjobsdatabase.org/#FR/_ [Accessed 12 June 2018].

ONE SCOTLAND, 2019. *Women and Girls in STEM*. [online]. One Scotland. Available from: https://onescotland.org/wp-content/uploads/2018/10/What-we-already-know-STEM.pdf [Acessed 5 May 2019].

ORIVE, R., 1988. Social projection and social comparison of opinions. *Journal of Personality and Social Psychology*, 54(6), pp. 953–964.

ORSER, B., RIDING, A. and STANLEY, J., 2012. Perceived career challenges and response strategies of women in the advanced technology sector. *Entrepreneurship & Regional Development Taylor & Francis Journals*, 24(1-2), pp. 73-93.

PAGE, S.E., 2017. *The Diversity Bonus: How Great Teams Pay Off in the Knowledge Economy*. CT, US: Princeton University Press.

PALUCK, E.L. and GREEN, D.P., 2009. Prejudice reduction: what works? A review and assessment of research and practice. *Annual Review of Psychology*, 60, pp. 339-367.

PARSONS, D.B. and MILLS, A.J., 2012. I've got a Gal in Kalamazoo: Rotary International, change and the outsourcing of gender. *Scandinavian Journal of Management*, 28(4), pp. 311-320.

PATEL, R. and PARMENTIER, M., 2005. The Persistence of Traditional Gender Roles in the Information Technology Sector: A Study of Female Engineers in India. *Information Technologies and International Development*, 2(3), pp. 29-46.

PATTERSON, S.E., DAMASKE, S. and SHEROFF, C., 2017. Gender and the MBA: Differences in Career Trajectories, Institutional Support, and Outcomes. *Gender & Society,* 31(3), pp. 310-332.

PECIS, L., 2016. Doing and undoing gender in innovation: Femininities and masculinities in innovation processes. *Human Relations*, 69(11), pp. 2117–2140.

PEDERSEN, S. and SMITHSON, J., 2013. Mothers with attitude – how the Mumsnet parenting forum offers space for new forms of femininity to emerge online. *Women's Studies International Forum*, 38, pp. 97-106.

PEDERSEN, S., 2015. 'It Took a Lot to Admit I Am Male on Here'. Going Where Few Men Dare to Tread: Men on Mumsnet. In: E. THORSEN et al., eds. *Media, Margins and Popular Culture*. Houndmills: Palgrave Macmillan. pp. 249–261.

PEREZ, C., 2019. *Invisible Women: Exposing Data Bias in a World Designed for Men.* London: Chatto & Windus.

PÉROTIN, V., ROBINSON, A. and LOUNDES, J., 2003. Equal opportunities practices and enterprise performance: a comparative investigation on Australian and British data. *International Labour Review*, 142(4), pp. 471– 505.

PLANT, S., 1997. *Zeroes and Ones: Digital Women and the New Techno culture*. London: Fourth Estate.

PRESCOTT, J. and BOGG, J., 2011. Segregation in a Male-Dominated Industry: Women Working in the Computer Games Industry. *International Journal of Gender, Science and Technology*, 3(1), pp. 206-227.

PULLEN, A. et al., 2019. Remembering Joan Acker through friendship, sociological thought and activism. *Gender Work & Organization*. 26, pp. 1669-1675.

PUNCHEVA-MICHELOTTI, P., HUDSON, S. and JIN, G., 2018. Employer branding and CSR communication in online recruitment advertising. *Business Horizons*, 61(4), pp. 643-651.

PWC, 2017. *Women in Tech: Time to close the gender gap*. [online]. UK: PwC. Available from: https://www.pwc.co.uk/who-we-are/women-in-technology/time-to-close-the-gender-gap.html [Accessed 5 May 2019].

REID, E., 2015. Embracing, Passing, Revealing, and the Ideal Worker Image: How People Navigate Expected and Experienced Professional Identities. *Organization Science*, 26(4), pp. 997-1017.

REIGE, A., 2003. Validity and reliability tests in case study research: a literature review with "hands-on" applications for each research phase. Q*ualitative Market Research,* 6(2), pp. 75-86.

RHODE, D.L., 2017. *Women and Leadership*. Oxford, UK: Oxford University Press.

