

Title Page

**Is the Knowledge Economy Gendered? Call Centres as a
Case Study**

Author: Susan Durbin

Submitted in accordance with the requirements for the degree of Doctor
of Philosophy at the University of Leeds, Department of Sociology and
Social Policy

Submission date: April 2004

The candidate confirms that the work submitted is her own and that
appropriate credit has been given where reference has been made to the
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Acknowledgements

Many people have supported me in this research. Sylvia Walby, my supervisor, has given sustained support, encouragement, guidance and inspiration throughout and has helped me to develop my critical thinking. She has always provided thorough critiques of my research and given so much of her time. Without her support, this research project would not have been completed and I owe her an enormous debt of thanks.

Although they cannot be identified by name, I would like to thank the organisations who made this research possible, especially each individual who gave their (often scarce) time and who were willing to share their experiences with me. I also acknowledge the ESRC for funding this project, for which I am grateful.

The thesis would also not have been completed without the enduring support of Tim. He has not only helped me through the research process with emotional and practical support but has also challenged my thinking. He has always given his time and support so freely and without this, the research would not have been completed.

I also acknowledge the help of Jenny Tomlinson who read and commented on a draft of the thesis and Pauline Brown and Debbie Jolly for their support and friendship, as well as the many other friends who supported me. Their enduring encouragement and patience have helped me through this challenging and rewarding experience.

Abstract

This thesis investigates the gendering of the knowledge economy and argues that women are being excluded from key areas within it, through their employment in call centres. Access to knowledge and participation in the knowledge economy, primarily through the use of information technologies, are the focus for a critical debate around social inclusion and exclusion. Gender inequalities are rarely considered, with a few notable exceptions. Women's relationship with knowledge is considered and developed through the analysis of four knowledge types. This demonstrates that access to and involvement in the knowledge economy is gendered. The relationship between skills and gender is analysed, confirming the perpetuation of patriarchal perceptions held by male senior managers about why women are employed in call centres. Management style in this relatively new sector is investigated to establish whether or not it has been re-gendered. Most knowledge economy writers posit the decline in management hierarchies and the 'end of career'. This research reviews the implications of this for women's careers in management. The thesis critically considers women's involvement in the call centre design process, drawing upon existing empirical research on the social shaping of technology and the theoretical debates of actor network theory. This confirms that the design process is gendered and hierarchical, due to the exclusion of women. The investigation of women's relationship with the knowledge economy is researched through analysis of knowledge types, skills, management styles, career progression and the design of technology and the working environment in call centres.

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Introduction

Why Women and the Knowledge Economy?

The objective of this thesis is to analyse the relationship between gender and the knowledge economy through three principal research questions: what is the relationship between gender and the knowledge economy; are call centres gendered by design; and what is women's relationship with technology? The thesis offers a detailed analysis of whether or not the emergence of a new form of working (call centres) offers the potential for women to progress or becomes yet another example of men remaining pre-eminent through their historic control of the workplace. The knowledge economy is increasing in significance and it is therefore important to ask, is the knowledge economy gendered?

Why the Knowledge Economy and Call Centres?

The knowledge economy started to take shape in the early 1990s (based on a new technological paradigm of the 1970s) (Castells 2000) around the same time that the call centre phenomenon arrived in the UK. The creation, accumulation and diffusion of knowledge has now become an important source of production, the very action of knowledge upon knowledge becoming the main source of economic productivity, enabled by the use of information technologies (Castells 2000; David and Foray 2002; Drucker 1993; European Commission 2001; OECD 2002; Reich 2001).

The knowledge economy is built upon the information technology revolution, the action of knowledge upon knowledge being its main source of production. These information technologies, on which the knowledge economy substantially relies, have accelerated the creation and distribution of knowledge at an unprecedented rate. The knowledge economy is characterised by knowledge production and creation and a revolution in the instruments of knowledge (information technologies).

However, gender-based inequalities in the knowledge economy are rarely analysed, with a few exceptions (Burnley *et al.* 2001; Castells 1997; Gill 2002; Perrons 2003; Stanworth 2000; Walby 2001). This thesis furthers the debate on the relationship between gender and the knowledge economy by exploring the areas of knowledge, skills and management styles, career structures, workplace design and technological design networks, areas that have been selected because they represent key aspects of the knowledge economy.

Call centres were developed in response to customer demand for improved, more convenient service access, using the telephone, their success depending upon sophisticated information technologies operated by a skilled workforce (usually women). Call centres have been chosen as the focus for this research as they represent an emergent knowledge industry built upon a different way of working, state-of-the-art technology being used for both process and performance management of telephone enabled services, with a strong emphasis upon the customer relationship management skills of the individual operators.

Call centres are a leading example of the 'new organisational forms' of the knowledge economy in that knowledge and information are their main source of productivity and that they have the potential to operate as networked organisations in a global context. Call centres are centres of significant technological investment that produce vast quantities of information and knowledge, collected and utilised at the point of interface with the customer with the potential to revolutionise service delivery.

However, paradoxically, they are also sites of labour control, where creativity, discretion and autonomy are suppressed for the majority of workers (advisers) through the invasive use of information technologies. This raises the question as to the nature of the knowledge economy and its implications for gender relations. Call centres are an ideal site for the exploration of gendered social relationships in the workplace, having a workforce that is overwhelmingly populated by women but predominantly controlled by men. Call centre work can therefore be placed on a continuum which has knowledge work at one end and boring, repetitive processing at the other. The case study call centres in this research sit within the 'middle range' on this continuum.

The Relationship between Gender and the Knowledge Economy

What is the relationship between gender and the knowledge economy? Are women better or worse off in the knowledge economy compared with men? Knowledge types (embrained, embodied, encoded and embedded) and the skills required for call centre employment may be gendered. When this is paralleled with the 'flatter' operating structures that are typical in knowledge-type organisations, this may inhibit career progression for women. Are women 'winners' or 'losers' in the knowledge economy?

Are they progressing into management positions ('winners') or are they yet again excluded from decision making positions and networks ('losers')?

The thesis explores the next wave of economic development to a knowledge-based economy and evaluates whether or not this presents new opportunities for women. Call centres are an evolving, unique industry in the knowledge economy, where women might be best placed to make a difference. But has men's monopoly on decision making and power prevented this from being the opportunity it should be for women?

The thesis engages with and unpacks four knowledge types (embrained, embodied, encoded and embedded) (Blackler 1995; Lam 2002) and hypothesises that these might be theoretically and empirically gendered because women may not be sharing access to them on an equal footing with men. The collective and explicit forms of knowledge which are important to knowledge-type organisations may therefore be gendered.

The relationship between gender and knowledge is analysed, the action of knowledge upon knowledge being the core product of the knowledge economy and a stimulus for growth in the economy. Organisations create a competitive edge by innovatively combining and applying knowledge to create new knowledge, a process which requires a new and different way of working (e.g. call centres). Are women sharing in this? The cumulative shift to a knowledge-based economy has seen a change in the nature of work which, at a fundamental level, should favour women because 'muscle power' is now no longer a fundamental requirement in the knowledge age, where keyboard dexterity, intellect and relationship skills predominate – areas which tend to favour

women. Can women seize the opportunity in this economy? Do they have the necessary skills?

Analyses of the knowledge economy have failed to recognise that knowledge is gendered and that not only is it a source of wealth but also a source of inequalities between men and women. Knowledge is the accumulation of facts, experiences and learning from which we make reasoned judgements and use to constantly improve the knowledge process (the action of knowledge upon knowledge). Knowledge is usually constructed around four knowledge types (embrained, embodied, encoded and embedded). Embrained knowledge is formal, theoretical knowledge that is gained through education and/or training. Knowledge can also be embodied (knowledge which is acquired through involvement in practical problem-solving activities and retained as knowledge that is 'embodied' in the person); encoded (knowledge that is shared within organisations through written rules, procedures and measurement); and embedded (knowledge that is built into routines, habits and norms (culture) that cannot easily be transformed into information systems) (Blackler 1995; Lam 2002). These four knowledge types are useful in categorising sources of knowledge in organisations and reviewing the ways in which these may be gendered.

This thesis addresses the extent to which elements of these knowledge types are theoretically and empirically gendered. Blackler (1995) and David and Foray (2002) argue that for knowledge organisations to operate in an optimum fashion and for the key process of knowledge production (knowledge on knowledge) to take place, knowledge should be transparent, understandable and freely shared, both explicitly and collectively.

Is it possible that women are more likely to share in and have access to knowledge types that are tacit and individual whilst men retain the monopoly on collective and explicit forms of knowledge and perhaps most importantly, continue to set the framework for the routines, habits and norms (culture) in organisations? The specific forms of knowledge may continue to be male dominated and to perpetuate the gendering of knowledge.

Patriarchy is a key concept in the analysis of the position of women in the knowledge economy because it allows us to focus on inequitable gendered social relationships and the ways in which men dominate and exploit women. Knowledge could be proposed as an addition to Walby's (1990) six patriarchal structures but arguably, they are implicit within these structures. However, with the emergence of the concept of the knowledge economy, there is an argument that these should be more explicit, given their pivotal role in the development of the knowledge-enabled economy.

Enloe's (1988) concept of the 'patriarchal institution' can be applied to call centres due to male senior managers' perceptions of women's particular skills and the reasons why women seek employment in call centres. The 'transformational' style of management is usually associated with women – is this the predominant style of management in call centres? If so, does this mean that management styles are being re-gendered in the knowledge economy?

Women's potential advancement in call centres addresses the debates on the progression of women in managerial positions, as the concept of the call centre

migrates from being merely a tool for simple, mundane transactions, to one that has the potential to sit at the heart of customer relationship management for many businesses. The 'end of career' has been predicted by some writers on the knowledge economy (e.g. Carnoy 2001; Castells 2000; Reich 2001) and this thesis tests this claim by reviewing the implications for those women who aspire to managerial positions.

Is it the end of career for women? In the new networked world, where there is greater access to information and knowledge and the computing power to analyse that knowledge, it is logical to claim that the traditional pyramid structure will either decline or disappear. However, the fundamental question is whether or not women are sharing in collective and explicit forms of knowledge, given that men monopolise access to these types of knowledge. Career can attribute coherence, continuity and social meaning to our lives (Colin and Young 2000) and therefore has both objective and subjective meanings for those employed in today's organisations. Career, in the context of this research, is viewed simply as the means by which women may vertically or horizontally progress within managerial levels, in the organisational structure.

Gender is the common analytical thread, a social construction that is used to analyse gendered social relationships in the workplace. Gender composition (men's and women's numerical presence in call centres) may well impact upon these relationships because when gender composition changes, this fundamentally affects relationships in organisations.

Call Centres: Gendered by Design?

Are call centres gendered by design? Are women included or excluded from the call centre design process? If they are included, does this result in a positive design outcome; if excluded, what are the implications of this exclusion for the design outcome? Call centres are a manifestation of massive technological changes and sites of knowledge. However, if badly designed and inappropriately managed, the potential for women's inclusion may be lost.

By following the design and development process from an historical perspective and the role that women may have had to play in this, it is possible to relate this to women's working experiences as 'users' within the workplace. Have gender relations been reproduced in the workplace through these design decisions? Who gets to take part in the design network? Are women part of the design, innovation and decision making process? Do they have a part in the arranging, ordering, shaping and regulating of call centre design? If they do, what is the outcome of this?

Historically, men have designed and women have operated what has been designed and this could be the case with call centres, notwithstanding that women predominate.

Do men dominate the design process which fundamentally shapes the operating environment, which in itself is one of the manifestations of culture and power?

Design is the point at which the 'object' (or technological artefact) is debated and the point at which intermediaries are put into circulation. In the context of the design of

call centres and their related technologies, design means to place a structure around questions such as: what will the design look like; what will it do; for what will it be used; what skills will its users need (Callon 1991)? At this point, the object of design is debated, planned and invented. A designer leads the design process and in the context of this research, is a decision maker who is (1) internal to the organisation at a higher (senior) managerial level; and (2) an expert adviser who is external to the organisation, who advises on the design process and outcomes.

To 'use' is to put designs into action and users are those who operate within the work environment and use the technologies in the call centres. The user group may or may not be asked to contribute their tacit knowledge to the design process and as users are predominantly women, they may, as a consequence, be excluded from the design network.

Women's Relationship with Technology in the Knowledge Economy

What is women's relationship with technology in the knowledge economy? Is the design of the technological framework gendered? To what extent are women involved in design networks, as either designers or users? Is the design of call centre technologies socially shaped, technologically determined, or a hybridisation of the social and the technical (actor network theory)? Are design networks gendered?

The thesis analyses the design of the workplace and its operating technologies from a gender perspective. This may reveal several important developments: tensions between the 'social' and the 'technical'; the exclusion of women from design networks; and the

presence of 'top-down', hierarchical forms of power. Actor network theory fails to recognise the persistence of male dominated hierarchies within design networks and the ways in which power operates in a 'top-down' manner due to its lack of account of prior interests and social structures, for which the social shaping of technology perspective can account.

The knowledge economy is built upon the information technology revolution and not only do men have dominance in the design of the workplace, they also control the design of workplace tools and technologies. Is this the case in call centres? Invariably, the design of both workplace and tools takes place independently from and without reference to the tacit knowledge of the female operators. Consequently, the design of the call centre environment and its technologies is sub-optimised, there being a fundamental failure to understand the interrelationship between people and machines, thereby creating a paradox between the 'social' and the 'technical'.

Knowledge-based economies develop partly when people, with the help of information technologies, come together to produce and exchange knowledge. Not only do these technologies facilitate the free exchange of knowledge, they also accelerate the speed of knowledge accumulation and as a consequence, the rate of development of new knowledge. Technologies are therefore the 'instruments of knowledge' (David and Foray 2002). This thesis asks, are these 'instruments of knowledge' gendered? The concept of the knowledge economy and the information technologies upon which it is founded are presented to us as if they have merely evolved, without reference to a number of fundamental questions: who or what is involved in the design network? Is this gendered?

Actor network theory facilitates the following of the design (or innovation) process in the knowledge economy by focusing upon the human and non-human actants that are present, for instance, in the design of call centres and their related technologies. Four important questions arise. Firstly, is the relationship between the ‘social’ and the ‘technical’ equal, or is technology fundamentally defined by social actors? This research argues that decision making power rests with social actors (or designers) who put intermediaries (texts, technical artefacts, humans and money) into circulation. Secondly, who are these social actors, or relevant social groups – are women included or excluded in the design of call centres and their related technologies? If women are excluded, then this means that a gendered power relationship is present within the design network. Thirdly, is power ‘top-down’ or dispersed within the network? Fourthly, are the ‘social’ and the ‘technical’ in tension because of the exclusion of women in the design network? At what levels are these decisions made?

Is it possible to create a hierarchy of power within a network? The existence of a hierarchical, ‘top-down’ form of power does not in and of itself prevent the formation of networks but it could influence the final design and this could be revealed through analysis of the design process and its networks of humans and non-humans (texts, technological artefacts, human beings and money).

The three principal research questions are analysed through a comparative analysis of gender in call centres. A case study approach has been adopted, involving four call centre case studies that have been set up as part of two of the UK’s largest financial service providers. A total of one hundred and fourteen interviews were conducted with

key call centre personnel, ranging from advisers in the call centres to Board directors in the parent organisations. The main analysis of the thesis draws upon data from the team manager population (which is predominantly female) and the senior management population in the call centres and parent organisations (which is predominantly male).

Research methods comprise a combination of interviews, non-participant observation and a questionnaire. The interview method depended upon the different research questions, interviews taking an unstructured, semi-structured and structured format. Twenty six unstructured interviews were conducted with key personnel throughout the main areas of the call centres (management information analysts, technologists, team managers, advisers, resourcing specialists, etc.); sixty one structured interviews with team managers, using a structured questionnaire; and twenty seven semi-structured interviews with senior managers in the call centres and parent organisations. The data is therefore both qualitative and quantitative in nature.

Thesis Outline

Chapter Two draws out the main theoretical arguments from a review of the literature on gender and the knowledge economy. The chapter identifies key questions addressed by the thesis as well as ‘gaps’ in the literature that need to be considered. The knowledge economy is analysed by focusing on the labour process, knowledge types, technology and how these are gendered. Different perspectives on gender are offered with particular reference to patriarchy (as a structural perspective of power) gender stereotyping and critical mass (the importance of gender composition) and the sameness/difference debate, as the theoretical foundation for an analysis of gendered

management styles. The strengths and weaknesses of each of these theories are drawn out and debated, the chapter concluding with questions that the literature review has left unanswered.

Chapter Three, the chapter on methodology, poses the key research questions and explains why and how different methods have been used to answer these. One hundred and fourteen interviews, with mainly managers in four case study call centres, have been conducted, along with non-participant observation and analysis of secondary data. The choice of call centres as a case study and important information on the call centre industry is outlined and the case studies presented. There is a discussion on access to the case study organisations, followed by the sampling frame and explanation of the pilot study. Three types of interview are explained (unstructured, semi-structured and structured) and the rationale behind the choice of interview in connection with particular research questions is considered in the context of the targeted research population. Finally, the ethical implications of the research and how the data analysis was carried out are discussed, followed by concluding comments.

Chapter Four addresses the question of whether the knowledge economy presents new opportunities for women in knowledge-type organisations, such as call centres. As well as identifying the four knowledge types in these organisations, the chapter demonstrates how these knowledge types are gendered and considers the implications of this for women. The skills required for employment in the case study call centres are also identified as gendered, senior managers stereotyping the reasons why women seek employment in call centres. The chapter then goes on to investigate whether there are career opportunities for women in call centres. Key questions addressed in this chapter

are: are women better or worse off in the knowledge economy? If knowledge types and skills in call centres are gendered and given the 'flatter' operating structures in this type of organisation, does this mean that women are not making progress into managerial positions? Are women 'getting on' in call centre management or has nothing really changed? Fundamentally, are women 'winners' or 'losers' in the knowledge economy?

Chapter Five shifts the focus by taking a 'behind the scenes' look at the design of call centres. The chapter takes a retrospective (historical) and contemporary perspective on the design and setting up of call centres and the working environments and asks, to what extent, if any, have women been involved in their design and set up? The debates on the design and use of technologies (the gender-technology relationship) are used in this chapter as these debates usually associate men with design and women with use. Is this the case in call centres? Where women have been involved, has this meant a more positive outcome in today's working environment?

Chapters Six and Seven focus on technological design in call centres from the perspective of designers (Chapter Six) and users (Chapter Seven). Women's relationship with the information technology revolution is examined to establish whether or not its design is gendered. Have women been included or excluded in this important technological revolution? The chapter accounts for relationships of gender and power in the design network. Technology has been labelled as 'masculine' (Cockburn 1983; Wajcman 1991a; Rommes *et al.* 2001). Are call centre technologies inherently masculine? Are gender relations reproduced in call centres through the design of call centre technologies? Are men consolidating their positions through technological design? Are women contesting this? Why is important tacit knowledge

that is held by women not included in the design of call centres and their related technologies?

Chapter Eight concludes the thesis by discussing the ways in which the knowledge economy is gendered and how this analysis has used, debated, extended and modified the key theoretical concepts outlined in the literature review and added to existing knowledge on the relationship between gender and the knowledge economy.

Chapter One

The Knowledge Economy

Introduction

The question of whether or not the knowledge economy is gendered, is investigated in this chapter through key debates and theoretical concepts within three critical areas - knowledge, technology and gender.

The knowledge economy is, firstly, analysed with reference to Castell's 'new' economy and secondly, by addressing the key debates on the knowledge economy and its economic and social implications. This includes analyses of different knowledge types, knowledge work and inclusion and exclusion (the 'winners' and 'losers') in the paid labour markets of the knowledge economy. The analysis then shifts focus to the organisation of work in the knowledge economy by analysing knowledge, skills, the labour process and the future of career in the call centre context. These debates are then developed by using a gendered perspective.

The knowledge economy was built upon the information technology revolution. Debates on technological design and its relationship to actor network theory and the social shaping of technology are therefore explored. The importance of gender to these debates is then highlighted by drawing upon the gender-technology literature and the debates on the design and use of technology. The ways in which the knowledge economy is gendered are then discussed before the chapter moves on to different perspectives on gender. The concept of gender is defined and analysed with reference to power and patriarchy, gender stereotyping and critical mass, the sameness-difference

debate, women in the paid UK labour market and management styles. Conclusions, an outline of the thesis' theoretical position and key research questions are then outlined.

The Knowledge Economy

Castell's 'New' Economy

Castells (1997, 1998, 2000) is perhaps the best known and critiqued author on the knowledge (or 'new') economy. In his three volume analysis, Castells focuses upon the economic and social implications of the new economy which he describes as the global, networked and informational world in which we live today. In Volume I (2000) Castells is quite positive about the rise of a new, information economy, although he does recognise that, inevitably, there will be 'winners' and 'losers' in this type of economy. By Volume III, however, Castell's analysis shifts to the exclusionary nature of the new economy, postulating the demise of the Third World and the rise of a Fourth World (mainly Africa, but also inner cities in the USA) as a consequence of accelerated global polarisation between developed, developing and undeveloped countries.

The new economy emerged in the 1990s, in the USA, predominantly in the information technology and finance industries. The new economy-type organisations within these industries all share a common feature:

Their key role as providers and/or users of new information technology, networking organisations, innovation-driven business, very high rates of investment in research and development and/or computer-related equipment (Castells 2000: 158)

The new economy has spread globally into developed and some developing areas of the world through globalisation, networking and the application of information and knowledge. The core activities of production, consumption and circulation are organised on a global scale. Castells (borrowing Held *et al.*'s 1999 definition) defines this new, global economy as, 'an historically new reality, distinct from a world economy', which has been enabled only through the information technology revolution and deregulation and liberalisation policies of the 1970s (a definition that is questioned by those who place globalisation much earlier (Giddens 1992; Robertson 1992; Wallerstein 1974).

In this new, global, networked economy, productivity is generated through and competition played out in a global network of interaction between business networks (Castells 2000: 77). Castells defines networks as: stock exchange markets and their ancillary advanced service centres, in the network of global financial flows, through to cocoa and poppy fields and money-laundering financial institutions in the network of drug traffic that penetrates economies, societies and states throughout the world.

Information is at the heart of the new economy because:

The productivity and competitiveness of units or agents in this economy (be it firms, regions or nations) fundamentally depend upon their capacity to generate, process and apply efficiently knowledge-based information (Castells 2000: 77)

Castells concludes that the new economy is distinct from the industrial economy but does not oppose its logic. It subsumes it through technological deepening, embodying knowledge and information in all processes of material production and distribution on the basis of a significant leap forward in the reach and scope of the circulation sphere.

Therefore, a key differentiator of the new economy is the ‘action of knowledge upon knowledge’ as the main source of productivity, usually through the use of information technologies (e.g. the internet and computers). This shift to informationalism is not restricted to the service industries but applies to any activities that produce and distribute on the basis of information and knowledge embodied in the work process by increasing the power of information technologies (Castells 2000: 100).

Some argue that it is too early to decide whether we live in a ‘knowledge’ age (Stiroh 1999) whilst others reject the idea of a new economy because the ‘use’ value (information content) of a commodity does not obscure the materiality of physical goods (Sayer and Walker 1992). The relevance of the new economy following the technology stock crash of 2000 has been questioned (Aglietta and Breton 2001; Feng *et al.* 2001; Thrift 2001; Williams 2001) as has its relevance and resonance in Europe (Armstrong 2001; Watson 2001; Vitols 2001). However, it is generally agreed that, ‘it would be a mistake to write-off the new economy, although it can no longer be discussed as it was in 1999-2000 because it did not deliver what it promised post-1995’ (Thrift 2001).

Call centres are a leading example of a new, knowledge-type organisation that has evolved because of the information technology revolution which has facilitated the speed, accumulation and diffusion of knowledge. This research uses the development of the ‘knowledge’ economy as a logical incremental development, consequent upon the introduction and application of advanced information technologies. As David and Foray (2002) have noted, ‘knowledge-based economy’ is a recently coined term,

marking a break in continuity with earlier periods, this being more of a ‘sea change’ than a ‘sharp discontinuity’ (David and Foray 2002).

Knowledge Economies and Societies

‘Knowledge economy’ has become the preferred term for many to explain changes taking place in the economy and its economic and social implications. Recognition of the emergence of a knowledge economy has occurred at the European level (the EU). This section identifies knowledge as a source of wealth and inequalities (Lindley 2002; Rodrigues 2002a, 2002b) and then goes on to discuss the foundations of a knowledge economy, how the transformation to a knowledge economy occurred, the action of knowledge upon knowledge as the main source of productivity and the importance of information technologies to the knowledge economy (David and Foray 2002; Foray 2002).

The European Council held a meeting in March, 2000, to agree a new strategic goal for the Union in order to strengthen employment, economic reform and social cohesion in response to the changes arising from globalisation and the challenges of a new, knowledge-driven economy. The EU's strategic goal for the next decade is to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion (Rodrigues 2002b: 298).

It is therefore recognised that knowledge is becoming the main source of the wealth of nations, businesses and people but also a source of inequalities. Although knowledge

has always been an ingredient of human societies, what is significantly new is the speed of its accumulation and diffusion, due to information and telecommunication technologies.

The economic and social implications of the knowledge-based economy include the differences that are emerging between nations, regions, companies and people in terms of the holding of wealth and power; innovation as the main competitive advantage; competitiveness; the growth of network companies and e-commerce; the emergence of the learning organisation; new types of 'knowledge' workers and the segmentation of labour markets between workers with voluntary mobility based on up-dated skills and workers who run the risk of involuntary mobility due to out-dated skills (Rodrigues 2002a: 6). On this basis, there are inherent inequalities in the knowledge economy.

Lindley (2002) argues that this growth in the production, dissemination and use of knowledge means that there will be much greater scope for the codifying (encoding) of knowledge, making it potentially more accessible and marketable. The relationship between explicit and tacit knowledge is therefore important as organisations who can share knowledge are likely to be more effective in the production of knowledge upon knowledge. The issue of social exclusion is also explored by Lindley as, 'knowledge workers and the socially excluded are destined to live in different worlds' (Lindley 2002: 95). Projections for the EU for the period 1996-2005 show that the categories of managerial, professional and technical occupations (associated with high levels of education and training) will experience the fastest growth, as well as 'service workers' (a rather hybrid category comprising medium to low levels of skill).

David and Foray (2002) also recognise that knowledge has always been at the heart of economic growth and development driven by organisations with the ability to efficiently create and disseminate knowledge. Transformation to a knowledge-based economy is based upon the acceleration of knowledge production (intense scientific and technological progress, spearheaded by knowledge-based communities) the rise of intangible capital at the macroeconomic level (the creation of new knowledge and ideas incorporated into equipment and people) innovation as the dominant activity (its growing speed and intensity) and the revolution in the instruments of knowledge (the technological revolution) (David and Foray 2000: 9-11).

The total amount of accumulating human knowledge is increasing and codification (the encoding of knowledge) involves the exteriorisation of knowledge, detaching it from the individual and the memory, making the communication capacity created independent of human beings (David and Foray 2002: 13). What is expressed and recorded does not count as 'complete knowledge'; it is rather the reproduction of knowledge (the action of knowledge upon knowledge). Codification also translates knowledge into symbolic representations so that it can be stored on a particular medium, inscribing (through writing, graphics, modelling, virtuality) making it possible to examine and arrange knowledge in different ways and to isolate, classify and combine different components.

Knowledge-based economies emerge when people, with the help of information and communication technologies, group together in an intense effort to co-produce (e.g. produce and exchange) new knowledge. Scientific communities (which house producers and sharers of knowledge) are regarded as the professional communities

most deeply committed to the knowledge-based economy (David and Foray 2002: 14). Specific skills required in the knowledge economy include proficiency in the use of information technologies, teamwork and communication and learning skills. Generic learning abilities and the need to keep up with incessant change are also important (David and Foray 2002: 16).

The knowledge economy is built and relies upon information technologies for the production of knowledge upon knowledge and this is in turn creating wealth and inequalities. The knowledge economy involves high levels of investment in education, training and research and development (embrained knowledge) software and information systems, the acceleration of the production of knowledge, innovation and the information technology revolution. A key measure of success is the transfer of tacit to explicit knowledge.

The implications of a knowledge economy are mixed. Castells (2000) claims that there will be 'winners' and 'losers', Lindley (2002) and Rodrigues (2002a, 2002b) drawing out these inequalities. David and Foray (2002) and Lindley (2002) highlight the importance of the codification of knowledge (encoded knowledge) because this represents the ways in which knowledge is captured, stored and shared in knowledge-type organisations. But is encoded knowledge gendered? To what extent are women involved in the collection, storing and sharing of knowledge? This could represent a major inequality in a knowledge-based economy, given the emphasis placed on encoded knowledge. Analysis of call centres (knowledge-type organisations) where women are overwhelmingly employed at adviser and team manager levels, may well

reveal the gender-based inequalities in the knowledge economy that have not been addressed by authors on the 'new'/knowledge economy.

The Knowledge Economy and Gender

The knowledge economy literature generally lacks a gender focus but a growing body of literature is emerging on this important topic (Burnley *et al.* 2001; Burns 2000; Gill 2002; Johnson 1999; Perrons 2003; Stanworth 2000; Walby 2001).

Castells (1997) devotes one chapter (in Volume II) to gender, stating that 'patriarchalism' is crumbling in the information age due to a massive incorporation of women into the paid labour force. At the end of the millennium, the patriarchal family, the cornerstone of patriarchalism, is being challenged by the transformation of women's work and the transformation of women's consciousness. The incorporation of women into paid work and the opening of educational opportunities to women has undermined the legitimacy of the patriarchal family. Castells does recognise that women are usually in paid work under discriminatory conditions and that the family is less of a focal point but this point is explored in isolation from the remainder of his new economy thesis.

Walby (2001) analyses non-standard employment forms in the UK (self-employment, part-time, and temporary work) to assess the question, is there a new economy and hypothesises both a 'weak' and a 'strong' thesis for a new economy, the former involving the extent, nature and significance of occupational change, the latter, the extent to which these changes have led to changes in the organisation of work. Walby

(2001: 25) claims that there is some evidence for a new economy, but only for the weak form, not the strong form of the thesis.

There have been changes in specific occupations (information technology workers, teleworkers and cultural industry workers being the most significant and the closest match to the new economy) but:

A significant part of the new forms of working which have been attributed to the new economy are actually more the result of the changing gender composition of employment combined with women's increased political voice. Many of the writers mistakenly ignore or underestimate the significance of gender (Walby 2001: 26)

It is not, therefore, the new economy but women increasingly entering the public sphere, increasing their employment, increasing their representation in Parliament and the State and being less confined to the family that is making the difference. Women began entering the paid workforce before the culmination of the new economy in the 1990s. There is a complex pattern in which changes in the gender regime have occurred during and before the separate development of the new economy (Walby 2001: 22).

The question of the relationship between the knowledge economy and gender is also explored by Burnley *et al.* (2001: 1) who examine the geography of economic and social change. They hypothesise:

The rise of the knowledge economy should be good news for working women all over Britain. With 'brainpower' now mattering more than sheer 'brawn', we should expect women to have a wider and better choice of jobs

There is thus a strong link with 'embrained' knowledge, 28% of working-age women holding a degree or equivalent qualification, compared with 26% of men and this has

led to a 'brainier' female workforce (Burnley *et al.* 2001). Nearly half of the employment sectors in London are knowledge-intensive in the sense that graduates make up at least twenty three per cent of their workforces (Burnley *et al.* 2001: 4).

Therefore, the presence of a knowledge economy is predicated on higher levels of education and women are included and are thus 'passport holders' to the knowledge economy. By 2000, 25% of the country's workforce had equal 'passports' to the knowledge economy and women claimed a major share of this, as 50% of graduates were women. It is predicted that by the year 2010, when an extra one million women will be in well paid graduate level occupations in the UK (compared with an extra 665,000 men) women will make up a much larger share of the knowledge economy workforce than at present and will be better represented in the managerial, professional and technical occupations.

Attempts to gender the new economy have also focused on the gender bias of financial exclusion that has been overlooked by new economy writers (Johnson 1999) because new economic tools, such as community currencies and microfinance initiatives, do not address the gender inequalities at the heart of traditional economies. Burns (2000) explores the concept of 'time money' and reiterates the need to recognise the value of paid work that is undertaken by carers, women and sometimes children.

An increasing amount of research on gender and the knowledge economy is focusing on 'new media' work (Gill 2002; Perrons 2003) this section of the 'cultural industry' believed to epitomise the 'new' type of work in the new economy. Perrons argues that a digital divide exists in the new economy which may build upon and reinforce

divisions, such as gender, with white, middle class men over-represented in high level occupations, while women, ethnic minorities and people from the lower social classes are to be found in the generic, lower-paid jobs, such as office cleaning, personal fitness, catering and care (2003: 66-67).

Perrons explores the work-life balance in the new economy and highlights some differential opportunities and constraints experienced by women and men in the new media sector. There are both positive and negative aspects for women in the knowledge economy. On the positive side, insecurity, isolation and community fragmentation (the negative side of the new economy according to some authors) were not experienced by new media workers. Few were concerned about job security or their ability to acquire work. There was also a strong sense of community in terms of location (Brighton and Hove) and social and business networks. On the negative side, although this way of working provided flexibility for women who could combine work and caring responsibilities, there were nevertheless 'serious tensions' between work and life for at least half the sample (even more so for those with a major or sole caring role, who were disproportionately women). The sector is also characterised by a gender imbalance, women being underrepresented overall and overrepresented in the smaller firms (measured by either turnover or number of employees). There was also evidence of gender bias in lending practices by banks and venture capitalists, who were less likely to fund small project start-ups (mostly by women) that were seen as not being financially attractive.

Therefore, although ICT allows for greater flexibility in working hours and location, the uneven balance between men and women in terms of domestic and childcare

responsibilities remains a problem, with women taking the majority of responsibility. Until the work-life balance is addressed, these gender imbalances will remain.

Gill (2002) also focusing on gender inequalities in new media work, claims that new forms of 'sexism' in new media represent a serious challenge to its self-image as 'cool, diverse and egalitarian' (2002: 70). New media workers are defined as 'portfolio workers' and the emergence of this sector in less than a decade has again been attributed to technological, economic and social changes (the world wide web, growth in affordability of personal computers and development of dot.com companies).

Gill claims that it might be expected that new media work is not gendered because workers tend to be highly educated, trained, technically literate and to possess a range of business and other skills. However, Gill's research indicates that this is not the case because women and men generally have very different experiences of work in new media

Reported differences began at school, women claiming to have much fewer opportunities to use computers. Once in new media type work, women reported receiving significantly less contracts than men and when they did, these were more likely to be in the public or voluntary sectors. Women also earned less money than men and were far more likely than men to work from home. These differences can be understood by looking at three 'problem' areas: informality, flexibility, and the 'post-feminist' problem. In terms of informality, amongst other criteria, women found that access to the securing of new contracts was often carried out informally, through networks and some women described this 'as a form of gendered exclusion, such as the

activities of the ‘old boy’s network’ (Gill 2002: 82). In terms of flexibility, the needs of the project often determined the working hours rather than by the needs of the workers. Finally, in terms of the ‘post-feminist problem’, men and also most women, failed to understand their experiences as having anything to do with gender.

Stanworth (2000: 20) examining trends in the UK labour market, also concludes that:

...the information age may lead to some areas of convergence between the sexes in their experience of future work but men may continue to defend areas of competence and to dominate the high status and powerful occupational positions of the future

Recognising that information technologies redefine work processes and workers and therefore that employment and occupational structures will continue to change, Stanworth highlights that some patterns are already emerging in ICT-based work sectors and that women are losing out.

However, on a more positive note, Stanworth argues that oppression and discrimination against women in the information age is not inevitable as the better educated, career minded new generation of women may be more successful in contesting the way technology develops and the sex-typing that takes place around emergent jobs and occupations.

The foregoing analyses identify the knowledge economy as gendered. Castells (2000) isolates gender into one chapter of his three volumes on the new economy and thus fails to make wider linkages to his thesis on the new economy, especially in relation to knowledge and technologies. However, others have placed gender at the centre of this

debate in several important ways (Walby 2001; Burnley *et al.* 2001; Perrons 2003; Gill 2002). By analysing the situation of women in call centres (knowledge-type organisations) and examining their relationship with knowledge, the valuing or de-valuing of their skills, their management styles, career opportunities and their place in the design of call centres and their related technologies, the debate on the gendering of the knowledge economy will be developed and more specifically, related to the fastest-growing sector in the UK (call centres).

Knowledge Types

Knowledge is the core product of the knowledge economy but it is difficult to define. One way of unpacking knowledge is to analyse different knowledge types and to apply these to different types of organisations. Lam (2002) and Blackler (1995) have typologised knowledge into four ‘types’: embrained, embodied, encoded and embedded (although Blackler adds a fifth category – encultured – but this is closely linked to embedded knowledge). Lam argues that all organisations contain a mixture of these knowledge types but that some organisations may be dominated by one type more than another.

The categories of explicit-tacit and individual-collective forms of knowledge give rise to four categories of knowledge: embrained, embodied, encoded and embedded.

- *Embrained knowledge* (individual and explicit) is dependent on the individual’s conceptual skills and cognitive abilities and is represented by formal, abstract, or theoretical knowledge, which is learnt through reading books and in formal education. Embrained knowledge enjoys a privileged social status within

Western culture and is most likely to be found in the 'ideal typical organisational form' of a professional bureaucracy (based upon individual and standardised knowledge).