RIDGEWAY, C.L., 2011. *Framed by Gender: How Gender Inequality Persists in the Modern World*. UK: Oxford University Press.

RIVERS, N., 2017. *Postfeminism(s) and the Arrival of the Fourth Wave: Turning Tides*. London: Palgrave Macmillan.

ROBERSON, Q.M., 2013. *The Oxford Handbook of Diversity and Work*. UK: Oxford University Press.

ROBERTSON, S. and NE'EMAN, D., 2008. Autistic acceptance, the college campus, and technology: Growth of neurodiversity in society and academia. *Disability Studies Quarterly*, 28(4).

RODRIGUEZ, J.K. and RIDGWAY, M., 2019. Contextualizing privilege and disadvantage: Lessons from women expatriates in the Middle East. *Organization*, 26(3), pp. 391–409.

RODRIGUEZ, S.L. and LEHMAN, K., 2017. Developing the next generation of diverse computer scientists: the need for enhanced, intersectional computing identity theory. *Computer Science Education*, 27(3-4), pp. 229-247.

ROETHLISBERGER, F.J. and DICKSON, W.J., 1961. *Management and the Worker*. Boston: Harvard University Press.

ROSENTHAL, L. et al., 2011. The Roles of Perceived Identity Compatibility and Social Support for Women in a Single-Sex STEM Program at a Co-educational University. *Sex Roles,* 65, pp. 725–736.

ROTHERHAM, A.J. and WILLINGHAM, D.T., 2010. "21st-century" skills. Not new, but a worthy challenge. *American Educator*, 34(1), pp. 17–20.

ROTTENBERG, C., 2014. The Rise of Neoliberal Feminism. *Cultural Studies*, 28(3), pp. 418-437.

RUDMAN, L., 1998. Self-Promotion as a Risk Factor for Women: The Costs and Benefits of Counterstereotypical Impression Management. *Journal of personality and social psychology,* 74(3), pp. 629-645.

RUTHERFORD, M., 2001. Institutional Economics: Then and Now. *Journal of Economic Perspectives*, 15(3), pp. 173-194.

RYAN, M.K. and HASLAM, S.A., 2005. The Glass Cliff: Evidence that Women are Over-Represented in Precarious Leadership Positions. *British Journal of Management*, 16(2), pp. 81-90.

RYAN, A.M. and KOSSEK, E.E., 2008. Work-life policy implementation: Breaking down or creating barriers to inclusiveness? *Human resource management*, 47(2), pp. 295-310.

RYNES, S. and ROSEN, B., 1995. A Field Survey of Factors Affecting the Adoption and Perceived Success of Diversity Training. *Personnel Psychology*, 48(2), pp 247-270.

SALAS, E.M, GOODWIN, G.F. and BURKE, C.S., 2009. *Team Effectiveness in Complex Organizations. Cross-Disciplinary Perspectives and Approaches*. New York, NY: Taylor & Francis.

SALIN, D., 2009. Organisational responses to workplace harassment: An exploratory study. *Personnel Review*, 38(1), pp. 26-44.

SALLEE, M.W., 2012. The ideal worker or the ideal father: Organizational structures and culture in the gendered university. *Research in Higher Education*, 53(7), pp. 782–802.

SANAN, N.K., 2016. Board Gender Diversity, Financial and Social Performance of Indian Firms. *Vision*, 20(4), pp. 361–367.

SÁNCHEZ DE MADARIAGA, I. and ROBERTS, M., 2013. *Fair Shared Cities: The Impact of Gender Planning in Europe*. Farnham, UK: Ashgate Publishing.

SANCHEZ-HUCLES, J.V. and DAVIS, D.D., 2010. Women and Women of Color in Leadership: Complexity, Identity, and Intersectionality. *American Psychologist,* 65(3), pp. 171-172-181.

SANG, S., O'KELLY, M. and KWAN, M., 2011. Examining Commuting Patterns: Results from a Journey-to-work Model Disaggregated by Gender and Occupation. *Urban Studies,* 48(5), pp. 891-909.

SAPPLETON, N. and TAKRURI, H., 2008. The Gender Subtext of Science, Engineering, and Technology (SET) Organizations: A Review and Critique. *Women's Studies*, 37, pp. 284-316.

SAX, L.J. et al., 2017. Anatomy of an Enduring Gender Gap: The Evolution of Women's Participation in Computer Science. *The Journal of Higher Education,* 88(2), pp. 258-293.

SAYCE, S., 2012. Celebrating Joan Acker's contribution to theorising gender and organisation. *Equality, Diversity and Inclusion: An International Journal*, 31(3), pp. 205-207.

SAYCE, S., 2019. Revisiting Joan Acker's work with the support of Joan Acker. *Gender Work and Organization*, 26(12), pp. 1721-1729.

SCHLESSELMAN-TARANGO, G., 2014. Cyborgs in the academic library: A cyberfeminist approach to information literacy instruction. *Behavioral & Social Sciences Librarian*, 33(1), pp. 29-46.

SCHOON, I. and POLEK, E., 2011. Teenage career aspirations and adult career attainment: The role of gender, social background and general cognitive ability. *International Journal of Behavioral Development*, 35(3), pp. 210–217.

SCHRAND, L., ASCHERL, C. and SCHAEFERS, W., 2018. Gender diversity and financial performance: evidence from US REITs. *Journal of Property Research*, 35(4), pp. 296-320.

SCHWAB, K., 2017. *The Fourth Industrial Revolution*. NY: Crown Business.

SCOTLANDIS, 2018. *Scottish Technology Industry Survey 2018*. ScotlandIS. [online]. Available from: https://www.scotlandis.com/wp-content/uploads/2019/12/Tech-Survey-2018.pdf [Accessed 7 November 2018].

SCOTT, A., KLEIN, F.K. and ONOVAKPURI, U., 2017. *Tech Leavers Study*. Oakland, CA: Kapor Center for Social Impact.

SCOTT, K.A. and BROWN, D.J., 2006. Female first, leader second? Gender bias in the encoding of leadership behavior. *Organizational behavior and human decision processes,* 101(2), pp. 230-242.

SCOTTISH GOVERNMENT, 2018. *Growth Sectors*. [online]. Scotland: Scottish Government. Available from: https://www2.gov.scot/Topics/Statistics/Browse/Business/SABS/Sectors/GrowthSectors [Accessed: 24 February 2019].

SDS, 2019. *Scotland's Digital Technologies Summary Report*. [online]. Scotland: SDS. Available from: https://www.skillsdevelopmentscotland.co.uk/media/43306/scotlands-digital-technologies-summary-report.pdf [Accessed: 24 February 2019].

SEGOVIA-PÉREZ, M. et al., 2019. Being a woman in an ICT job: an analysis of the gender pay gap and discrimination in Spain. *New Technology, Work and Employment,* 35(1), pp. 20-39.

SETTLES, I.H., JELLISON, W.A. and PRATT-HYATT, J.S., 2009. Identification with multiple social groups: The moderating role of identity change over time among women-scientists. *Journal of Research in Personality*, 43(5), pp. 856–867.

SHAKIR, M., 2002. The selection of case studies: strategies and their applications to IS implementation case studies. *Research Letters in the Information and Mathematical Science*s, 3, pp. 69-77.

SHIELDS, P. and RANGARAJAN, N., 2013. *A Playbook for Research Methods: Integrating Conceptual Frameworks and Project Management.* Stillwater, OK: New Forums Press.

SHOCKLEY, K.M. and ALLEN, T.D., 2018. It's not what I expected: The association between dual-earner couples' met expectations for the division of paid and family labor and well-being. *Journal of Vocational Behavior*, 104, pp. 240–260.

SIMON, M.K., 2011. *Dissertation and Scholarly Research: Recipes for Success*. 3rd ed. US: Dissertation Success.

SINGH, V., KUMRA, S. and VINNICOMBE, S., 2002. Gender and Impression Management: Playing the Promotion Game. *Journal of Business Ethics,* 37, pp. 77–89.

SINGH, V. and VINNCOMBE, S., 2004. Why So Few Women Directors in Top UK Boardrooms? Evidence and Theoretical Explanations. *Corporate Governance: An International Review,* 12(4), pp. 479-488.