- *Embodied knowledge* (individual and tacit) is action-orientated and learnt through experience and training based on apprenticeship relations. It is particular knowledge which becomes relevant in the light of the practical problem-solving experience. Embodied knowledge is most likely to be found in an 'operating adhocracy' (a highly organic form of organisation with little standardisation of knowledge or work process).
- *Encoded knowledge* (collective and explicit) is shared within organisations through written rules and procedures and formal information systems. It is formed in making explicit as much as possible of tacit knowledge. This is well illustrated by the principles of scientific management which attempts to codify worker experiences and skills into objective scientific knowledge. Encoded knowledge is to be found in the 'ideal typical organisational form' of a machine bureaucracy, which has a collective and standardised knowledge base where the dominating principles are specialisation, standardisation and control. This is a mass production environment, with Fordist production and Taylorist management predominating: 'the managers are the key agents responsible for translating individual knowledge into rules and procedures and for filtering information up and down the organisational hierarchy' (Lam (2002: 71)).
- *Embedded knowledge* (collective and tacit) is built into routines, habits and norms that cannot easily be transformed into information systems. It is produced through social interaction among different members of the organisation and supported by its shared cultural norms. Embedded knowledge

is relation-specific and dispersed. It is an emergent form of knowledge capable of supporting complex patterns of interaction in the absence of written rules. Embedded knowledge is most likely to be found in the J-form organisation (with a collective and non-standardised knowledge base).

(Lam 2002: 69).

Tacit knowledge, which is difficult to create and transfer in the absence of social interaction and labour mobility, constitutes the most important source of learning and sustainable competitive advantage in the knowledge economy and institutions that are able to harness tacit knowledge as a source of learning are more likely to produce strong innovative capabilities (Lam 2002). Ultimately, tacit knowledge, if harnessed and captured, is encoded into the organisation's knowledge system.

These are important knowledge types, especially in the context of call centres. It is therefore important to determine the presence of and to further develop these knowledge types by asking, are they gendered? This is especially important, given that women predominate at the levels of the organisation where knowledge is captured. Lam does not consider the gendering of these types of knowledge and this is a potential problem because women may not be sharing access to them on an equal footing with men. It is therefore important to determine the presence of these four knowledge types in call centres, at which levels in the organisational structure they are present and whether or not the types and forms of knowledge and access to them are gendered.

Knowledge Work

Having established that different types of knowledge are present in different types of organisations, it is necessary to identify what is meant by ‘knowledge work’ and a ‘knowledge worker’. Drucker (1993) defines a knowledge worker as the ‘educated’ person in postindustrial society, Bell (1974) as ‘scientists’ employed in knowledge communities. The main debate, however, centres around the inherent ‘winners’ and ‘losers’ who are employed in the knowledge economy, for example, those employed in ‘information-rich’ or ‘knowledge’ occupations (in the managerial, professional and technical occupations) and those in low-end, unskilled occupations (Carnoy 2000; Castells 2000; Quah 1996; Reich 2001). Whether or not call centre workers are ‘knowledge workers’ is debated by drawing upon Frenkel *et al.*’s (1999) analysis of ‘frontline’ call centre workers who draw upon different forms of contextual knowledge and mobilise a different set of skills (Belt and Richardson 2000; Callaghan and Thompson 2002). Finally, call centre employment as ‘low-end’, boring, repetitive work is debated from a labour process perspective (Ferne and Metcalfe 1998; Taylor and Bain 1998).

A knowledge worker is defined as:

Someone who interprets and applies information to create and provide value-adding solutions, and to make informed recommendations (Winslow and Bramer 1994: 14)

Knowledge now represents the source of ‘added value’, rather than labour, the driving force of change being the centrality of intellectual capital as a source of innovation and organisational advantage. The rise in knowledge work is particularly germane to the

categories of managers, professionals and associate professionals (Flood *et al.* 2001: 1153).

The problem with this definition is that it places knowledge workers in a hierarchical position (managers and professionals) and it follows that value can only be added by those who occupy these positions. Is this correct? Or can employees lower down in the managerial hierarchy also ‘add value’?

At the other end of the spectrum, knowledge work is all-inclusive:

The problem with a broad definition of knowledge work is that it is too inclusive to be of any use – everyone is a knowledge worker because everyone’s work involves knowledge in some form. Consequently, researchers have sought to find a tighter definition (Noon and Blyton 2002: 203)

Indeed, researchers have attempted to define the archetypal ‘knowledge worker’, offering a range of overlapping definitions. There is general agreement on some points: the knowledge worker as the ‘educated person’ (through the embodiment of embrained knowledge) (Bell 1973; Drucker 1993) and scientists, employed in research and development (Bell 1973). Drucker (1993) places the date of transformation to a post-industrial society around the 1960s, linking this to a rise in levels of embrained knowledge. This transition, he claims, is still taking place and will not be complete until 2010.

Drucker claims that knowledge workers account for one third or more of the total workforce of developed countries and that skilled service workers account for another third. In the knowledge society, embrained knowledge is central because knowledge

does not reside in a book, a data bank or a software programme but in the 'educated person'. Therefore, 'the knowledge society *must* have at its core the 'educated person' (Drucker 1993: 192).

Bell (1973: 175) defines knowledge as:

A set of organised statements of facts or ideas, presenting a reasoned judgement or an experimental result, which is transmitted to others through some communication medium in some systematic form

According to Bell, we have moved from a goods-producing to an information and knowledge society (post-industrial society) with theoretical (embrained) knowledge directing innovation and policy formulation. Knowledge is, crucially, the 'action of knowledge upon knowledge'. Bell acknowledges that knowledge has always been a necessary function of any society but that it has changed in character, theoretical knowledge now being central.

The change in the character of knowledge in postindustrial society is represented by the exponential growth and branching of science, the rise of a new intellectual technology, the creation of systematic research through research and development (Bell 1973; OECD 2002) and as the calyx of this, the codification of theoretical knowledge. The crucial group in the knowledge society is that of scientists, who have experienced the largest growth as a group (930% between 1930 and 1965) and who are described as the 'scientific elite' - the chief resource of postindustrial society. These changes run hand in hand with the democratisation of higher education and with an increase in enrolments and graduations. The university therefore becomes the primary institution of the postindustrial society (Bell 1973: 245-6) with the educated person at its centre.

These accounts present knowledge workers (the ‘educated person’ with high levels of embrained knowledge) as central to the knowledge economy. Research, development and innovation are key activities and codified (encoded) knowledge is the most important knowledge type (a theme that is evident from most analyses of the knowledge economy, along with embrained knowledge). These analyses place knowledge workers within a hierarchy of workers (near the top). Is this correct? Do workers have to be, amongst other things, well educated, scientists and involved in university education? Must they be in the higher echelons of the employment hierarchy? Bell’s (1973) definition of a knowledge worker could surely apply to any worker (making personal judgements and transmitting this to others through communication mediums in a systematic way). Is this not what call centre workers are employed to do on a daily basis?

Knowledge Work and Call Centres

The debate on call centre workers as ‘knowledge’ workers is addressed by Frenkel *et al.* (1999) who postulate that call centre work involves the use of different levels of contextual knowledge. Skill levels are also important, call centres portrayed as requiring key skills from their employees (Belt 2003; Belt and Richardson 2000; Callaghan and Thompson 2002; Korczynski 2001; Thompson 2002). Conversely, call centre work is defined as routine, boring and repetitive (Bain *et al.* 2002; Belt 1999; Fernie and Metcalf 1998; Knights *et al.* 1999; Taylor and Bain 1998).

Frenkel *et al.* (1999) postulate three 'ideal types' of call centre or 'frontline work': service work, which is routine in nature, operating along *bureaucratic* lines; sales work which is more complex and *entrepreneurial* in nature; and knowledge work which operates within networks and represents a *knowledge-intensive* model. The role of the frontline worker will therefore vary in both form and complexity, regardless of the national context. According to this argument, the role of the frontline service worker is becoming more important as employees are encouraged to develop computer, social and analytical skills and take on new occupations in an empowered setting.

Importantly, frontline work is *different* from production and back office work because it is people orientated (employees interact directly with the customer) it is rarely completely routinised (employees have discretion over their interaction with the customer) and it is especially sensitive to changes in internal and external organisational environments. Variation in demand for products and supply directly affect frontline workers and their ability to demonstrate emotional resilience and act flexibly. Frontline work is invariably strategically important and frontline workers are often the interface which helps the business to develop its customer knowledge base.

The frontline workers in Frenkel *et al.*'s research use different levels of contextual knowledge. Customer service representatives (CSRs) use both lower-order contextual knowledge (company-specific products, procedures, etc.) and higher-order contextual knowledge (conceptual understanding of different products, the market and industry). Whilst dependent upon lower-order contextual knowledge for routine service work, CSRs also demonstrate a degree of creativity and social and organisational skills in their execution of more complex tasks.

Home loan consultants (sales people) have considerable autonomy with their dual 'entrepreneur/employee' role. Both lower and higher-order contextual knowledge are again required for this role but the higher-order social, market and entrepreneurial skills predominate. Information technology systems developers and money market dealers have a 'knowledge' role, this knowledge being based on electronics and engineering. Theoretical knowledge and higher-order contextual knowledge are often closely related, individuals of necessity being highly creative with strong higher-order analytical and problem-solving skills (see also May *et al.* 2002).

The role of the call centre worker can therefore be complex, though Kinnie *et al.* (2000: 133) observe:

While they [call centre workers] are also knowledge workers, occupational skew is largely towards the lower rather than the higher end of the skills spectrum

Baldry (2002) has also observed that whilst information technology professionals are expected to occupy the top of the occupational ladder of the information society, it is likely that call centre operatives would be closer to the bottom.

The organisation of call centre work lacks job satisfaction or skill and career development. The majority of agents spend most of their working day solely speaking to customers over the telephone, working on a narrow range of tasks, using computerised scripts and being heavily monitored and controlled via information technologies (Belt and Richardson 2000). Work was described by many agents as being 'repetitive, stressful and tiring'. However:

When the issue of skill was discussed more broadly, many agents, supervisors and managers were very keen to emphasise that call centre work was far from 'unskilled'....despite the repetitive and standardised nature of much of their work, the majority of agents emphasised that certain sets of skills and competencies were required in call centre work (Belt and Richardson 2000)

The range of skills included handling customers professionally, efficiently and under strict time pressures, conveying the right image to the public over the telephone and the performance of emotional labour (see Hochschild 1983). Having good communication and telephone skills and the ability to build rapport with the customer (patience and good listening skills) are also identified as important. Agents also emphasised the elements of discretion and responsibility involved in their work and the ability to handle calls on a variety of products and services. Generally, the levels of skill varied and this was dependent upon the contextual setting (e.g. whether the call centre was in financial or computer services, the latter allowing more complexity and use of skills and abilities (see also Callaghan and Thompson 2002). Call centres have also been found to have a sophisticated recruitment and selection process with employers looking for specific social and technical skills (Belt 2003; Thompson 2000).

There are positive and negative aspects to call centre work, the former being associated with the need to effectively combine a combination of skills and competencies to deal with unpredictable complexity and the highly routinised, repetitive nature of the work (Belt and Richardson 2000). It is therefore appropriate to conclude that jobs can range from the extremely routine and repetitive to highly skilled knowledge work predicated upon extensive product knowledge and highly-developed communication and interpersonal skills. Perhaps, above all, customers require service workers in call centres to demonstrate genuine commitment to giving good service and to convey a

feeling that they are being treated as an individual rather than the next customer in the line (Korczynski 2001). The analysis of management practices and employment outcomes in call centres in an HRM context has also recently been explored (Batt and Moynihan 2002; Holman 2002; Houlihan 2002; Hyman *et al.* 2003).

Call Centres and the Labour Process

Academic literature on call centres has tended to focus on their 'Tayloristic' work practices, following Braverman (1974) and the degradation of clerical work through information technologies. Call centres have been variously described as 'sweatshops and electronic panopticons' (Belt 1999; Fernie and Metcalf 1998) 'assembly lines' (Taylor and Bain 1998) and the 'latest phase in Taylorist developments' (Bain *et al.* 2002). They have also been described as sites of 'worker resistance' (Bain and Taylor 1999, 2000; Mulholland, 2000) emotional labour (Taylor 1998) and of quality-quantity conflicts (Knights *et al.* 1999).

Arkin (1997: 1) claims that in the rush to set up call centres, employers have sometimes neglected the people issues raised by this method of providing services and compares call centres to production lines and battery farms with rows of operators crammed together in front of computer screens using highly standardised procedures.

Fernie and Metcalf's (1997) research has been at the centre of academic debate because of its use of the 'panopticon' metaphor to describe the presence of 'total control' in call centres. They argue that:

This occupation merits study because the possibilities for monitoring behaviour and measuring output are amazing to behold - the 'tyranny of the assembly line' is but a Sunday school picnic compared with the control that management can exercise in computer telephony (Ferne and Metcalf 1997: 2)

Ferne and Metcalf's is probably the most often cited, criticised and debated piece of academic research on call centres, predominantly due to its focus on 'total control' and disregard of 'worker resistance' (e.g. Bain and Taylor 1999, 2000; Taylor and Bain 1998). Bain and Taylor argue that supervisory power is not 'rendered perfect' and that the potential for and actuality of worker resistance has been underestimated.

Warhurst and Thompson (1998: 4) argue that:

The content of much contemporary work remains highly routinised, with call centres in the financial services sector requiring little more of workers than information transfer, involving scripted, standardised interactions that are monitored, often referred to as 'verbal and interactive Taylorism'

Management is able to control not only what workers do but also what they say and how they say it. Empowerment is more to do with increased tasks than increased discretion.

Knowledge work in the call centre context has also been questioned by Thompson *et al.* (2000) who argue that although key growth areas of service work draw upon knowledge and increasing skills and innovation, they do not resemble the 'dominant model'.

However, call centre research must be contextualised because the panopticon model, although useful, has been used 'too tightly' and in excess, to the detriment of competing evidence. Call centre labour processes, conditions of employment, workforce

resistance and the extent to which surveillance technology is utilised (rather than available) can only be analysed and explained with an adequate appreciation of context - the nature of the product or service, the market context and the prevailing management strategies. The notion of call centres as an inclusive term is questionable (Lankshear *et al.* 2000).

Frontline service work can therefore be distinguished from production-type assembly line work (see also Batt (2000) who argues that the relationship between the customer and front-line service provider is a central feature that distinguishes production-level service activities from manufacturing).

Frenkel *et al.* have drawn out the complexities of call centre employment where high and low levels of contextual knowledge, discretion and the ability to deal with changing demands are key skill requirements. Call centre work therefore involves the use of social and technical skills and the possession of core competencies. However, call centre work has also been placed at the bottom end of the occupational hierarchy (Baldry *et al.* 2002; Kinnie *et al.* 2000) and described as boring and repetitive. Labour process theorists further argue that information technology has deskilled office work and call centre work because technology is an instrument of control that has created a division of labour and the destruction of craft industries. Is this a technologically deterministic view of call centre work?

New technologies have deskilled and reskilled work for women (Liff 1993). Following the introduction of new technologies in an office environment, women clerical workers reported that there had been a reduction in the proportion of tedious, repetitive tasks.

that they were able to access a wider range of information, to perform additional tasks and to present information in new ways. Upon the introduction of new technologies, these jobs were reskilled because workers had gained new skills through the use of new technologies.

Undoubtedly, call centre work involves a fusion of knowledge work and repetitive, routine tasks but this will vary according to the context, for example, the type of call centre (is it part of a larger organisation or a free-standing outsourced call centre) and the sector (is it part of the finance, retailing, utilities sectors, etc?) Context is important, a criteria missed by many analyses of call centres.

'Winners' and 'Losers' in the Knowledge Economy

One central theme running through the 'knowledge' literature is that knowledge can be a source of wealth and innovation but also of inequalities and exclusion. The knowledge economy has witnessed an expansion of information-rich occupations (e.g. managerial, professional and technical) which now form the core of the new occupational structure, accompanied by a less substantial growth in low-end, unskilled service occupations (Castells 2000; Reich 2001).

In the knowledge economy, routine, repetitive tasks will be undertaken by machines, producing a new division of labour, with those individuals and groups who are unable to acquire informational skills being excluded from work or down-graded as workers (Castells 2000: 280). The prevailing model for labour becomes one where there is a core labour force, formed by information-based managers and 'symbolic analysts' and a

dispensable labour force on the periphery that can be either automated, hired and fired or offshored (or all of these).

The new economy requires a workforce that is not only well educated but also ready to change jobs quickly and to take the risks associated with rapid change (Carnoy 2000). Carnoy places new technology at the heart of these changes, which not only displaces workers but also creates new jobs by raising productivity in existing work and making possible completely new products and processes. Therefore, 'employment growth, not displacement, is dominating' (Carnoy 2000: 4). The spread of computer technology is producing rapid job growth which is not leading to the deskilling of work, as evidenced by the growth of managerial and professional jobs in OECD countries. On the other hand, middle level jobs have declined and new unskilled jobs created with economic growth, these often being filled by migrants (Carnoy 2000: 21).

Work is profoundly changing due to two key elements – the flexibility of work processes and networks of firms and individuals within them. Flexibility (driven by greater worldwide competition) means that work tasks and times can be adapted to changing products, processes and markets using a labour force that is both functionally and numerically flexible (part-time, temporary, self-employed and contract workers). Networks represent the 'new logic of the firm' with changing hierarchies and organisational forms based on interactive connections between different layers and positions within the firm, between firms and within the market. The 'career job' (full-time employment with a single firm until retirement) is gradually disappearing and the duration of those that still exist is decreasing (Carnoy 2000).

There are thus 'winners' and 'losers' in the knowledge economy (Reich 2001). On the one hand, 'winners' are defined as 'creative workers', masters of innovation whose presence will continue to grow in importance because innovation lies at the heart of the new economy. On the other hand, 'losers' are those who do anything for pay that is repetitive or routine and can be done more cheaply by a machine or computer software or someone else around the world (engaged in 'make work') (Reich 2001).

This points to widening inequalities where high performers, who are valued by the firm, receive high wages, bonuses and stock options, while simultaneously, routine workers have their wages and benefits cut. The driving forces behind these changes are the new technologies of communication, transportation and information, culminating recently in the internet and e-commerce, which have dramatically widened customer choice. These 'new deals' of the new economy come at a steep price: more frenzied lives, less security, more economic and social stratification and the loss of time and energy for family, friendship and community (Reich 2001).

In the new economy, 'winners' and 'losers' are made (constructed) and patterns of polarisation and stratification appear. However, relative mobility between the rich and poor also arises, giving rise to opportunities for both (Quah 1996). The new economy has led to an expansion in 'information-rich' occupations, or those occupations associated with 'knowledge' work, in parallel with the emergence of a dispensable labour force that is unable to acquire informational skills (Carnoy 2000; Castells 2000; Quah 1996; Reich 2001). There are, therefore, 'winners' and 'losers' in the knowledge economy.