SMITH, R.A., 2012. Money, Benefits, and Power: A Test of the Glass Ceiling and Glass Escalator Hypotheses. *The Annals of the American Academy of Political and Social Science*, 639(1), pp. 149–172.

SPENCER, S.J., STEELE, C.M. and QUINN, D.M., 1999. Stereotype Threat and Women's Math Performance. *Journal of experimental social psychology,* 35(1), pp. 4-28.

SPROULL, L.S., KIESLER, S. and ZUBROW, D., 1984. Encountering an Alien Culture. *Journal of Social Issues*, 40(3), pp. 31-48.

STAPLES, D.S., HULLAND, J.S. and HIGGINS, C.A., 1999. A self-efficacy theory explanation for the management of remote workers in virtual organizations. *Organization Science*, 10(6), pp. 758–776.

STREB, C., 2010. *Exploratory Case Study*. In: A.J. MILLS, G. DUREPOS and E. WIEBE. *Encyclopedia of case study research*. Thousand Oaks, CA: SAGE Publications, Inc. pp. 372-373.

SUDHOFF, M.N. and GRIFFIN, L.H., 2004. Can Diversity Be a Strategy. *American Bankers Association Banking Journal*, 96(12), pp. 59–61.

SULLIVAN, S.E. and BARUCH, Y., 2009. Advances in Career Theory and Research: A Critical Review and Agenda for Future Exploration. *Journal of Management*, 35(6), pp. 1542–1571.

SUTHERLAND, M.M., TORRICELLI, D.G. and KARG, R.F., 2002. Employer-of-choice branding for knowledge workers. *South African Journal of Business Management*, 33(4), pp. 13-20.

SWINTH, K., 2018. *Feminism's Forgotten Fight: The Unfinished Struggle for Work and Family*. Boston: Harvard University Press.

TATTERSALL, A., KEOGH, C. and RICHARDSON, H., 2007. *The Gender Pay Gap in the ICT Industry*. Vancouver: Information Resources Management Association.

TAYLOR, P. and BAIN, P., 2005. 'India calling to the far away towns': the call centre labour process and globalization. *Work, Employment and Society*, 19(2), pp. 261–282.

TECH NATION, 2018. *Report 2018 Connection and collaboration: powering UK tech and driving the economy*. [online] UK: Tech Nation. Available from: https://technation.io/insights/report-2018/ [Accessed 6 May 2019].

THEWLIS, M., MILLER, L. and NEATHEY, F., 2004. *Advancing women in the workplace: statistical analysis. Working Paper Series No. 12.* Manchester: Equal Opportunities Commission.

THOMAS, D.A., 2004. Diversity as strategy. *Harvard Business Review*, 82(9), pp. 98-108.

THORNE, S., STEPHENS, J. and TRUANT, T., 2016. Building qualitative study design using nursing's disciplinary epistemology. *Journal of Advanced Nursing*, 72(2), pp. 451–460.

TOBIN, K., 2010. 'Making the Most of Difference', Cultural Studies. *Critical Methodologies*, 10(5), pp. 406–408.

TONG, R. and BOTTS, T.F., 2018. *Feminist Thought: A More Comprehensive Introduction*. NY: Routledge.

TONSO, K.L., 2006. Student Engineers and Engineer Identity: Campus Engineer Identities as Figured World. *Cultural Studies of Science Education*, 1, pp. 273–307.

TREMBLAY, C.R., 1999. Inclusive Administration and Development: Feminist Critiques of Bureaucracy. In: K.M. HENDERSON and O.P. DWIVEDI, eds. *Bureaucracy and the Alternatives in World Perspective. International Political Economy Series*. London: Palgrave Macmillan.

TRILLING, B. and FADEL, C., 2009. *21st century skills: Learning for life in our times.* San Francisco, California, United States: Jossey-Bass.

TRUTH, S., 1851. *Ain't I a Woman?*. December 1851. Women's Convention, Akron, OH.

UK DATA SERVICE, 2018. *Gender pay gap reporting.* [Online]. Available from: https://www.ukdataservice.ac.uk/ [Accessed 23 March 2019].

UK GOVERNMENT EQUALITIES OFFICE, 2019. *Eight ways to understand your organisation's gender pay gap*. [online]. UK: UK Government Equalities Office. Available from: https://gender-pay-gap.service.gov.uk/public/assets/pdf/understand-your-gender-pay-gap.pdf [Acessed 15 February 2019].

United States legislation Charles E. Moritz, Petitioner-appellant, v. Commissioner of Internal Revenue, Respondent-appellee. 1972. 469 F.2d 466.

VACCARO, A., 2010. What Lies Beneath Seemingly Positive Campus Climate Results: Institutional Sexism, Racism, and Male Hostility Toward Equity Initiatives and Liberal Bias. *Equity & Excellence in Education*, 43(2), pp. 202-215.

VALENDUC, G., 2011. Not a job for life? Women's progression, conversion, and dropout in ICT professions. *International Journal of Gender, Science and Technology*, 3(2), pp. 483–500.

VAN EECKE, P. and FERNANDEZ, R., 2016. On the Influence of Gender on Interruptions in Multiparty Dialogue. In: N. MORGAN, ed., *Proceedings of Interspeech, the 17th Annual Conference of the International Speech Communication Association*. San Francisco, USA: ISCA. pp. 2070-2074.

VAN VIANEN, A.E. and FISCHER, A.H., 2002. Illuminating the glass ceiling: The role of organizational culture preferences. *Journal of Occupational and Organizational Psychology*, 75(3) pp. 315-337.

VICKERY, J.R. and EVERBACH, T., 2018. *Mediating Misogyny: Gender, Technology, and Harassment*. Cham, Switzerland: Palgrave Macmillan.

WACMAN, J., 1991. *Feminism confronts technology*. Cambridge, UK: Polity Press.

WATERS, T. and WATERS, D., 2015. *Weber's Rationalism and Modern Society*. USA: Palgrave Macmillan.

WEBSTER, J., 2003. The Value of Men and Women: Gendering Knowledge and Skills in the Information Society. In: G. BECHMANN, B.J. KRINGS, M. RADER, eds. *Across the Divide: Work, Organization and Social Exclusion in the European Information Society.* Berlin: Sigma Verlag.

WEHMAN, P. et al., 2016. Supported Employment for Young Adults with Autism Spectrum Disorder: Preliminary Data. *Research and Practice for Persons with Severe Disabilities,* 37(3), pp. 160-169.

WEIZENBAUM, J., 1976. *Computer power and human reason: From judgment to calculation*. New York, NY: W.H. Freeman & Co. Scientific American, Inc.

WEST, C. and ZIMMERMAN, D., 1987. Doing gender. *Gender & Society*, 1(2), pp. 125–151.

WHELAN, E. et al., 2011. Creating Employee Networks That Deliver Open Innovation. *MIT Sloan Management Review,* 53(1), pp. 36-45.

WHELAN-BERRY, K.S., GORDON, J.R. and HININGS, C.R., 2003. Strengthening Organizational Change Processes: Recommendations and Implications from a Multilevel Analysis. *The Journal of Applied Behavioral Science*, 39(2), pp. 186–207.

WHITEHOUSE, G. and PRESTON, A., 2005. *Women, computing and the 'ideal worker': A comparison of professional occupations*. 19th Conference for Association of Industrial Relations Academics of Australia and New Zealand (AIRAANZ), Sydney, Australia: Sydney University.

WHITTOCK, M. et al., 2002. 'The tender trap': gender, part-time nursing and the effects of 'family-friendly' policies on career advancement. *Sociology of Health & Illness*, 24, pp. 305-326.

WILDEN, R., GUDERGAN, S. and LINGS, I., 2010. Employer branding: strategic implications for staff recruitment. *Journal of Marketing Management,* 26(1-2), pp. 56-73.

WILEY, C. and MONLLOR-TORMOS, M., 2018. Board Gender Diversity in the STEM&F Sectors: The Critical Mass Required to Drive Firm Performance. *Journal of Leadership & Organizational Studies*, 25(3), pp. 290–308.

WILLIAMS, C.L., 2013. The Glass Escalator, Revisited: Gender Inequality in Neoliberal Times, SWS Feminist Lecturer. *Gender & Society*, 27(5), pp. 609–629.