Castells claims that routine, repetitive tasks will be undertaken by machines and that workers will be down-graded and pushed to the periphery of the labour market. At the same time, there is an expansion of information-rich occupations (in the managerial, professional and technical job categories). There is an element of routine and repetitive work in call centres (deskilling) but as knowledge-type organisations, call centres employ people who possess a wide range of social and technical skills and therefore, perhaps, this had led to the reskilling of work in the knowledge economy. There is also, perhaps, a new form of flexibility (functional and numerical) in call centres. What will this mean for women in call centres?

Exclusion in the knowledge economy can take many forms (e.g. exclusion from certain technologies) and 'fears' are expressed about the creation of a group of 'information poor', the section of the population excluded from the information society due to lack of money, an absence of training and other support networks to learn about technologies in a social setting in which people feel comfortable. Routes for inclusion of some otherwise excluded social groups from the information society in relation to access, training and use of the internet have been explored (Liff, Watts and Steward 1999; Liff 2000; Liff and Watts 2000; Liff and Steward 2001a, 2001b; Liff, Steward and Watts 2002) through a series of reports, articles and book chapters.

The central argument is that 'e-gateways' (community project groups and cyber (internet) cafés, represent points of entry to the internet and new technologies that would otherwise be inaccessible to some excluded groups. These are new types of organisation offering internet access in a social setting and importantly, where access includes not only access to technologies but also to the right kind of social support.

There are, broadly, two ways of achieving this: shopfront e-gateways (internet cafes for experienced and inexperienced users) and community e-gateways (community projects) that draw from existing links into a neighbourhood to attract users. These support access to the information society in a social place that is different from work or home.

Inclusion is also important because there has been a rapid growth in organisations offering goods and services via the internet, which would otherwise not be available to some without the provision of internet cafes and community projects. Such organisations would appear to have at least the potential for encouraging more people to use the internet and to support their learning.

‘Winners’ in the knowledge economy are those at the higher, creative end of the job structure, ‘losers’ those who perform repetitive tasks that can be carried out more cheaply by a machine. Liff *et al.* explore a further dimension to this exclusion by identifying ways in which some socially excluded groups can and do obtain access to new information technologies.

The Future of Career in the Knowledge Economy

In the migration to a knowledge economy, a 'new organisational logic' has emerged - the horizontal corporation (Castells 2000) where corporations have moved away from their industrial organisational forms (e.g. vertical integration) to enable them to adapt to the new conditions under 'flatter' hierarchies. What implications does this have for career progression in the knowledge economy, especially for women who predominate

in call centres? Are women included or excluded from career advancement in the knowledge economy?

The future of career in the knowledge economy is important but remains under-theorised by Castells (2000) his only reference to this being that, overall, the traditional form of work, based on full-time employment, clear-cut occupational assignments and a career pattern over the life-cycle is being slowly but surely eroded away (2000: 290). However, the shift from vertical bureaucracies to horizontal corporations with subsequent 'flatter hierarchies' and broader spans of control that led to the elimination of management (Buchanan and Huczynski 1997) *should* inevitably lead to a new form of career. If the traditional notion of career is being eroded away as Castells claims, then what will replace it? Debates on the future of career are discussed with reference to the future of career in the knowledge economy (e.g. Colin and Young 2000; Flores and Gray 2000; Littleton *et al.* 2000; Osterman 1996; Richardson 2000; Storey 2000; Vitols 2000; Young and Valach 2000) and in the call centre context (Bagnara 2000; Belt 2002; Kinnie *et al.* 2000; Watson *et al.* 2000).

As Colin and Young (2000) have noted:

Many in our complex and highly differentiated society use it [career] to attribute coherence, continuity and social meaning to their lives

The future form of career is important and may change but continuities may also persist. Is it correct to say that there is continuity in career; or has it outlived its usefulness, given its association with industrial society? The knowledge economy raises several questions related to the future of career.

Career has been transformed into what Storey (2000) describes as 'fracture lines', key contextual factors that have led to the transformation of career that have the potential to alter the nature of whole industries, services and their constituent organisations (e.g. globalisation, technological advances, changing organisational forms and structures, increased job insecurity and changes in education). Fracture lines have enabled the consideration of the longevity of multiple meanings of career rather than limiting our vision to a more immediate focus on contemporary change thereby both broadening and enabling the concept of career to continue.

The 'boundaryless' career is another option for the future (Littleton *et al.* 2000) with the shift from 'bounded' careers - prescribed by relatively stable organisational and occupational structures - to 'boundaryless' careers - where uncertainty and flexibility are evident (Littleton *et al.* 2000: 101). This illustrates the shift to intellectual capital, where people take hold of their own learning agendas.

The meaning of career in the knowledge economy has been questioned by Osterman (1996) because the terms and conditions of employment have changed for employees, with more diverse activities, more responsibility, an increase in the demand for skills and new job creation. Crucially, these changes have put managerial jobs at risk and changed the very nature of managerial work. The internal labour market is where the structure or framework of careers evolves, with managers in the past moving up well-defined ladders, lateral shifts being rare. These jobs are relatively secure but more risks are involved and a greater element of managerial pay is contingent on performance with lay-offs more likely. There are greater rewards for those who are promoted but

due to the flatter structures and less promotional opportunities, generalist skills are being valued over those of the specialist.

The world of managers has changed with higher insecurity, slower promotions, more complex jobs and fewer ranks (Osterman 1966: 20). Additionally, the shift from bureaucratic to networked organisations has resulted in longer working hours, increased sensitivity to customer demand and greater emphasis on the skills of coaching, coordinating, teamwork and negotiating abilities.

Flores and Gray (2000: 9) agree that the career as an institution is in unavoidable decline because:

The emergence of knowledge-based economies means the creative destruction of many time-honoured practices, including those at the core of traditional career structures...the very idea of a career now makes less and less sense of most people's working lives

We therefore need a new 'entrepreneurial' approach to working life because the corrosion of the institution of career is the principal economic challenge that faces the working majority in late modern societies. This resonates with Sennet's (1998) claim of a 'corrosion of character' in that career, in its previous sense, meant a lifelong channel for one's economic pursuits. However, 'flexible capitalism' has blocked the roadway of career, diverting employees suddenly from one kind of work into another (Sennet 1998: 9).

This decline in career has been attributed to the impact of new technologies through technological displacement of employees and the restructuring of organisations, the

increasing customisation of products and services and the impact of globalisation on local knowledge (local knowledge is 'scattered' by the diffusion of new technologies). In practice, 'many working lives are both wired and entrepreneurial' and there is 'no way back' to the world of work in which the career was central (Flores and Gray 2000).

Wajcman and Martin (2001) found that elements of the bureaucratic career remain but also that there has been a shift to portfolio working (see Handy 1994) among younger managers. However, Cohen and Mallon (1999) question the 'portfolio career' and the demise of the traditional career because the literature on 'new careers' tends to be non-empirically grounded, to have untenable dichotomies between old and new careers and pays little attention to the downside of flexible careers (1999: 335).

The careers literature signals change but also continuities for the future of career. Knowledge economy writers tend to signal the end of career in its present form, with more risk now associated with the managerial role. However, this literature does not address gender differences in career opportunities. Given that call centres are predominantly staffed by women, what will this mean for women's future career progression?

Career has three meanings in the call centre context. Firstly, call centre workers' employment is organisation-centred rather than occupational (Kinnie *et al.* 2000: 133). Secondly, careers are sectoral (between call centres) with massive horizontal mobility from organisation to organisation (Bagnara 2000: 20). Finally, the different sectoral, occupational and organisational bases of call centre work arguably afford a range of different images of career, as well as of employee experiences (Watson *et al.* 2000).

The question of whether there is a meaningful notion of career in the call centre context is explored by Watson *et al.* who conclude that the concept of career does have meaning within call centres, albeit in a very different sense than that used in more stable and less constrained employment contexts.

The situation of women in call centre management is absent from most accounts of call centre research. This is surprising as, overall, women are well represented in call centres compared to other industries and comprise up to half of all call centre managers (Belt *et al.* 1999; Calcom 1997). Belt and Richardson (2000) and Belt (2002) reveal a 'mixed picture' for women, with career ending at the supervisory level due to a general lack of managerial roles available, insufficient management training and for women with caring responsibilities, difficulties in reconciling the demands of a managerial career with family life. However, Belt (2002) acknowledges that call centres are 'not entirely careerless' as several women are 'making it' to team manager positions and a few into higher levels of management.

The shift to a knowledge economy may have implications for the future of career, not least because of changes in hierarchical models and spans of control. Career theorists argue for continuity and change in the future of careers, using concepts of 'fracture lines' and 'boundaryless careers' to aid understanding of the importance of an increased awareness of multiple life and work experiences. Flores and Gray (2000) and Osterman (1996) have little doubt that career ladders have been 'broken' and whilst the concept of the traditional career is not obsolete it has taken on different meanings.

What does 'career' look like in the call centre context? Are call centre careers centred on the organisation, the sector, or both? Will the 'flatter' operating structures in call centres have implications for women's career progression? The careers literature generally and call centre literature specifically, lacks a gender focus, with a few notable exceptions.

Technology

The knowledge economy is built upon and enabled by information technologies (Castells 2000; David and Foray 2002; Lindley 2002; Rodrigues 2002a, 2002b; OECD (2002). In this section, the technological design network is explored through actor network theory (Latour 1988, 1991, 1993, 2000; Law 1991; Callon 1991) the social shaping of technologies and the ways in which different groups of people are involved and thus have different understandings of that technology (Bijker 1992; Bijker and Law 1992; Pinch and Bijker 1984). This provides the background for an analysis of the relationship between gender, technology and design networks.

The Relationship between Technology and the Knowledge Economy

Woolgar (2002) explores five 'rules' for examining the relationship between technology and society: the uptake/use in relation to the local and social contexts; the fears and risks associated with uneven social distribution of technology; virtual technologies supplementing rather than substituting for real activities; the impact of the 'virtual' upon the 'real' (e.g. teleworkers travelling to meet clients); and finally, the more global, the more local. A further rule could be added: the success (or outcome) of

technological design networks in call centres may depend upon the de-gendering of design networks. Woolgar's basic argument is that new technologies require us to think about the social context and the very basis upon which we relate to one another.

Castells places the emergence of what he terms a 'new technological paradigm' around the 1970s in the USA, which occurred with the coincidence of major innovations in three key technological fields - micro-electronics, computers (including the internet) and telecommunications, which facilitated a quantum leap due to their accessibility, affordability and increased quality. The foundations for this new technological paradigm are informationalism, globalisation and networking (the main components of the knowledge economy).

There is no uniform definition of the knowledge economy, the United Nations (UN) European Union (EU) and Organisation for Economic Co-operation and Development (OECD) taking different but overlapping approaches to the categorisation of technology, information and knowledge working.

The UN's focus is upon the information sector (including culture industries) which covers all forms of media, telecommunications, software and data processing but surprisingly, excludes broader computer services. The classification adopted by the EU has a focus upon both high-tech manufacturing and knowledge-intensive services and is broken into four categories, all of which are regarded as knowledge-intensive: high-tech (telecommunications, computers and research and development); market services (water and air transport, real estate, renting of equipment and other business activities); financial services; other services, which include education, health/social work and the

recreation and cultural activities. The OECD classification regards ICT as the key sector in its classification of the knowledge-based economy, covering a wide range of manufacturing activities (electrical, electronic and processing equipment) and a number of service activities (wholesale of computers, telecommunications, equipment renting and general computer services) (Shire 2004).

Data from the OECD (2002) shows the connection between the development of information communication technologies (ICTs) and the knowledge economy. Specifically, ICT production, diffusion and use has grown continuously throughout the 1990s, the period during which the new economy began to take shape (Castells 2000). Real growth in ICT investment was particularly rapid over the second half of the 1990s, with investment in software accelerating sharply in the 1990s (OECD 2002: 10). In 2000, the twenty OECD countries employed sixteen million persons in the ICT sector, about 6.4% of total business employment and employment growth in this sector between 1995-2000 grew by almost three million persons at an annual average growth rate of 4% a year, almost three times that of the business sector. The United Kingdom represents one of the EU countries that registered annual growth rates above the OECD average (10.5%) and also a higher share of ICT employment (8.2%) (OECD 2002: 24). High-skill ICT workers are the most rapidly growing group of all high-skilled workers and computer workers represent the largest component of that ICT group (OECD 2002).

This growth is confirmed by the European Commission (2001: 30) that reports that all sectors characterised by either high technology and high shares in ICT-related jobs (high tech sectors) or a high knowledge intensity, as reflected in high educational levels

of the workforce (high education sectors) or both, had the strongest employment growth at the EU level.

However, knowledge economy authors present new technologies as if they have merely 'emerged', the social implications of the information technology revolution being neglected. This section addresses these social implications by establishing how technological design networks are constructed and maintained throughout the design process. The importance of the inclusion of gender as a key analytic concept is then discussed, before turning to the gender-technology literature, where a focus on design and use of technologies opens up the possibility of incorporating gendered accounts into the technological design process.

Castells (2000: 26) defines technology as:

The use of scientific knowledge to specify ways of doing things in a reproducible manner

More inclusive definitions of technology demonstrate that technology can be both a social and a physical artefact and that every technology reflects human agency because technologies represent a particular set of choices made by specific designers. Some are the result of physical considerations, others reflect the designers' assumptions and images of users, the traditions of the design community and taken-for-granted understanding of how the world is organised (Orlikowski and Barley 2001). Adopting a 'narrow' definition, technology could be simply categorised as 'machines', whereas a broader definition would include productive systems, the organisation of work and the division of labour (social aspects of technology) (Jary and Jary 1995). This wider

perspective would account for the presence of human and non-human actants in the design network (e.g. actor network theory).

One way of understanding the ways in which technology may be gendered is to examine its social construction through analysis of relevant social groups and the interpretive flexibility of technologies (Bijker 1993; Bijker and Law 1993; Pinch and Bijker 1984). This may not fully expose the technical and other artefacts (e.g. texts) that form part of the design process and/or the network of events, actors and actants which lead to the final design output. Actor network theory exposes the networking process and examines the human and non-human actants in the network. However, actor network theory specifically excludes any structures and social constructs (e.g. gender) that sit outside of the design network.

The Social Shaping of Technology

The social shaping of technology (Bijker 1993; Bijker and Law 1993; 1984; Jary and Jary 1995; Kline and Pinch 1999; Orlikowski and Barley 2001; Pinch and Bijker 1984; Russell and Williams 2002; Wajcman 2000; Winner 1999; Woolgar 2002) explores social processes related to technological change; the negotiations between different social groups and actors as a focal point; and highlights choices between different technical options potentially available at every stage in the generation and implementation of new technologies (Knut and Sorensen 2002: 21). Therefore, to study the social shaping of technology is to analyse the construction of sociotechnical change. This involves a break with the notion of laboratories and other sites of design development as privileged locations of analysis. Increasingly, technologies are seen as

being shaped in diverse localities, blurring the distinction between design, development and use, technologies being operationalised by social actors to give them meaning.

The idea that technology is socially shaped through the relationship between a society and its technologies, the bases of social organisation and the sources of social change, is fundamentally opposed to the technological deterministic accounts of the nature of technology (Russell and Williams 2002). Technology is not simply a ‘black box’ but is amenable to social investigation, with shaping occurring through sites and contexts of choice and the influences that underlie these.

Relevant Social Groups and the Interpretive Flexibility of Technologies

Bijker and Law (1992) ask, why do technologies take a particular form? What assumptions were made about the kinds of roles that people or machines might play? What constraints arose? How did users re-shape technologies? We need to think simultaneously about society and technology and to blur the boundary of what is normally kept apart (e.g. a world of engineering and a world of the ‘social’).

It is important to analyse the processes (and actors) behind technological change and the concepts of *relevant social groups* and *interpretive flexibility* are useful aids to both understand how different social groups derive different meanings from technologies and the interpretations that they place upon technological artefacts (Bijker 1992; Bijker and Law 1992; Pinch and Bijker 1984).

In deciding which problems are relevant, a crucial role is played by the social groups concerned with the artefact. Pinch and Bijker (1984) describe a relevant social group as:

Institutions and organisations (such as the military or some specific industrial company) as well as organised or unorganised groups of individuals. The key requirement is that all members of a certain social group share the same set of meanings, attitude to a specific artefact (Pinch and Bijker 1984: 414)

The sociocultural and political situation of a social group shapes its norms and values, which in turn influence the meaning given to an artefact. We therefore need to have a detailed description of the relevant social groups in order to better define the future of the artefact with respect to each group. For example, the social group of cyclists riding the high-wheeled 'Ordinary' bicycle consisted of young men of means and nerve: they might be professional men, clerks, schoolmasters or dons. For this social group, the function of the bicycle was primarily for sport. By contrast, women were not supposed to mount a bicycle, tricycles being the permitted machine. However, engineers and producers anticipated the importance of women as cyclists (Pinch and Bijker 1984: 414-5).

There is no one way of designing an artefact and different social groups have different interpretations of the technological artefact designed. This lack of a common perspective governing the interpretation of an artefact in terms of its design and use, leads to interpretive flexibility. Closure only occurs through the stabilisation of an artefact and its utilisation, with relevant social groups having a common interpretation of the design and its application.

Through analysis of the social construction of fluorescent lighting during its diffusion stage, Bijker (1992) demonstrates how this technological artefact was continually re-shaped and re-designed by various social groups. Bijker, who takes 'relevant social groups' as the starting point of the analysis, shows how the interpretive flexibility of an artefact can be demonstrated by showing how for different social groups, the artefact presents itself as essentially different artefacts, interacting within and between different social groups, or the technological frame. Relevant social groups are therefore identified by following actors and then 'historically snowballing' to account for all actors in the group.

Relevant social groups do not only constitute themselves but they also help to maintain other social groups and the relations between them and this in turn means that these groups support each other. This model has several advantages in analysing users as agents of technological change. Typical groups might include engineers, advertisers, consumers and so on. Such groups are not static as 'newly emergent groups' also share a meaning of the artefact (Kline and Pinch 1999: 113).

The social shaping of technology:

Emphasises the 'interpretive flexibility' of an artefact. Different social groups associate different meanings with artefacts leading to interpretive flexibility appearing over the artefact. The same artefact can mean different things to different groups of users (Kline and Pinch 1999: 113)

Kline and Pinch argue that such meanings can get embedded in new artefacts and developmental paths can be traced which reinforce this meaning (for example, placing larger wheels on bicycles to enable them to go even faster). However, this process is

not continuous as stabilisation occurs through 'closure' where some artefacts have fewer problems and become the increasingly dominant form of technology. Interpretive flexibility may, however, reappear as rivals exist alongside the dominant technologies.

Artefacts are thus subject to different interpretations that are coextensive with social groups which goes beyond technology being merely embedded in social affairs. Attention is focused on what is a 'viable working artefact' and what counts as a satisfactory test of that artefact. However, as Pinch and Kline (1999: 114) acknowledge, this social construction of technology has said little about the social structure and power relationships within which technological development takes place.