WILLIAMS, C.L., MULLER, C. and KILANSKI, K., 2012. Gendered Organizations in the New Economy. *Gender & Society*, 26(4), pp. 549–573.

WILLIAMS, C.L. and NEELY, M.T., 2018. Gender inequality and feminist activism in the new economy. In: J.W. MESSERSCHMIDT et al., eds., *Gender reckonings: New social theory and research*. New York, NY: New York University Press. pp. 156–172.

WILLIAMS, J., 2000. *Unbending Gender: Why Family and Work Conflict and What To Do About It.* Oxford: Oxford University Press.

WILLIAMSON, S. and FOLEY, M., 2018. Unconscious Bias Training: The 'Silver Bullet' for Gender Equity?. *Australian Journal of Public Administration*, 77, pp. 355-359.

WILSON, F., 1996. Research Note: Organizational Theory: Blind and Deaf to Gender? *Organization Studies*, 17(5), pp. 825-842.

WOOD, W., and EAGLY, A.H., 2015. Two traditions of research on gender identity. *Sex Roles: A Journal of Research*, 73(11-12), pp. 461–473.

WOODFIELD, R., 2000. *Women, Work and Computing*. Cambridge, MA: Cambridge University Press.

WOOTEN, L.P. and JAMES, E.H., 2004. When Firms Fail to Learn: The Perpetuation of Discrimination in the Workplace. *Journal of Management Inquiry*, 13(1), pp. 23–33.

YADAV, S. and LENKA, U., 2020. Workforce diversity: from a literature review to future research agenda. *Journal of Indian Business Research*.

YIN, R., 2018. *Case Study Research and Applications*, 6th ed. USA: Sage Publications.

ZACHAREK, S. DOCKTERMAN, E. and SWEETLAND EDWARDS, H., 2017. *The Silence Breakers*. Time Magazine. [online]. Available from: https://time.com/time-person-of-the-year-2017-silence-breakers/ [Accessed 10 April 2019].

ZELDIN, A.L. and PAJARES, F., 2000. Against the Odds: Self-Efficacy Beliefs of Women in Mathematical, Scientific, and Technological Careers. *American Educational Research Journal*, 37(1), pp. 215-246.

ZHAO, K., ZHANG, M. and FOLEY, S., 2019. Testing two mechanisms linking work-to-family conflict to individual consequences: do gender and gender role orientation make a difference?. *The International Journal of Human Resource Management*, 30(6), pp. 988-1009.

ZÚÑIGA, X., WILLIAMS, E.A. and BERGER, J.B., 2005. Action-oriented democratic outcomes: The impact of student involvement with campus diversity. *Journal of College Student Development*, 46(6), pp. 660–678.

Appendixes

I. Informed consent

I.i Firm information sheet

A Case Study Analysis of Organizational Culture and the Effect on Workers in the Scottish Technology Industry

Introduction

The Scottish technology industry has seen growth in recent years, with 78% of employers increasing their employee base in 2017 (ScotlandIS). These firms are competing for skilled workers either in the form of computing degree graduates or experienced IT professionals, with 25% of firms planning to increase their employee base by more than 50 new positions and an additional 25% of firms looking to grow by approximately 20 positions (ScotlandIS). With the demand for skilled tech workers growing, firms must become more competitive in their ability to attract and retain talent. Women are an underutilized source of labour, representing 18% of digital technology roles in Scotland whilst women represent 39% of other types of skilled occupations and 48% of the overall workforce (Graham et al. 2016). While this is partially due to the lack of women pursuing computing degrees at the college and university level, there are a subset of qualified women choosing to opt out of the technology sector (Mavriplis et al. 2010). This is the area of the workforce population that will be addressed within this study.

One theory regarding the attraction and retention of women in male-dominated fields is posited by Joan Acker in Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations. Acker postulated that "images of men's bodies and masculinity pervade organizational processes, marginalizing women and contributing to the maintenance of gender segregation in organizations" (Acker 1990 p. 139). Through a better understanding of organizational culture, research can identify attributes which would attract qualified workers to a particular firm. Scotland's technology industry is an under-researched area in this respect, with several best practices which could be shared across gendered organisations in other industries as well as technology firms in other countries.

Aim

This study examines the impact of organizational culture and practices on the experiences of workers based on their gender in the Scottish technology industry.

Design & Method

A qualitative case study will be employed to explore the impact of organizational culture and practices on the experiences of workers. The case study will consist of an introductory leadership meeting as well as a series of interviews with workers within the firm. Interviews will last approximately 30-45 minutes and the target number of employee interviews is 20. Ideally, interview participants will have diverse backgrounds in regards to gender and race as we would like to collect data from workers with a varied set of experiences. If possible, interviews will be conducted at the participating firm to reduce the need for travel for participants and will be scheduled to accommodate the firm's needs.

Firm Benefits & Confidentiality

Firms who participate in the study will be ensured confidentiality and all data collected will be stored securely in adherence to Robert Gordon University guidelines for PhD researchers. Additionally, firms will be given a summary of data collected in regards to their firm and access to the completed dissertation. Employees who participate in interview sessions will not be disclosed to the firm nor in any published work to ensure their privacy. Interviews will be recorded and transcribed for use in the study. Quotes will be used however identifying data will be removed to protect the confidentiality of both the firm and interview participants.

Participating firms will be assisting in the expansion of knowledge regarding organizational culture and the Scottish technology industry and best practices in the creation of policies and practices which encourage diverse subsets of workers to participate in the industry.

Furthermore, participating firms will gain a better understanding of whether worker subsets feel either accepted or marginalized, and will have the information needed to alter practices to entice these underutilized areas of the workforce, creating a competitive advantage for the firm in an employment market in need of skilled workers.

I.ii Employee consent

Thank you for agreeing to participate in this interview. Please note that all questions are completely optional and you may choose at any time not to continue or to skip any questions asked. The results of this research will be used in aggregate to better understand the worker experience in Scotland's technology industry and how it might differ based on one's gender.

Your confidentiality is ensured as is that of participating firms. You will have an opportunity to view the interview transcript and provide feedback and revisions upon review. If you have any questions after the interview process, do not hesitate to contact me at l.riley@rgu.ac.uk or via phone or text at 07379417836.

Ok to record?

Do you have any questions before we begin?

II. Leadership interview guide

Introduction

- What's your full name and job title?
- What are your main job duties? How would you describe your job?
- How many employees do you directly manage?
- Who are the members of your leadership team?
- What does your firm do? What product services are provided?
- Who are your customers?
- How many employees are part of the staff as a whole?

Gender composition

- What is the approximate gender divide of the company?
- Currently, what percentage of your technology and computing skill-based workers are female?
- What percentage of your administrative support team is currently female?
- Has this (the gender divide) changed over the years?
- What is the racial diversity of the firm?
    1. Would be interested in speaking to a sample which included diversity in this respect.

Culture and ideal worker

- How would you describe the company culture
    1. Are there 'pockets' of subcultures within the organisation that you might be aware of?
- Are there certain attributes that make an individual work well within your culture?
- Are there any characteristics that are common amongst a large portion of your employees?

Employee lifecycle

- Describe the employee hiring process.
    1. What qualifications and/or talents are universally important for all workers working within the main product/service production of the firm?
    2. What issues do you often face when hiring?
    3. Are there typical characteristics in the profiles of those applying to be employed by your company?
- Describe the employee on boarding process.
- Is there a management training track that employees may be on boarded into?
    1. How are employees identified as qualified for this opportunity?

- Are there any formal mentoring systems in place?
- Are there processes in place to ensure that all employees are fairly considered for promotions or 'promotable' activities (international assignments, project leads, etc.)
- What main reasons do you observe for workers leaving your organisations?
    1. Do you notices differences based on gender or race?

Employee support

- Are there any work/life balance opportunities?
    1. Approx. what percentage of workers take advantage of them?
    2. Is there a common set of reasons employees give for needed work/life balance considerations?
    3. Are there specific policies in regards to caregiver/ maternal/paternal leave? If so, how are they taken up by male and female employees?
- Are there any formal or informal policies around workplace communication?
    1. Flag for follow up at end
- Are there any professional development processes?
    1. How is networking encouraged (if it is)?
    2. How can employees take advantage of development opportunities?
    3. Do you see segregation in terms of who takes up these opportunities?