This is a point addressed by Winner (1999). Machines embody specific forms of power and authority because certain technologies in themselves have political properties, because the invention, design and arrangement of a specific device or system becomes a way of setting an issue in a particular community. In the history of architecture, its planning and public works contain many examples of physical arrangements that contain explicit or implicit political purposes because technologies can be used in ways that enhance the power, authority and privilege (intentions) of some over others. The evidence tends to show that many large, sophisticated, technological systems are in fact highly compatible with centralised, hierarchical managerial control, for example, the broad Parisian thoroughfares that were engineered to prevent any recurrence of street fighting of the kind that took place during the revolution of 1848; and the 'grotesque' concrete buildings and huge plazas constructed on American university campuses during the late 1960s and early 1970s to defuse student demonstrations.

Through the social shaping of technologies it is possible to reveal the social processes and actors behind a technological artefact, how this is negotiated (or not) how choices are made and by whom. The identification of relevant social groups, who operate in a multi-dimensional way in the design network, is key to this as are the circumstances surrounding the design of technologies. These relevant social groups (which may or may not include users of technologies) will interpret technologies in particular ways as different social groups attribute different meanings to artefacts. But what are the social and political relations behind this? Who is included and excluded in design decisions? Is this decision making gendered? By identifying the relevant social groups, it is also possible to identify those who are absent (the excluded) from design networks.

Actor Network Theory (ANT)

Human and non-human Hybrids in the Design Process

Actor network theorists consider the technological and social aspects of technological design by analysing the relationship between the human and non-human actants in the design network. Latour (1988, 1991, 1993, 2000) attempts to replace the technology/society dichotomy through a new set of concepts – ‘association’ and ‘substitution’ – to demonstrate that a chain of associations between humans and non-humans have been woven into the social fabric. Society and technology are taken to be not two ontologically distinct entities but more like ‘phases of the same essential action’. The processes of association and substitution are applied when:

Instead of asking, is this technical or scientific or are these techniques influenced by society, or is this social relation influenced by techniques, we simply ask, has a human been replaced by a non-human? (Latour 1991: 10)

Latour claims that the divisions we make between society and scientific or technical content are 'necessarily arbitrary' because we are never faced with objects or social relations, we are faced with chains that are associations of humans and non-humans. Latour argues that no-one has ever seen a social relation by itself and no-one has ever seen a technical relation by itself: we are always faced with chains of humans and non-humans which Latour refers to as 'heterogeneous networks' or 'actor network theory' – interactions between a chain or network of actors. Latour believes that we need to turn away from an exclusive concern with social relations and weave them into a fabric that includes non-human actants, actants that offer the possibility of holding society together as a durable whole.

This 'new narrative' for integrating technology and social theory is constructed by following an innovation (or design) which demonstrates shifting assemblies of associations and substitutions. Latour (1988) uses the discoveries of Pasteur as an example of innovation being the result of the interaction of a network of humans and non-humans. He demonstrates how Pasteur depended upon a whole network of forces, such as public hygiene movements, the medical profession and colonial interests.

Heterogeneous Engineers and the Design Process

We are dealing with a form of distribution built deep into sociology – the distribution between people, on the one hand, and machines on the other; or between social relations and social structures, on the one hand, and the merely technical, on the other.

Law (1991) does not believe this is a happy distinction and that, instead, we can have the social-and-the-technical all in one. Using the example of Hughes, who historically traces the steps of Edison, the system builder of electricity, he shows how this involved the political and the technical as an integrated whole. Edison was what Law describes as a 'heterogeneous engineer', who worked not only on inanimate physical materials but on and through people, texts, devices, city councils, architectures, economics, etc. Each of these materials had to be moulded to his design if the system was to work. As a consequence, he travelled between these different domains, weaving an emergent web which constituted and reconstituted the bits and pieces that brought it together.

Hughes implies that the social order is not a social order at all, rather it is a sociotechnical order (what appears to be social is partly technical and vice versa). In practice, nothing is purely technical nor purely social and the same can be said for the economic, political, scientific, etc. In so doing, Hughes 'follows the actor'. However, Law argues that if we merely follow the actors, it becomes difficult to sustain any critical distance. The absence of such distance has several consequences: it means that certain distributions are likely to be invisible to those that are of no concern to the actor. Law asks, did Edison care about gender? This actor-centric characteristic of the method is 'blind' to gender distribution.

Law therefore argues that it is necessary to 'decentre' the heroic subject (for example, as Latour does with his study of Pasteur) because the object of his study is not so much to celebrate but to deconstruct the subject. For Latour, Pasteur is an effect, a product of a set of alliances, of heterogeneous materials. To the extent that Pasteur is a great man, we need to see this as an outcome, rather than something inhering in Pasteur. Law

claims that if we always choose the ‘powerful’ or those who seek, with some possibilities of success, to be powerful, then there is a real chance that we will succumb to the perils of managerialism. There is a tendency in science and technology studies (STS) to select ‘heroes’ for deconstruction but this is repairable. Machines are not like us, they lack whatever it is that currently distinguishes us as paradigm human beings. But, the very dividing line between those objects that we choose to call people and those we call machines is variable and negotiable.

Heterogeneous engineers (whether human or not) are constituted in the arrangement of these materials. These processes of order, working on and shaping to overlaps, amount to the social order.

Intermediaries and the Design Process

Using the ‘language of economics’ Callon (1991) adopts an alternative terminology within actor network theory, that of ‘intermediaries’:

Economists thus speak of 'intermediaries'...I will say then that an intermediary is anything passing between actors which define the relationship between them (Callon 1991: 134)

Actors define one another in interaction, in the intermediaries that they put into circulation (Callon 1991: 135). There are four main types of intermediary: (1) texts or literary inscriptions (reports, books, patents, notes, circulated on paper, discs, and tapes); (2) technical artefacts (scientific instruments, robots, consumer goods - the non-human entities which perform tasks). Technical objects focus upon the design stage when questions are asked, such as, what will the object look like? What will it do?

What will it be used for? These questions are both technical and social. Technical objects thus more or less explicitly define and distribute roles to humans and non-humans and link entities together in ways that may be decoded; (3) human beings, for example, their skills, knowledge and 'know-how'. Skills as networks involve the embodiment of technical skills within a network of humans, texts and machines; (4) Money as a network for the instrument of exchange. These intermediaries both order and form the medium of the networks they describe (Callon 1991: 135).

Callon claims that through these 'hybrid intermediaries' it is difficult to distinguish between humans and non-humans. Actors define one another by means of intermediaries which they put into circulation and therefore, sociology should broaden its scope to include not only actors but the intermediaries through which they speak.

Callon defines an actor as:

Any entity able to associate texts, humans, non-humans and money (1991: 140)

Intermediaries are synonymous with actors. So, why do we need an actor? Because of authorship:

An actor is an entity that takes the last generation of intermediaries and transforms (combines, mixes, concentrates, degrades, computes, anticipates) these to create the next generation...in general then, actors are those who conceive, elaborate, circulate, emit or pension off intermediaries and the division between actors and intermediaries is a purely practical matter (Callon 1991: 141)

Bijker and Law (1992) regard actor network theory as an attempt to find a neutral vocabulary to describe the actions of those who have since been called 'heterogeneous

engineers', building 'messy' networks that combine technical, social and economic elements. They also acknowledge the emphasis that actor network theorists place upon the shaping of the elements within the process (including the entrepreneur) as the process is constituted in those networks. Critically, Bijker and Law identify that actor network theorists avoid making assumptions about a backdrop of social, economic or technical factors because the backdrop is something that is itself built in the course of building the network.

Woolgar (1991) raises the question of the technical artefact produced by the network being a metaphor for the company (the boundaries of the machine are the boundaries of the company). Consequently, the insiders (human actors) have a predisposition to the artefacts, having a relationship to it that allows only certain forms of access and use amongst the user group. He argues, therefore, that it is the social actors, not a combination of intermediaries, that actually establish the boundaries for the artefact produced. This relationship between machine and user has also been considered by Grint and Woolgar (1995: 67) as the machine can only be understood in terms of its relationship with other entities of its phenomenal world. This is not simply understanding technology in its context. Rather, the capacity and boundedness of the machines take their sense and meaning from the capacity and boundedness of the user (1995: 68).

The central argument to actor network theory is that all successful technological innovations involve the construction of durable links that tie together human and non-human entities (or actors). This reminds us to simultaneously bear in mind two aspects of technological change that are often treated in isolation from each other: (1) the ways

in which physical aspects of heterogeneous engineering are influenced by the demands of the 'social' aspects (for example, the ways that production technologies can be shaped by the need to create or maintain particular forms of social relationships between worker and employer); and (2) that technologies are not neutral servants of whatever social or political order chooses to adopt them. The 'controversial' aspect of actor network theory is the call for symmetric analytical treatment of human and non-human actors, thus not privileging humans as the only active agents (MacKenzie 1996).

Bruun and Hukkinen (2003) attempt to bring together the social shaping of technology and actor network theory because these approaches complement rather than exclude one another:

Considering the complexity of technological change and thus the likelihood that there are no simple explanations to be found – we feel that the exclusive either-or approach is a poor strategy (Bruun and Hukkinen 2003: 96)

Bruun and Hukkinen believe that in the process of the social shaping of technology, technological change is driven by social factors rather than by internal 'technological logic', the purpose of the artefact is debated and its uses determined by people. Artefacts can be interpreted in many different ways as they have the property of interpretive flexibility and interpretation of artefacts depends on the kinds of problems for which the artefact in question is deemed a solution. Such differences become particularly visible in technological controversies. If one of the interpretations or a combination of them becomes dominant and paradigmatic, this needs to be explained. Closure occurs when interpretations are streamlined, controversies fade away, a particular interrelation dominates and the artefactual trajectories are created and

stabilised. People in the same context tend to have similar orientations to the artefact in question.

Bruun and Hukkinen recognise that action and agency are key terms in actor network theory but they have identified that 'intention' in isolation can be meaningless without connectivity - 'pure intentions will get us nowhere' (Bruun and Hukkinen 2003). The actor-network is an assembly of actors that have the capacity to act, rather than as simply a network consisting of actors. The network approach emphasises that action is not dependent upon just one factor but on a chain of factors, with some links between these factors being stronger than others. Consequently, there is no hierarchy of power within which some actors consciously oppress and others are oppressed.

The artefact itself cannot be distinguished from the project participants' attempts to translate the world according to their intentions, as it is part of what is translated all along; it is ascribed a particular identity and a particular way of functioning. Actor network theory does not attempt to explain the action of actors by reference to social context nor explain that technological openness does not end with enrolment. Therefore, actor network theory does not explain human action by reference to the institutional or organisational context to which the agent has been socialised nor does it have any general explanation of action at all and no causal theory of action and makes no claim about the constitution of action (Bruun and Hukkinen 2003).

Bruun and Hukkinen's belief is that the social shaping of technology perspective can function as a correction to ANT through the action of the social groups and organisations within the technological framework and as a consequence, they postulate

that the two approaches supplement each other. Using an example of the early days of Finnish computerisation, they have identified the presence of both socially rooted agency, which has arisen through social groups with different interpretations of the artefact and actor network theory agency-rooted change, manifest through an heterogeneous enabling network of human and non-human elements. Actor network theory explains how various actors try to create networks around one or the other technology.

Technological design is complex and actor network theory emphasises the importance of the relationship between human and non-human actants in that process. This is a step removed from the social shaping of technologies in that it disregards any predisposition to social shaping of the human actants and creates a focus upon non-human actants within the overall process and the interrelationship between the two. This latter process involves 'association' and 'substitution', where a human may have been replaced by a non-human and vice versa, involving a chain or network of human and non-human actants. Bruun and Hukkinen (2003) have recognised that prior social shaping of the human actants will impact upon the overall development and shape of the eventual design network and as a consequence, the artefacts thereby developed.

In contrast to the social shaping of technologies, actor network theory deconstructs the subject, arguing that figures like Pasteur are a product of a set of alliances of heterogeneous materials (an outcome of the innovation network). Therefore, actors define themselves in interaction, in the intermediaries they put into circulation and it becomes difficult to distinguish humans from non-humans. Actor network theory avoids making assumptions about the social, economic and technological factors that

form the backdrop to technological innovation because this is itself built in the course of the network (Bijker and Law 1992) and access to design networks has been found to be restricted to users (Woolgar 1991).

However, it is important to retain the human and non-human actants of actor network theory in an analysis of design networks in call centres, especially as the processes of association and substitution are present. MacKenzie (1996) warns of the controversial aspect of actor network theory due to its symmetrical analytical treatment of humans and non-humans. However, Law (1991) acknowledges that 'machines are not like us' as they lack whatever distinguishes us as paradigm human beings. It is, rather, the dividing line between humans and non-humans that is variable and negotiable.

Actor network theorists claim that 'successful' technological innovations involve the construction of durable links that tie humans and non-humans together. Those who argue from a social shaping of technology perspective argue that the artefact is debated and its purposes determined by people and not by any non-social realm of technology (non-human actants). However, non-human actants (texts, artefacts, money) do have a part to play in design networks though, yet again, these may have been subject to prior social shaping within a different social context.

The theoretical exclusion of any contextual considerations by actor network theorists removes from the methodology the question of any prior 'intention', shaped by a pre-existing set of interests, such as gender. This applies to human actants within the process and any prior shaping that may have occurred to the non-human actants in the current design making process/network. Actors are not explained by reference to their

social context, with actor network theorists assuming that the inter-connecting relationships between humans and non-humans across the total network are pre-eminent within the design building process. In essence, the power lies in the process of network building and not within the diverse set of contexts for each of the participating actants. As Bruun and Hukkinen (2002) have stated, technological change is complex and it is difficult to find any one simple explanation of this.

Synthesising the social shaping of technology and actor network theory, allows the identification of key areas of prior intention within the network which have the potential to shape the social context for the network in its totality. In the case of this research, gendering within the parent organisation (decision making structure) the call centre (exclusion of female users) and the system building process (male dominated) led to the gendering of the call centres that have been researched. Therefore, this takes account of the organisational context and the ways in which organisational structures are gendered. This highlights the limitations to actor network theory because the relationship between the social and the technical may be unequal, in that (male) social actors both define the design network and put intermediaries into circulation that in themselves, may carry genderscripts.

If women are excluded from design networks as both designers and users then this causes tensions between the social and the technical, particularly if user tacit knowledge remains an untapped resource. Is the technological design framework gendered in call centres? Does a network exist that involves both human/non-human actants, or is there a hierarchy of designers and users, with power resting at the top?

What are the dominant prior interests that exist in the design network which may influence intention and therefore the final network itself?

Actor network theory provides a useful framework for mapping the development of the call centre concept, from its inception, through to development, construction and operation. It establishes the key actants (human and non-human) and how the concepts of association and substitution have been applied within the network building process (e.g. has a human replaced a non-human and vice versa?) Applying the social shaping of technology concepts allows the identification of any prior intentions of and between actants, which have shaped actions within the process and to assess their impact upon the overall design network. Synthesising both concepts will enable the identification of whether or not power lies within the pre-existing interests of the diffuse group of actants or within the network building process itself. This will make an important contribution to understanding women's on-going relationship with the information technology revolution, in the context of a knowledge economy.

Chapter Two

Technology and Gender

Technology and Gender

Are technological innovations gendered? This is an important question as, generally, men design and women use technologies. Technological theorists seek to explain change (why technologies happen and what they change) but feminists seek to explain continuity, enduring inequalities and why gender relations survive and change so little through every successive wave of technological innovation (Gill and Grint 1995). This research seeks to establish whether gender relations have survived, unchanged, in the call centre context. Actor network theory does not account for the organisational context and its potential gendering but the social shaping of technologies helps in determining the ways in which technological innovations may be gendered by identifying relevant social groups and the interpretive flexibility of technological artefacts.

This section draws upon key debates on technology and gender (Cockburn 1983, 1991, 1999a, 1999b; Haraway 1997; Harding 1986; Rommes *et al.* 2001; Suchman 1994 Wajcman 1991). The debates on the design and use of technologies are then explored (Cockburn and Fürst-Dilić 1994; Green *et al.* 1993; Hoffman 1994; Liff 1993; Orrrod 1994; Winslow and Bramer 1994) as the relationship between (male) design and (female) use may offer an important insight. The following section is, in many ways, an expansion of what Haraway describes as a 'feminist project' to contest how subjects and hybrids are constructed which, she claims, is a 'critical technoscientific practice.'

Haraway (1997) draws upon actor network theory by adopting the concept of 'technoscience' to blur the distinction between science and society. Haraway's point is to demonstrate how hybrids are constructed and gendered (exclude women) to argue that feminists must therefore contest how hybrids are constructed. Perhaps the most influential feminist commentator on science and technology, Haraway argues that social relationships include humans and non-humans as 'active partners' (1997: 8) and that the term 'technoscience' is useful for exceeding the distinction between science and technology, which she believes have become inseparable. She uses the air pump as an example of a piece of technology that has 'fractured out' human agency from the product because scientists were 'on the side of objects' in a dichotomous world of subject and object. However, the material (construction and operation of the air pump), literary (the phenomena produced made known to those who were not direct witnesses) and the social (conventions and knowledge claims) were present. Women did not have the independent status to become 'modest witnesses' and were thus invisible in both 'physical and epistemological senses' (Haraway 1997: 27).

Haraway asks, was gender, with all its tangled knots with other systems of stratified relationships, at stake in key reconfigurations of knowledge and practice that constituted modern science (1997: 27)? The world of the 'scientific gentleman' was instrumental in sustaining old and in creating new 'gendered' ways of life through excluding women, as well as anything deemed to be feminine, into what would count as 'scientific truth'. Taking the example of the air pump:

It was the general absence, not the occasional presence, of women of whatever class, or lineage/colour...that gendered the experimental way of life in a particular way (Haraway 1997: 28)

Contesting the construction of subjects and hybrids is a critical feminist project. Feminists should be 'enrolled more tightly' in meaning-making processes of technoscientific world-building and be recognised for their articulations and enrolments that they have been making all along within technoscience, in spite of the ignorance of most 'mainstream' scholars in their characterisations (or lack of characterisations) of feminism in relation to both technoscientific practices and technoscientific studies.

Harding (1986) argues that when feminist thinking about science is adequately theorised we will have a clearer grasp of how scientific activity is gendered. Harding believes that gendered social life is produced through three distinct processes that are related to one another. The first process is gender symbolism which is a result of assigning dualistic gender metaphors to various perceived dichotomies that rarely have anything to do with sex differences; the second is gender structure, the consequence of appealing to these gender dualisms to organise social activity of dividing necessary social activity between different groups of humans; and the third, individual gender, a form of socially constructed individual identity only imperfectly correlated with either the reality or perception of sex differences.

Harding argues that failing to take account of all three will lead to an excessive focus on just one or two of the forms in which gender appears in social life. This will obscure the sometimes mutually supportive and sometimes oppositional but always important relationships in any given culture between the preferred expressions of

gender symbolism, the way labour is divided by gender and what counts as masculine and feminine identity and behaviour.