External representation

- Do you feel your industry is properly represented in the media?
- Do you feel your firm is properly represented in the media?
- Are there any stereotypes associated with workers in your industry?

Written resources

1. Is there an employee handbook, code of conduct, policies
    1. If so, could I be sent a copy?
2. How often are organizational policies reviewed?

III. Worker interview guide

Question	Objective	Theoretical Framework
Full name	-	-
Age	-	-
Ethnicity	-	-
Gender	1	-
How long have you worked at the firm	-	Culture
How would you describe the culture of the firm	1 2 4	Culture, Ideal Worker
How about your immediate work group	1 2 5	Culture
What are the demographics of your work group	1	Job division
What inspired you to pursue a job at this firm	3	Efficacy/ Aspiration (E/A)

What inspired you to pursue a career in the tech industry	3	E/A
Do you have the opportunity to work on passion projects	2 3	Culture
If so, what does that look like	2 3	Culture/E/A
Do you work on passion projects during your own time or company time	2 3	Culture
Have you ever used any flex working opportunities	2 4	Culture
How often do you work from home	2 3 4	Culture
Why do you (not) work from home	2 3 4	Culture
What is the reason behind working from home	3 5	Various
What formal opportunities are given by the firm to socialise with co-workers	3 4	Discourse
What does informal socialisation look like for you in the workplace	3 4	Discourse
Do you find that a lot of your socialisation happens with the same people	2 3	Discourse
During worktime, after work	2 3	Discourse
Around a specific activity	2 3	Discourse
What common small talk topics are often brought up	1 2 3	Discourse
Do you find it easier to socialise with a specific set of people	2 3	Discourse
Why so? What are the demographics of that group	2 3	Job division/discourse
Do you communicate with your co-workers about similar things as you do your friends	2 3	Discourse
Have you ever started an activity outside of work with the purpose of talking about it during work? (i,e, started watching football, doing yoga, etc.)	3	Discourse/E/A
Do you feel that there are certain characteristics that are commonly held or necessary to succeed at this firm	2	Ideal Worker
If given demographics, probe to ask for personality characteristics, work patterns.	2	Ideal Worker
Are you currently where you want to be in your career	3	E/A
Do you feel you have ever been passed over for something you thought you were qualified for	3	E/A, Ideal Worker
Do you see yourself growing with the firm	3	E/A
Why, why not	3	Various
What are your goals for your career	3	E/A
Have you ever considered leaving	3	Various
Why, why not	3	Various
Have you ever had to make a formal report of harassment	1 3 4	Discourse

If not, do you know how to do so? Where did you get that information, what is the process	1 4 5	Culture
If yes, what was the result	1 4 5	Discourse, Culture
Do you feel that you've ever experienced sexism	1 3 4	Discourse, Culture
Do you feel that you've experienced others being sexist in your presence	1 3 4	Discourse. Culture
Do you feel that you've ever been communicated to inappropriately	1 3 4	Discourse Culture
If no to all sexism, harassment questions, ask if they have experienced sexism or harassment elsewhere	3	Discourse
X% of the workforce at the firm is male. Why do you think more men than women work here	2 4	Culture
What does the firm do to encourage more women to work here	4	Culture
What activities have you been invited to participate in that you felt were meant to create a more balanced, inclusive workforce	4	Culture Discourse

IV. Document review guide

IV.i Firm-generated documents

Document	**Objective**	**Theoretical Framework**
Policy and procedure	1,4,5	Culture
Board of directors	1,2	Job Division, IW
Maternity handbook	4,5	Culture
Bullying and harassment policy	4,5	Culture
Diversity and inclusion policy	4,5	Culture
Flexible working policy	4,5	Culture
Parental leave	4,5	Culture
Intranet discussion re: maternity leave accommodation	1,2	Discourse
Maternity leave policy	4,5	Culture
Better future report	4,5	Culture, Job Division
Code of ethics	2	IW, Culture
Employer branding	2	IW

IV.ii Externally-sourced documents

Document	**Objective**	**Theoretical Framework**
Review of external awards and notices	1,4	Culture
Google Alert- News	1,4	All
Glassdoor Reviews	1,4	Culture, IW
Inhersight Reviews	1,4	Culture, IW