For example, Harding argues that 'equity' studies focus on individual gender - how women are discriminated against within the social structure of scientific enterprise and the barriers the scientific enterprise and feminine gender socialisation create for women entering and remaining in science. These studies explain the low representation of women entering and remaining in science and criticise the characteristics of feminine identity and behaviour encouraged by our culture that work against girls' and womens' achievement of the motivation or skills to enter science and recommend affirmative action to remedy this. However, she argues that those who focus on 'individual gender' often fail to see the division of labour by gender in the larger society and gender symbolism that are equally responsible for the small number of women in science.

Suchman (1999) argues for the replacement of the designer/user opposition of lone (male) creator of new technology, on the one hand, and the passive recipients of technology on the other. Employing the concept of 'network', she claims that the simple dichotomy of technology production and use masks (or indexes as we begin to respecify it) what is in actuality an increasingly dense and differentiated layering of people and activities, each operating within a limited sphere of knowledge and acting that includes variously crude or sophisticated conceptualisations of the others (1999: 259). She claims that the designer/user dichotomy denies the possibilities of networks because the dichotomy of technology production and use masks what is a differentiated layering of people, activities and 'things'.

Suchman (1994) attributes machines with agency and intelligence, arguing that computational artefacts are interactive in the ways in which humans are but with some important limitations. However, she argues that we can overcome the limitations of machines by encoding them with more and more of the cognitive abilities attributed to humans, thereby reconfiguring the boundaries between them. Suchman suggests that the persistent presence of designers and users in technoscientific discourse is more than a recaltrinant residue of modernism: that it reflects a durable asymmetry among human and non-human actors. On that basis, Suchman seeks an ontology that can tie humans and non-humans together without erasing the culturally and historically constituted differences amongst them.

However, if we abandon an analysis of the designer/user relationship then this masks the exclusion of women at decision making and user levels of design networks. Analysis of the designer/user relationship would not ignore the differential layering of people and activities in the design network as these can be mapped through Callon's four intermediaries (texts, technical artefacts, humans and money) in the design network. However, the analysis may reveal a hierarchical relationship within the layering (or network) and that this may be gendered.

This research project takes gender structure as the main focus of analysis, the gendered division of labour within the patriarchal structure of paid work, where women are vertically segregated into lower levels of the organisational hierarchy and thus excluded from decision making positions in technological design networks. In so doing, it examines the designer/user relationship and the ways in which this is gendered.

Technology as 'Masculine'

Technology has been defined as 'a masculine culture' from which women are excluded (Cockburn 1983, 1991, 1999a, 1999b; Cockburn and Furst-Dilic 1994; Wajcman 1991) because technology has been used, historically, by men, to monopolise certain trades, such as in the printing industry (Cockburn 1983). The relations surrounding technology therefore renew and extend male hegemony over women and this challenges the prevailing belief that technology is neutral, mankind's heritage, equally available and relevant to us all. Technology is far from neutral (Cockburn 1999: 127) women continue to be excluded from technology because of the historical and cultural construction of technology as masculine. So far, little attention has been paid to the ways in which technological objects may be shaped by the operation of gender interests (Wajcman 1991a: 23)

Preferences for different technologies are shaped by a set of social arrangements that reflect men's power in the wider society. The process of technological development is socially structured and culturally patterned by various social interests that lie outside the immediate context of technological innovation. Therefore, does the problem lie in men's monopoly of technology; or is technology itself inherently patriarchal? If women were in control, would technologies be designed and used differently? Can technology liberate women; or does it reinforce patriarchal relations in society?

Cockburn argues for a separatist strategy for women, where women can design and use 'their' technologies. Wajcman argues that if women were to be included, this would

mean that they will have to 'forsake their femininity'. What is the answer to this dilemma? Haraway argues that women should positively embrace technoscience and challenge the ways in which technologies are constructed and this may be a more realistic proposition. Suchman argues for the elimination of the male designer/female user dichotomy but as long as men design and women use technologies, it remains necessary to reveal and challenge this dichotomy.

Using the concept of 'genderscript', Rommes *et al.* (2001) examine the gender relations that are embedded in the design of the Digital City of Amsterdam (DDS) (genderscript means that technologies contain certain scripts: they attribute and delegate specific competences, actions and responsibilities to their envisioned). When these scripts reveal a gendered pattern, we call them 'genderscripts' (Rommes *et al.* (2001)).

Although designers held 'ideals' about making DDS and the internet accessible to a wider public (which was originally built to stimulate political discussion and to make new internet technologies available to a wider public) the users of DDS were ninety per cent male and predominantly young and highly educated. This 'problem' was known by the organisers of DDS but was not defined as urgent. As the design process was informal and no conscious attempt was made to focus on specific user groups, the designers unconsciously projected their own masculine-based interests on the future users. Thus, they affected the choices concerning the goals, content and interface of DDS, providing it with a masculine genderscript. Although designers tried to develop a system for everybody, many of their design choices were gender biased because they used themselves as exemplary of users. This is described by Rommes *et al.* as the 'i-

methodology' whereby innovators consider their own preferences and skills to be representative of the future user.

The design of DDS involved designers of both sexes, its organisation was informal and its design network based on individual's private goals, knowledge and interests. The individual backgrounds, personal goals and motivations of the innovators were important factors in shaping the project. Women were mostly found in creative, assisting and policy-making positions; men dominated the programming tasks and this reveals the gendered division of labour. The DDS design process resulted in a script that implicitly attracted users whose socio-cultural attitudes were similar to those of the initiators. The initiators under-estimated that the computer was already a strongly gender-biased machine in the Netherlands and the choices made resulted in a masculine-oriented genderscript. The founders did not give much thought to the question of why users would want to use DDS. Owing to the network and voluntary character of the organisation, they designed DDS mainly according to their own preferred goals.

The designers did not consider what kinds of skills, knowledge or cognitive abilities they expected users to have. Designers saw themselves as typical users and so the practice of DDS was dominated by the I-methodology. The question of the user-friendliness of the system became less relevant as the designers developed a system according to their own preferences, technical capabilities and learning style. Therefore, although not all designers were male, they were masculine in their use, experience of and attitude towards technology, making the design of DDS more suited to masculine users:

In summary, we can conclude that DDS clearly embodies a genderscript. Our analysis shows the gendered nature of this technology at the structural, symbolic and the identity level. This is all the more remarkable given that the designers of DDS were very idealistic and wanted to design a system that was accessible to everyone (Rommes *et al.* 2001: 255)

At the structural level, DDS represents a gendered division of tasks; most of the programming activities were carried out by male hackers. Although the main founder of DDS was a woman, and the brainstorming group included several women, this mixed membership did not result in extra attention being devoted to the position of female users.

Technology has been defined as a 'masculine culture' that excludes women; technology is used by men to monopolise certain areas of work and this extends male hegemony over women. Therefore, technology is not 'neutral', a 'black box' but is rather the subject of critical debate. Technological objects are shaped by the operation of gender interests (Wajcman 1991a) and a preference for a particular technology is shaped by social arrangements that reflect men's power, e.g. their interests.

The concepts of 'genderscript' and 'I-methodology' (Rommes *et al.* 2002) are important here as they demonstrate how technologies contain certain scripts and where they reveal a gendered pattern, they become 'genderscripts'. Designers used themselves as 'exemplary users' (the I-methodology) using their own preferences and skills to represent the future user. Although women were involved in the project at decision making levels, they were segregated into non-programming tasks. Therefore, those responsible for programming and interface design (men) attracted users with

similar cultural attitudes. Although women were 'present' this made no difference to the outcome because of the gendered division of labour and thus a male genderscript emerged. In the call centre context, users are predominantly women, designers exclusively male. Will this lead to the emergence of a male genderscript?

Several questions arise from these debates. If women were to design call centre technologies, would they be different? If women are absent from decision making positions in the design network, are they included as users? If so, is the design outcome different due to their involvement? To what extent are women in call centres active or passive in the gender-technology relation? The gender-technology relation is clearly not the same for all women. Are gender relations reproduced in call centres through the design of office systems and if so, are women contesting this?

The way into this debate is to examine the designer/user dichotomy (a method rejected by Suchman) because as an hypothesis, actor network theory cannot sufficiently address gender, due to its lack of focus on macro and organisational contexts and the ways in which they may be gendered. The concept of patriarchy (where men dominate and oppress women and thus hold power over them) is used by some in the gender-technology literature to explain inequalities and is key to this analysis. While some seek to retain the concept of patriarchy (Cockburn 1983, 1991, 1999a, 1999b, Wajcman 1991; Walby 1990) others reject its use (Ormrod 1995)

Cockburn (1983) examines technological change in the printing industry and argues that although the 'Victorian patriarchs' are now on the wane, their role is giving way to more diffuse forms of male domination which may deserve a different name. Male

workers have forged and maintained relationships over time and this, Cockburn, describes as 'patriarchal control' that can only be explained through the sex/gender system where men ensure their patriarchal advantage. Male composers have been able to exclude unskilled men through differentiation of skill and to keep women out through social and sexual subordination. Computerisation has allowed more women 'in' and this is the point of dissolution of patriarchy in its *old* form, eclipsing many features of patriarchy, but male power remains.

Wajcman (1991a) maintains this view that patriarchal relations are constructed in the workplace through men's control of technology. These 'patriarchal' social relations are expressed in and shape technologies, male power being embodied in the design of technology (1991a: 29). Men acquire technological skill in the workplace and use it to consolidate their positions. It is therefore more useful to examine gender divisions in the workplace (occupational segregation) than to examine the domestic division of labour:

The gender stereotyping of jobs is not just a reflection of women's traditional role within the family; it is also formed and reproduced by the patriarchal relations of paid work (Wajcman 1991a: 33)

This raises several questions: are call centre technologies masculine, defined within patriarchal relations where men dominate and exploit women? What sorts of assumptions go into the design, production and use of call centre technologies? Is call centre technology implicated in women's oppression or does it play a key part in women's liberation? Can feminism challenge technology as a form of patriarchal epistemology? What is the relationship between gender and technology? What assumptions go into the design, production and use of call centre technologies? It is

important to retain patriarchy as a key analytical tool for the analysis of the gender-technology relation and to also make technology more explicit throughout the patriarchal structure of paid work, especially in the light of the information technology revolution.

Cockburn and Ormrod (1993) examine the gender-technology relation by exploring technological processes in order to learn more about the disadvantage of women and the relation between women and men. Their study reveals the disadvantage and subordination of women in which these sets of relations are implicated. For Cockburn and Ormrod, the impact of changing technology on gender relations has been reformulated in this study as 'the mutual shaping of technology and gender relations'. They ask, how does technology bear on gender relations and how are technological outcomes shaped by gender? One specific artefact is the focus of study – the microwave oven – which tells of the encounter between masculine and feminine spheres. This is where the technology/gender relation is enacted – through the artefact.

Artefacts are social constructs, the outcome of negotiations between social actors, individuals and groups. Therefore, to explain technological development we need to identify the people involved (relevant social groups) observe what they do, say and relate an alliance of actors (or human and non-human actants). Therefore, a degree of interpretive flexibility exists, although the consequences of technologies may be unintended as its interests cannot always be read off from the interests of originators. The social shaping of technology is, in the main, concerned with the initiatory moment – the invention or innovation. However, innovation studies fail to fully answer how much interpretive flexibility is involved and how the artefact can be used in alternative

ways. There are few women amongst these actors (for example, amongst scientists and engineers) and women are invisible in the mainstream technology studies partly because of the actual absence from the network as there defined. However, the enrolment of certain groups in the design of technological artefacts is helpful (e.g. Cockburn and Ormrod 1994).

Cockburn and Ormrod reject actor network theory on the grounds that it has an 'agnosticism' about social structures existing outside or prior to the interactions observed. It does not see the macro structures of the wider world influencing events in the laboratory and argues against explanations based on imputed 'interests'. Research communities are isolated from larger social, economic and political currents and this, they claim, is a flaw. Therefore, Cockburn and Ormrod have chosen not to use the term 'network' in their study and to instead talk of the 'actor-world' or 'microwave world'.

Wajcman (2000: 448) identifies technology as a 'masculine culture' and argues that gender has been marginalised in the social shaping of technology and actor network theory and that this is an indication of a problem with their methodologies. This Wajcman relates to their conception of 'power'. What may have been overlooked is the fact that the exclusion of some groups, while not empirically discernible, may nevertheless have an impact upon the process of technological development. While the effects of structured exclusion on technological development are not easy to analyse, they should not be overlooked (2000: 452). Feminists have stressed that women's absence from spheres of influence is a key feature of gender power relations. Few women feature as any of the principal actors in technological design, as the sexual division of labour has excluded them from entering science, engineering and

management. The problem with a primary focus on ‘relevant social groups’ in the process of technological development is how to take account of those actors who are routinely marginalised or excluded from a network. This can be overcome by researching the ‘excluded group’ and establishing the kinds of relationships they have with technologies and the degree of interpretive flexibility.

The patriarchal design of technology sits easily with this:

While ANT perceives that artefacts embody the relations that went into their making, and that these relations prefigure relations implied in the use and non-use of artefacts, it is less alert to the inevitable gendering of this process. ANT does not always recognise that the stabilisation and standardisation of technological systems necessarily involve negating the experience of those who are not standard, ‘a destruction of the world of the non-enrolled’ (Wajcman 2000: 453)

This is an important point and one that this research will address through analysing the situation of ‘excluded’ groups from the design networks.

The Design and Use of Technology

Håpnes and Sørensen (1995: 177) identify two analytical and methodological problems in identifying the gendering of technological design. Firstly, there is the problem of describing the kind(s) of masculinity displayed in a given context of development or design of technology and secondly, there are the preconditions of arguing the translation of masculinity into the artefact or system that is designed. This raises the problem of identifying certain physical properties of the design as either feminine or masculine, without returning to the more popular system of polarities of large/small, clean/dirty, heavy/light, etc.

This problem can be addressed by examining the relationship between designers and users of technology, although this does oppose men and women in a dichotomous relationship because, generally, men design and women use technologies. If designs are male dominated, then it follows that technological and other artefacts 'carry' masculinity, or for example, are 'genderscripted'. It is therefore important to also establish the role of non-human actants in the design process.

Cockburn and Fürst-Dilić (1994) analyse the gendered designer/user relationship in the design and use of domestic technologies. Cockburn and Fürst-Dilić shift attention away from the artefact as hardware to the knowledge and processes that together give a 'thing' meaning (1994: 7). Clearly, gender is taken as a social relation and so too is technology.

Cockburn and Fürst-Dilić examine the ways in which all-male design teams contrive to introduce women, real or imagined, into their thinking processes through, for example, imagining a woman's preference by 'putting themselves in her place'. The consequences of the gender-technology relationship are therefore the production of a hierarchy between men and women.

Ormrod (1994) uses the example of the microwave as a means through which to examine social relations and the production of gender and technology:

As a kitchen appliance, it enabled examination of an encounter between masculinity and femininity. By that, we did not simply mean that the microwave oven is engineered by men and then used by women in the home but

rather that it takes its place within each different site, from design through to use, where women and men interact (Ormrod Cockburn 1994: 42)

Ormrod is following actor network theory where the organisation of the boundaries between people and machines is the subject of exploration and where gender is socially produced and achieved rather than given and ultimately ordering relations hierarchically. In the planning and design stage of the microwave oven, some changes occurred that altered gender relations. Product design was decentralised, women employed as home economists in the 'test kitchen'. Designers and home economists were considered equals in the design process but were organisationally separate and unequal because the (small) test kitchens were staffed by women and the (large) design engineering departments were staffed by men. Engineers were perceived as 'doing technical work', home economists as 'doing cooking and non-technical work'. The latter group was thus simultaneously incorporated and excluded (1994: 49).

Designers had in mind a particular 'operator' (user) a woman who spends more time at home, this being the extent of designers' interests in users. Designers did not examine the needs and preferences of women and the 'features and benefits' approach at the point of sale was used to play down the technology as women were perceived as being 'technologically fearful'. The microwave had been designed to bake, brown, cook and warm, cookbooks specifically created to develop user interest. Women as home economists thought of themselves first as 'users' but also felt that 'standing in for women' was not an adequate design resource.

Ormrod concludes that gender is a thread running throughout the manufacturing, distribution and configured use of the microwave oven and that we have seen how the

meaning of each has varied over time and in accordance with where actors stand in the network, because the microwave creates the (male) designer/(female) home economist relationship.

Green *et al.* (1993: 13) ask two fundamental questions in terms of the designer/user relation in the workplace: who are the users; and what is the nature of their relationship with analysts and designers? Or, as McLaughlin (1999) asks, who gets to take part in the design process? Green *et al.* argue that computer specialists hold the 'real power' and control over the design process when information systems are being developed in the area of clerical work. This has important consequences, as the continued introduction of automation into office work will change all areas of working life.

Technologists are predominantly male, designing new technologies for a predominantly female user and this Green *et al.* describe as 'occupational closure' where:

Unconscious patriarchal practices, which privilege traditional 'expert' forms of knowledge, also serve to reproduce gendered patterns of clerical work, albeit in a new form (1993: 15)

The authors are not necessarily arguing that the reproduction of gender divisions are consciously designed but rather that the systems engineer, with his scientifically based tools, tends not to consider workplace relations and career structures to be elements of the design.

Green *et al.* carried out research in a network of UK city public libraries where women were given the opportunity to display and use their knowledge, working with designers. The managers were initially prepared to consider involving users (predominantly

female library assistants) in the planning of a new system because their failure to do so in the past had led to failures. However, users experienced a certain amount of 'backlash' from colleagues and there was also a lack of enthusiasm from some managers. Overall, user involvement was more accessible to men because only 18% of employees at senior management levels were women (1993: 138). Added to this, technicians were male and had an informal network (the 'techies club') which was exclusively male.

Winslow and Bramer have commented:

Powerful emerging information technologies will have an impact on workforce performance only if they are designed from a human-centred point of view (1994: 4)

The central argument is that productivity will increase if the right systems are designed for users. Person-centred design is a 'right to left' approach which starts with the workers at work and ends at the experts, whose role is now to design a system that the worker really does not notice (e.g. is usable).

Hoffman (1999) compares different types of word processing systems, suggesting that the design of specific software is informed by contrasting ideas of women: dedicated word processing systems treat female operators as eternal beginners whilst Xerox Star, the first graphical interface, was originally designed for male use:

Thus, the user interface of a word processing program mirrors the conceptions which the program developers have about the writers, including conceptions of the conceptions that the writers themselves may have about the program (Hoffman 1999: 224)

This Hoffman refers to as 'multiple reflections of imagined realities'.

Liff (1993) explores the content of women's (clerical) work and the ways in which this is affected by technological change in the office environment, at the introductory stage of new technologies. This research highlights the importance of analysing forms of working and how workplace relations are gendered and importantly, how these changes do not significantly disrupt the boundaries of gendered occupations. The survey spans technological change in manufacturing and service industries in both the private and public sectors.

Liff reports that a large number of respondents were dissatisfied with the ways in which technological change had been managed and this was attributable to the type or lack of training, lack of consultation, or to management's expectations about levels of performance. The importance of user involvement in the consultation process is highlighted. Liff also warns that manager's reports of the extent to which consultation has taken place with users should be treated with caution. In this study, only two women had any say in whether the change was necessary and there were no cases of input into the decision to adopt specific technologies. These women were therefore excluded from the technological design network.

The concept of network is prominent throughout feminist and non-feminist accounts of the designer/user relationship. Cockburn and Fürst-Dilić and Ormrod analyse the knowledge process in the design of technologies through a network of design decisions (the assumptions that male designers make about female users). Green *et al.* (1993) argue that occupational closure and unconscious patriarchal practices reproduce a

gendered division of labour because designers are 'blind' to workplace relations and career structures as elements of the design stage. Winslow and Bramer (1994) argue for a human-centred approach but this lacks a gender focus. Hoffman (1999) examines the degree of competence that is subjectively awarded to users by designers, through an examination of the evolution of the word processing package. Importantly, Liff (1993) has researched women's experiences in the introduction of new technologies which has been found to have no consultation process between designers and users and thus women were excluded from the decision making process.

The relevance of the networks of humans and non-humans in the design, development, implementation and use of technologies is well understood. But it is also important to examine gender relations and to recognise that the choice of which design should be introduced into the organisation establishes patterns of power and authority. The gender of the 'social actor' is therefore important as a way of examining gendered decision making in organisations. It is also important to examine the users of technology as, 'different social groups who attach different meanings to different artefacts' (Kline and Pinch 1999: 113).

The presence or absence of 'users' of technologies is key to this debate. Rommes *et al's* (2002) research reveals that users were not an important consideration; Cockburn and Furst-Dilic (1994) that users were a consideration but in the context that designers put themselves in the place of women, defined them as 'technologically fearful' and thus produced a hierarchy of 'real' designers and 'imagined' women.

This research asks, who and what gets to take part in the design of technologies? Is this gendered? Is the design and use of technologies in call centres gendered? Are women included or excluded from technological design? Who and what constitutes the human and non-human actants in the design network? Is call centre technology inherently masculine? Is it a tool to exclude women? Are preferences for different technologies shaped by a set of social arrangements that reflect men's power? Who gets to take part in the design of call centre technologies? This research will draw upon these debates through an examination of the technological design framework in call centres.

Different Perspectives on Gender

Gender is an important analytic concept in an investigation of the relationship between gender and the knowledge economy. This section presents different perspectives on gender by analysing it as a key concept and its relationship with power and patriarchy (structural forms of power) gendered stereotypes and critical mass, the equality versus difference (or sameness/difference) debates and whether or not management styles are gendered. These debates offer different and sometimes contested perspectives on gender.

Defining Gender

Gender has been defined as:

A culturally shaped group of attributes and behaviours given to the female or to the male...sex is biological and gender behaviour is a social construction (Humm 1989: 107)

See also De Beauvoir (reprinted 1973) and Oakley (1972).

Gender has been theorised, empirically researched, defined and contested in a multiple of ways. The separation of sex as biological and gender as socially constructed has been contested (Butler 1999; Delphy 1993, 1994) on the grounds that *both* sex and gender are social constructions, as sex is itself a product of society and culture. Delphy (1994) and Firestone (1972) have analysed women's subordination in terms of their reproductive functions, where the biological family is defined as the main form of domination. Both Delphy and Firestone theorise gender in relation to the family, the former socially, the latter biologically.

Gender has also been defined in terms of gender distinctions that structure our lives – as a system of male domination and a mode of social organisation (patriarchy) (Delphy 1984; Hartmann 1981; Millet 1970; Walby 1990; 1997); an analytic tool (Hawksworth 1997; Scott 1986); a process of socialisation (Gilligan 1982); an effect of language (Spender 1980); and as culturally produced and socially constructed as masculine and feminine (De Beauvoir 1997; Oakley 1972).

Through empirical research, attempts have been made to understand the relationship between gender and the knowledge economy (Burnley *et al.* 2001; Burns 2000; Durbin 2002, 2003; Gill 2002; Johnson 1999; Perrons 2003; Stanworth 2000; Walby 2001) technology and gender (Cockburn 1983, 1991, 1999a, 1999b; Cockburn and Fürst-Dilić 1994; Green *et al.* 1993; Hapnes and Sorensen 1995; Haraway 1997; Hoffman 1999; Liff 1993; McLoughlin 1999; Ormrod 1994; Wajcman 1991) the process of gender stereotyping (or managerial sex-typing) (Dubno 1985; Schein and Mueller 1992)

critical mass (Kanter 1977; Lovenduski 2001; Phillips 1995; Thomas 1991) the equality-versus-difference debate (Cockburn 1991; Felski 1997; Gilligan 1982; Meehan and Sevenhuijsen 1991; Scott 1988; Wajcman 1998) gendered management styles (Bass and Avolio 1997; Burke and Collins 2001; Eagly and Johnson 1990; Fagenson 1993; Rosener 1990, 1995; Rutherford 2001; Valentine and Goodkin 2000; Vilkinas and Cartan 1997) and non-gendered management styles (Calas and Smircich 1993; Donnell and Hall 1980; Epstein 1991; Green and Cassell 1996; Hall-Taylor 1997; Morrison *et al.* 1987; 1990; Wajcman 1998, 2000).

Feminist scholars use gender in markedly different ways – as an interpersonal relation and as a mode of social organisation. Hawksworth (1997) uses gender as an analytic tool because it:

...illuminates a range of questions for feminist investigation and provides a framework for those investigations that challenges androcentric assumptions. A sophisticated understanding of gender as a theoretical tool can enable feminists to identify important issues pertaining to social institutions and relations...(Hawksworth 1997: 680)

Scott defines gender as ‘two parts and several subsets’ that are interrelated but must be analytically distinct:

The core of the definition rests on an integral connection between two propositions: gender is a constitutive element of social relationships based on perceived differences between the sexes and gender is a primary way of signifying relationships of power (Scott 1986: 1067)

The first part of Scott’s definition clarifies and specifies how we need to think about the effects of gender in social and institutional relationships. The second proposition is where gender is theorised. As Scott (1986: 1069) comments:

...it might be better to say that gender is a primary field within which or by means of which power is articulated. Gender is not the only field, but it seems to have been a persistent and recurrent way of enabling the signification of power in the West...

Sex and gender have been defined as analytically distinct, gender being a social construction (Oakley 1972; De Beauvoir 1973; Humm 1989). Gender has been theorised in various ways – in relation to the family (socially and biologically) as a system of patriarchy and as an analytic tool. Defining gender as an analytic tool and a social concept distances it from the biological conceptualisations of gender described by Firestone (1973). Scott's (1986) definition of gender is useful as it emphasises both the social construction of gender and gender as a primary way of signifying relationships of power.

In the context of this research, gender is defined as a social construction (masculine and feminine) because differences in the workplace between men and women are not 'natural' or 'biological'. Gender is used as an analytic tool to highlight the everyday experiences of women in the context of the hierarchical gendered relationships in organisations. Gender is thereby structurally grounded by locating it firmly within the power relations of male dominance and female subordination (patriarchy) (Witz 1992).

Gender, Power and Patriarchy

Power is a central concept in feminist theories of gender analyses and to an analysis of the relationship between gender and the knowledge economy. This section reviews

different perspectives on power by analysing 'top-down' forms of power (Weber 1948) patriarchy and structural power (e.g. Walby 1990; Witz 1992).

Although lacking a gendered perspective, the Weberian conceptualisation of power demonstrates the ways in which the holding of power allows one group to dominate another (e.g. men's dominance over women). When a gender lens is used, this draws out gendered hierarchical relationships. The key to achieving a more integrated understanding of the relations between gender and organisations lies in focusing attention on the relationship between gender and power (Bradley 1999; Coyle 1989; Halford and Leonard 2001; Kanter 1977; Rutherford (2001).

A Weberian Perspective on Power

Power (Macht) is the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests (Weber 1948: 152)

This definition of power involves three 'ideal types' of authority – charismatic (devotion to an individual person) traditional (the establishment of traditions and the legitimacy of those exercising authority over others) and rational-legal (resting on a belief in the legality of enacted rules and rights of those elevated to authority under such rules to issue commands – legal authority). In order for the hierarchical order to be maintained, this had to be based on legitimate domination. According to Weber, these are three pure types of authority on which the validity of the claims to legitimacy may be based.

Rational-legal authority is based upon a hierarchy where the work of others is coordinated in a large scale administrative way, as in many contemporary organisations (Weber 1978: 218-9). Weber argued that modern institutions were moving towards this 'ideal type' of the rational-legal bureaucratic form, based on technical know-how, rather than traditional and charismatic authority because traditional types of authority have proved to be unstable and pure charismatic authority is generally rare. However, Weber's account of power in bureaucracies does not account for gender.

Kanter (1977) using a Weberian perspective on power, argues that men and women have a place in the organisational 'opportunity' structure which in turn determines the amount of power they hold in the organisation. Kanter defines power as:

The ability to get things done, to mobilise resources, to get and use whatever it is that person needs for goals he or she is attempting to meet (1977: 166)

There can be no doubt for Kanter that power affects the careers of managers and that politics are the key to unlocking that power (see also Mainiero 1994). For Kanter, the term 'power' is distinguished from hierarchical domination, here the meaning being closer to 'mastery' or 'autonomy' than to domination and control over others. Power is the power 'to do' and the key to having access to whatever is needed.

Kanter found that as employees tended to have a preference for power, they also tended to have a preference for working for men. She therefore claims that what look like sex differences in organisations are actually power differences. Kanter believes that the primary agent of power is the manager's organisational position in the opportunity structure. Kanter focuses on power and not sex differences by arguing that

organisational structures are gendered only in that men happened to populate the hierarchies at an earlier time than women. Male power is therefore described as an unintended outcome, jobs shaping people, their behaviour and their identities. This does not sufficiently address the gendered management structures in organisations.

A contrasting notion of power is offered by Foucault who points to the ways in which power is exercised in a multidimensional way. In his studies of 'madness' (1989) and the prison (1979) Foucault views power as not necessarily being prohibitive (1990). In his analysis of the prison, he stresses that it had become appropriate for power to be used to observe (through imprisonment) rather punish through banishment or torture. Power then, for Foucault, is not fixed. It does not emanate from the top-down, as does a Weberian analysis of power. Power is exercised from innumerable points, in the interplay of nonegalitarian and mobile relations (1990: 94).

The Weberian perspective on power means that some individuals hold power over others where power is exercised in a 'top-down way. Kanter (1977) assumes that power is contingent upon one's position in the organisational structure and that this is not a matter of gender; does Kanter adequately address gender? Weber's notion of power does not account for the presence of gender but does account for the ways in which power is structurally and hierarchically placed in organisations.

Patriarchy: a Structural Perspective on Power

The structural perspective on power, which sits well with Weber's notion of power, views men as the dominant social group and as the primary agents of power. The

concept of patriarchy has its historical roots in Weber (1948) who used it to refer to the system of the dominant male head of household. Use of the concept has changed over time and has become more sophisticated (e.g. Delphy 1984; Walby 1990; 1997; Witz 1992).

The underlying social structures of inequality between men and women involve the creation of structures in the interest of the dominant grouping and bureaucratic work organisations are seen as a vehicle for the oppression of women (Halford and Leonard 2001) as they accommodate male characteristics such as rationality, reason and lack of emotion.

The concept of patriarchy is paramount to an analysis of the relationship between gender and the knowledge economy. It offers a structural analysis of gender inequalities within male-dominated management hierarchies and design networks. Patriarchy is a central (and highly contested) concept in feminist theory and signals discontent in a social structure in which women are systematically dominated, exploited and oppressed. The primary oppression of women is defined as patriarchal sex oppression which does not derive from capitalism because for radical feminists, patriarchy is the defining characteristic of our society. In contrast, Marxist feminists (e.g. Sargent 1981) focus on class struggle against capitalism, with women's roles being defined under the sexual division of labour (production and reproduction) with gender inequalities deriving from capitalism. Hartmann (1981) and Walby (1990) attempt to bring the two systems together through a dual systems perspective.

Walby (1990: 20) defines patriarchy as:

A system of social structures and practices in which men dominate, oppress and exploit women

Walby's (1990) theorisation of patriarchy is based on six substantive areas (or structures) of patriarchy: paid work, housework, culture, sexuality, violence and the state. Walby questions whether the duality of capitalism and patriarchy can be sustained and instead, prefers to distinguish between them, rather than place them in harmonious relation with each other. Walby stresses the need to examine more than one causal base, thus attempting to distance herself from the base/superstructure model deployed by Hartmann (1981). This she achieves through the examination of the six structures, which interrelate and produce different forms of patriarchy. By arguing for more than one patriarchal 'base', Walby is hoping to avoid what she terms 'reductionism' and 'essentialism'.

There are, according to this argument, sufficient common features and sufficient routinised interconnections that make it possible to talk of patriarchy in the West in the last hundred and fifty years. The *degree* of patriarchy has reduced as the wages gap between men and women has closed as women have become better educationally qualified. This has not, however, led to the elimination of patriarchy but rather the intensification of other aspects of patriarchy. The private form of patriarchy (the household and family) and the public form of patriarchy (employment and the state) are both sites of women's oppression. However, unlike Hartmann, Walby argues that the household is no longer the *main* site of patriarchy. The exclusionary strategy of private

patriarchy has shifted to the segregationist strategy in public patriarchy. Women are no longer excluded from the workforce; rather, they are segregated within it, often into lower status, lower paid jobs.

Walby views the labour market as more important in terms of analysing women's position as they are occupationally segregated by sex. Recognising the importance of the family and the fact that women have to take their domestic responsibilities into account, she recognises that many women make 'restricted choices'. Therefore, it is necessary to examine the very structures that restrict women's choices in the first place, hence her focus on the paid labour market. Walby (1997) now prefers to use the term 'gender regime', which is used to denote the patriarchal, gendered structures of the public and private spheres.

Bagguley (1991) uses the example of the hotel and catering industry to develop the different organisational resources that patriarchal mobilisation may draw upon in order to explain those cases where unions and professional organisations are absent. He argues that it is necessary to distinguish between two different organisational forms of patriarchal mobilisation – monological and dialogical – and that these develop dual systems theory (e.g. Walby 1990) because they account for the various forms of organisational resources on which patriarchal forces draw to mobilise and operate a closure strategy.

Bagguley defines these two forms of patriarchal mobilisation:

Monological forms of organisation typically involve centralised decision making; exercise of power through 'leadership'; communication through 'technical imperatives'; and legitimation of actions by reference to general social interests...dialogical forms of action involve the membership in the

details of decision making; power is exercised through the actions of members; communication is achieved through normative claims; and legitimation of actions is by reference to the interests of members (Bagguley 1991: 621)

Dialogical resources are drawn upon where monological resources are weak or absent. Bagguley claims that dialogical forms of patriarchal mobilisation are present in the hotel and catering industry due to a lack of powerful formal associations. Dialogical forms of patriarchal mobilisation are therefore informal where men (informally) join together to exclude or segregate women.

This is an enlightening development of patriarchy within organisations and is very useful for analysing organisations where no collective and formal powerful associations exist. However, in the call centre context, the monological form of organisation prevails in that women are excluded from managerial positions where decision making is centralised, power is exercised and actions are legitimated. Men occupy these positions and thus are organised, first and foremost, monologically, as men, and this manifests in their grouping into management positions where they consolidate their decision making capabilities.

An example of an institution that depends upon monological forms of organisation is the military because it represents a 'patriarchal institution' that *uses* women because military strategists *need* women to think and act as patriarchy expects women to think and act (as nurses or camp followers) (Enloe 1988). The military attempts to disguise the use of women so that it can remain the quintessentially 'masculine' institution, the bastion of 'maleness' (Enloe 1988). There is also an expectation that women will take up domestic and childcare responsibilities and this involves the reinforcement of the norms of womanhood – women, individually and as a group, acting as the military

expects them to act. In other words, for women to behave 'as the gender women' because:

Without the assurance that women will play their 'proper' roles, the military cannot provide men with the incentives to enlist, obey orders, give orders, fight, kill, re-enlist, and convince their sons to enlist (Enloe 1988: 212)

Women keep the military going and as a consequence, the military will continue to 'control' women and keep them in their prescribed roles – 'usable, dispensable, replaceable with other women' (1988: 219). The social (patriarchal) order and military doctrine are therefore compatible.

The concept of patriarchy has been criticised on the grounds that it is essentialist, universalising, ahistoric and that it homogenises the position of women and is therefore insensitive to a range of women's experiences in different cultures, classes and ethnicities (Acker 1989; Bradley 1989, 1996; Crompton *et al.* 1999; Pollert 1996; Rowbotham 1981).

However, it is relevant to an analysis of women in call centres where men may be occupying the dominant positions in the management hierarchies. Walby (1990) offers the most sophisticated account yet of the changing forms of patriarchy and argues that women share enough commonalities to allow us to bring patriarchy to the fore. Differences may exist between women but most (especially in managerial positions) have experienced the domination of men. The paid labour market has become an important site for inequalities between men and women and therefore now constitutes the main site of patriarchal relations, although the domestic sphere also remains influential.

Has the knowledge economy, with call centres as an area of paid work, become a site of patriarchal relations where men dominate and exploit women? Are call centres patriarchal institutions that need and use women?

Gender Stereotyping and Critical Mass

The ways in which gender is socially constructed and the personal characteristics of women stereotyped has sometimes been used as a means to keep women out of management (a process of gender stereotyping). This section examines the debates on gender stereotyping (Dubno 1985; Schein and Mueller 1992) and critical mass (Kanter 1977; Lovenduski 2001; Phillips 1995; Thomas 1991).

The managerial position has been found to be sex-typed as a male occupation where the numbers of women in management are lower (Schein and Mueller 1992) (see also Dubno 1985). Does this mean that a critical mass of women will achieve equality for women in management?

Kanter (1977) argues that an increase in absolute numbers (from one token to two token women) can help to ease the pressure for women managers but also that two tokens can be easily divided. Therefore, increased numbers of women are necessary for supportive alliances to develop. Kanter argues that where women constitute 15% or less of a group then they are 'tokens' and that tokenism is a problem for those women who occupy jobs most frequently held by men (generally closer to the top of the organisation).

Kanter defines four group types: *uniform* groups (homogeneous in terms of sex, race and ethnicity) with a typical ratio of 100:0; *skewed* groups, where there is a large preponderance of one type over another with a ratio up to perhaps 85:15, the former representing the dominant group; *tilted* groups that have a ratio of around 65:35 and where the 'dominants' are only just a 'majority' and where minority members can create coalitions, form alliances and affect the culture of the group; and *balanced* groups, having a ratio of around 60:40 or 50:50 and 'majority' and 'minority' turn into potential sub-groups (Kanter 1977: 208-9).

Kanter argues that 'number balancing' should be the ultimate goal in organisations because a better balance of people would be more tolerant of the differences among them. Therefore, affirmative action should become a reality. However, Rosener (1990) argues that 'sex ratios' are not important because numbers alone will not make a difference: three women on a Board of directors can make more of a difference in terms of raising awareness around women's issues.

Gender representation is also argued to be a matter of 'justice' (Phillips 1995). Phillips, like Kanter, emphasises the importance of 'numbers'. The cornerstone of a politics of presence is the 'symbolic significance' of who is 'present' and the inclusion of groups that have previously been denied or suppressed. Does an increase in the presence of women really make a difference? Thomas's (1991) USA-based empirical research found that in US States with the highest percentage of female representatives, more bills dealing with the issues of women, children and families, were introduced and passed than in legislatures where men had total control or where women had low

representation. Thomas argues that women can successfully diffuse their priorities in two ways: through a high percentage of women in office; or the presence of a formal women's legislative caucus. Her empirical research suggests that women do make a difference and that their capacity to do so is related to the level of support from colleagues.

In terms of critical mass, 25% to 35% female membership in legislative chambers does not constitute a critical mass able to affect overall policies and priorities (Thomas 1991). A figure closer to 'parity' is necessary for this to happen (Kanter's 'balanced' group). On the other hand, it takes a female representation of 10% for women's distinctive interests to begin to appear.

Lovenduski (2001) questions the concept of critical mass. The figure set by the United Nations in 1995 set critical mass for women at around 30% of a legislature, to enable the fair representation of women. However, Lovenduski argues that this is an 'arbitrary figure' because the concept is under-developed. Lovenduski argues that women have neither revolutionised the House of Commons nor been 'roll call rebels'. However, there is evidence that women MPs have worked behind the scenes to secure reforms (e.g. women working together with women's advocates outside Parliament to change the law to allow positive action in favour of prospective women candidates) but this remains minority representation rather than critical mass.

Will an increase in women's numerical presence make a difference? According to Kanter, women have to be in the 'tilted' group (with a ratio of around 65:35 men to women) to *begin* to make a difference. The overall proportion of women in UK

Parliament after 1997 was toward the lower end of the 'tilted' group range (Lovenduski 2001) and this has not 'revolutionised' Parliament. In the case of Thomas's (1991) research, women's representation at state legislatures ranged from 30% in Washington down to 3% in Mississippi, those with the higher percentage of women making the difference. Again, in the UK, Greed (2001) claims that whilst women increased their representation as surveyors in the construction industry from 3% in 1990 to 7% in 2001, this did not achieve critical mass. Each of these different research projects advocate the assistance of 'outside' help for women in order to overcome the problems of achieving critical mass.

From Kanter's group types, it would appear that the 'balanced' group will achieve equality between men and women but that the tilted group is the point at which women can begin to make a difference. These arguments have direct relevance to other areas of women's lives, including women in call centre management. However, an important question should be considered: is it enough for women to achieve a critical mass of, for example, 75% (as is the case amongst the team manager population in call centres?) Will this mean that women are involved in decision making; or must this critical mass be correlated with the holding of power in decision making?

The Sameness-Difference Debate and Equality

The debate on gender role stereotyping, critical mass and gendered management styles have their theoretical base in the equality versus difference debate (Cockburn 1991; Felski 1997; Holli 1997; Liff and Cameron 1997; Liff and Wajcman 1996; Scott 1988; Wajcman 1998).

It has become increasingly recognised that the arguments for equality (based on either sameness or difference) are problematical. Firstly, the argument tends to homogenise women as a group (e.g. not all women have a relationship with reproduction) and this homogenisation can also ignore characteristics such as class, race, ethnicity, sexuality, disability and age. The second problem is that we are often forced to choose either equality or difference (Cockburn 1991). The third problem is that the sameness/difference debate measures women against a male standard, a standard which itself needs to be radically changed (Wajcman 1998; Liff and Wajcman (1996).

The interaction between sameness judged from women's perspective and a notion of equality based on multiple identities may be productive. Felski (1997: 15) describes the equality-vs-difference debate as a 'false antithesis' because:

The opposite of equality is not difference but rather, inequality, a principle to which presumably no feminist would subscribe. Similarly, the antonym of difference is not equality but identity.

The answer, therefore, is to conceptualise the position of women in terms of a difference within sameness and a sameness within difference because such a perspective remains more open to the multiple and mutable concerns of feminism.

By pairing equality and difference dichotomously, we are giving ourselves an impossible choice. However, feminists cannot 'give up' difference as, 'it is our most creative analytic tool' for equality. Scott argues that the 'equality/difference' dichotomy was not invented by feminists and that the only response is:

The unmasking of the power relationships constructed by posing equality as the antithesis of difference and the refusal of its consequent dichotomous construction of political choices (1988: 44)

We should therefore refuse to oppose equality to difference and attempt instead to demonstrate that equality requires the recognition and inclusion of difference.

Equality is a relational concept that cannot be reduced to either sameness or difference.

Pointing to the possibility of change within the concept of equality, Holli (1997) argues for a ‘modified revisionist standpoint’ as the most productive for feminists:

Equality can thus be seen *in relation* to sameness (identity) and difference but cannot be reduced into either of them. *Equality can only be conceptualised in between, in an interspace or in a continuum of sameness and difference, where both of those concepts are present* (Holli 1997: 157, original emphasis)

‘Absolute sameness’ and ‘absolute difference’ are therefore at the extremes of this continuum because, ‘equality always refers both to existing differences and to similarity’ (1997: 137). Difference and sameness are simultaneously present when we speak about equality and so we cannot be forced to choose between one or the other.

It is necessary to adopt the concepts of ‘sameness’ and ‘difference’ and attempt to locate equality within these, thus ensuring that women’s ‘differences’ are not ignored. Equality is present within difference and difference within equality, as there is equality within sameness. Women do not have to be the same as men in order to be equal, but sameness may also achieve equality. Holli’s (1997) analysis of the concept of ‘equality’ is useful here. Having to choose between either equality or difference presents feminists with a problem – simply because we are forced to choose. However, if we refuse to set equality and difference in opposition to one another then we can

attempt to locate equality within both sameness and difference. Equality thus becomes a 'relation' and does not have to be reduced to either sameness or difference, allowing for the pluralisation of the concept of equality (Holli 1997).

Women in the Paid UK Labour Market

There has been a transformation of women's position in the paid labour market (Walby 1997; Crompton *et al.* 1999). Walby (1997) describes this as changes in the gender regime because women have moved from the confines of the family to the paid labour market where they are included but segregated. The forces for these changes include: the winning of political citizenship by women; a massive growth in the proportion of women who are in formal waged employment since the second world war; an increase in younger women's human capital as a result of educational achievements since the 1970s; equal opportunities legislation; and the changing composition of the family.

Crompton *et al.* (1999: 2) agree:

The male breadwinner model of the gender division of labour is undergoing a process of transformation

There has been a move from more to less traditional gender relations, the former represented by the male breadwinner/female carer scenario, the less traditional by the dual earner/dual carer scenario. On the other hand, the dual earner/dual carer signals less traditional gender relations. Women's full-time work in combination with substitute care is more likely to result in less traditional gender relations and greater gender equality (Crompton *et al.* 1999).

Women in Management

Women's position in management forms a mixed picture (Halford and Leonard 2001). Since the mid-1990s, women's representation amongst executives in the UK has doubled and amongst company directors has tripled. However, critical mass has not been achieved as women still comprise less than a quarter of executives and only one in ten company directors in the UK. Women comprised 30% of all managers and senior officials in Britain in 2001 and made up a higher share of managers and proprietors in agriculture and services (36%) than the generally higher-paid corporate managers and senior officials (21%). Male and female managers are also occupationally segregated, with men outnumbering women in nine of the eleven managerial sub-groups, the exceptions being financial institutions and office managers (Equal Opportunities Review 2002: 14). The most popular jobs for female managers are in marketing and personnel, with women making up 35% of managers in both these areas (Davidson and Burke 1998). Women holding managerial and senior official posts are faring slightly better in the public services, comprising 29% compared with 26% in the private sector (Opportunity Now 2001: 58-59). The 'glass ceiling' remains intact for women in organisations (Davidson and Burke 2000; Equal Opportunities Review 2002; Jackson 2001; Wirth 2001).

Female bank managers who have 'succeeded' in the rapidly changing organisational climate of the 1990s have done so by often changing their personal lives, which is characterised by a less traditional division of domestic labour (Crompton and Harris 1999). Opportunities and constraints mean that women construct their work-life

biographies which result in their employment behaviour (Crompton and Harris 1998: 131).

Women appear to be well represented in call centre management. In a survey of a thousand call centre personnel (managers and staff) working for twenty five major call centre operations across the business spectrum (financial services, information technology, retailing, private healthcare and public services throughout the UK) six out of ten managers were women (Calcom 1997). However, women have also been found to be under-represented in senior management positions (Durbin 2002, 2003).

Management Styles

How can women's under-representation in management be explained? The sameness/difference debate is relevant to the debate on organisational management styles (whether men and women manage in the same or different ways) and is useful in attempting to analyse whether team managers in call centres are managing in the same or different ways.

Men's and women's styles are generally categorised in terms of women and men are no different (similarity); women and men are different but complementary; and women and men are no different. However, all three categories measure women against a male standard which does not present the way forward for women in management.

The argument that women and men manage differently has been developing since the 1980s (Bass and Avolio 1997; Burke and Collins 2001; Eagly and Johnson 1990;

Fagenson 1993; Rosener 1990, 1995; Rutherford 2001; Valentine and Godkin 2000; Vilkinas and Cartan 1997). The dominant model to emerge from the literature is the concept that men have a predominantly transactional and women a transformational style of management.

One of the most influential and debated pieces of research in this area is that of Rosener (1990) who measured male and female managers' self-perceptions of the ways in which they managed. Rosener believes that a second wave of second generation managerial women are gaining access into the higher echelons of management, not by adopting the styles and habits of successful men but by drawing on the skills and attitudes they have developed from their shared experiences as women and the uniqueness of their socialisation. Court (1994) and Berthoin and Izraeli (1993) have drawn similar conclusions from small-scale qualitative research projects.

Rosener's main argument is that men are transactional and women transformational in their management styles, concepts first used by McGregor Burns (1978) and later developed by Bass (1985). The transactional approach describes the process of leadership as a series of transactions between leaders and subordinates, power being exercised through position or organisational status. The transformational leadership approach involves encouraging subordinates to transform their own self-interest into the interest of the group, through a concern for broader goals. Power is thus ascribed to personal characteristics such as charisma, interpersonal skills, hard work or personal contacts, rather than to organisational status.

Bass and Avolio (1997: 208) also conclude from a large-scale study that women managers tend to be more transformational and more proactive in addressing problems. Valentine and Godkin (2000) through an exploration of the relationship between supervisor gender and perceived job design, found that a supervisor's gender influenced subordinates' perceptions of their job and that differences were attributed to the different leadership styles men and women frequently use in the workplace. Overall, subordinates who had female supervisors perceived greater interpersonal aspects in their jobs, while subordinates of male supervisors perceived greater structure in their jobs. Burke and Collins (2001) found female accountants to be more 'interactive' (or transformational) than their male colleagues and Eagly and Johnson (1990) argue that 'sex differences' exist in leadership styles, task and interpersonal orientation but that this will depend upon organisational settings. Vilkinas and Cartan (1997) found that male and female managers display different roles and that peers view female managers as being more effective. Fagenson (1993) calls the appropriateness and effectiveness of a masculine military model of management in corporate settings into question.

Business function has also been identified as the most important influence on management style (Rutherford 2001) highlighting the differences between perception and reality. Although women themselves thought that they had a different management style to that of men, it was the business function of the division that most determined the prevailing management style (Rutherford 2001). Overall, across five airline divisions, 74% of respondents said that they thought men and women managed differently (84% of women and 55% of men). Rutherford's findings support the 'women manage differently' debate in that the majority of women thought that men and

women managed differently but in the context that this is influenced by the business function and not necessarily by gender.

These studies support the view that women manage differently when compared with men, based upon the transactional (male) versus transformational (female) model. Is the transformational style prevailing in the call centre context, that could be argued to be traditionally female due to gender composition? Or does the nature of the business (intense monitoring of performance through the use of information technologies) mean that this is a traditionally male environment?

The originating research supporting the view that men and women manage/lead similarly pre-dates the men/women as 'different' argument (which came to the fore in the 1980s) and is on-going (Calás and Smircich 1993; Donnell and Hall 1980; Epstein 1991; Green and Cassell 1996; Hall-Taylor 1997; Morrison *et al.* 1987; Wajcman 1998; 2000). Some of this research questions the methods employed by those who claim to have found differences between male and female managers.

The methodology adopted by the researchers who do find differences in management style has been questioned by Epstein (1991: 150) who argues that most authors have drawn our attention to the differences between male and female management styles and downplayed the similarities. Much current research shows that men and women tend to stereotype their own behaviour according to cultural views of gender appropriate behaviour, as much as they stereotype the behaviour of other groups.

The transformational management model is also challenged by Wajcman (1998, 2000) who found that male and female managers were generally as equally as aggressive, ruthless and coercive in their style of management, the overall trend being to centralise power within the hierarchical management structure. No significant differences in management style, skills, commitment or effectiveness were found between male and female managers. Wajcman (1998: 56) concludes, 'there is no such thing as a female management style', the overall management style being shaped by 'organisational imperatives'. Wajcman found that the few women who made it into senior management were 'indistinguishable from men in equivalent positions' (1998: 79) and had to 'manage like men' in order to get on.

A further question regarding methodology is also raised by Wajcman (2000). When men and women were asked to describe others' management styles, differences emerged, with 69% of women and 41% of men stating that there is a difference in style. However, when men and women were asked to describe their *own* management styles, no significant differences were found (2000: 266). This confirms that a major discrepancy exists between the rhetoric of 'soft' management and the 'hard' reality of practice (2000: 267). Like Rutherford, Wajcman claims, 'there are thus powerful organisational imperatives that dictate management style and goals and permit few substantial modifications in managerial approach' (2000: 269).

Donnell and Hall (1980) also found no major differences between men and women in the ways in which the management process was administered; Morrison *et al.* (1987) found no differences between high level managers and professionals who participated in management development programmes, although it has become fashionable to say

that differences are beneficial (e.g. women are more people-oriented and less authoritarian) and that women complement men in management and bring a healthy balance to business (see Loden 1985).

Calás and Smircich (1993: 73) challenge the methodologies and empirical claims of the 'women as different' research, postulating that the 'feminine-in-management' argument is, 'merely another episode in a long history of economic reasoning that ends up valuing women out of instrumental necessity', for example, women's movement from the domestic to the public sphere (or from private to public patriarchy) has been through economic necessity, for example, when women worked in the munitions factories during the Second World War. As we are now witnessing the globalisation of business, women are again useful to add 'diversity' to the workforce within the context of global competition. Vinnicombe and Colwill (1995: 21) ask: do research methods used by researchers *create* sex differences? From this point of view, researchers pre-determinedly begin by looking for differences – of what interest would the research be if only similarities were found?

Accepting the 'difference' argument would mean accepting that women possess certain female socialised patterns of behaviour and attitudes (Green and Cassell 1996). Most of the research fails to confirm the difference thesis, in that few differences of performance are found between male and female managers where they are matched for levels of education and organisational level (1996: 169).

Research that rejects the women as 'different' argument approaches the issue from several, sometimes quite different perspectives. Are women transformational and men

transactional in their management styles? Are women adopting 'male' ways of managing; or are men adopting styles that are usually associated with women? Does this mean the re-gendering of management styles, rather than women adopting men's style of management, and vice versa?

Research addressing the 'women as different' and 'women as similar' arguments are inconclusive in that each argue a case for either 'difference' or 'similarity' in their own particular contexts. This research will determine whether or not management styles are gendered in the knowledge economy by asking team managers to identify with certain management practices (that will be structured as transactional and transformational styles of management). Team managers will also be asked about their perceptions of men's and women's management styles, based on their everyday experiences. These two approaches will identify both the realities and perceptions of management styles and whether or not these are gendered.

Conclusions and Research Questions

This chapter has reviewed and analysed key debates on the emergence of a knowledge economy and the implications of this for women, specifically in relation to knowledge, technologies and gender.

Knowledge emerges as a key concept, the very 'action of knowledge upon knowledge' representing the main source of productivity. However, knowledge can be both a source of wealth and inequalities. For example, the codifying (or encoding) of knowledge should make knowledge more accessible, transferable and marketable

within an organisation – but whose knowledge is being encoded and who is sharing it? The knowledge economy is also founded upon high levels of investment in education, training and research (embrained knowledge) and the development of ever more sophisticated software and information systems to accelerate the production of knowledge. This high threshold of investment for entry and speed of development produces ‘winners’ and ‘losers’ through the processes of ‘inclusion’ and ‘exclusion’.

Knowledge is a key concept – but is it gendered? To what extent are women involved in the collection, storage and sharing of knowledge? Given the emphasis upon tacit and encoded knowledge, what role, if any, do women have to play in the sharing of knowledge? Lam’s (2002) knowledge types (embrained, embodied, encoded and embedded) help us to ‘unpack’ knowledge and to identify where access to them may be gendered. If women predominate at knowledge capture and men at the knowledge encoding levels in call centres, does this reveal a fundamental inequality in the knowledge identification and control process? This research will confirm the presence of Lam’s four knowledge types in the call centre context, identify at which levels of the organisational structure they are present and determine whether or not these knowledge types are gendered.

The concept of the ‘knowledge worker’ has been widely debated, having been described as the ‘educated person’ (e.g. Drucker 1993; Bell 1974) and those employed in ‘information rich’ managerial, professional and technical occupations (e.g. Castells 2000). Frenkel *et al.* (1999) demonstrate how the requirement for different levels of contextual knowledge in call centres produces employment at both the higher and lower ends of the occupational hierarchy. This is disputed by those from a labour

process perspective (e.g. Fernie and Metcalfe 1998; Taylor and Bain 1998) who argue that all call centre employment occurs at the lower end of the organisational hierarchy because of its boring and repetitive nature.

The concept of 'knowledge worker' clearly places workers in a hierarchical position, whereas Frenkel *et al.* (1999) place them at different levels according to their use of lower and higher-order contextual knowledge. Under this model, those workers that are lower in the organisational hierarchy can be identified as knowledge workers in circumstances where they are required to deal with considerable complexity. The thesis distinguishes call centre work from production-type assembly line work because of the existence of these different levels of knowledge, skills and complexity. Technology has the potential to both deskill and reskill (e.g. Liff 1993) but the knowledge economy requires particular skills from its employees (Castells 2000; Reich 2001). New technologies are at the centre of these changes – which both displace workers and create new jobs (Carnoy 2000).

There may be less scope for (vertical) career progression in knowledge-type organisations, posing a particular problem for women who predominate within the lower levels of the managerial hierarchy. Are women included in or excluded from career progression in call centres? Is there evidence of continuity or change in career in the knowledge economy? When a gender lens is used to examine the future of career in the knowledge economy, this may reveal yet another area where women are losing out.

The knowledge economy is built upon and enabled by the information technology revolution. However, knowledge economy authors present new technologies as though they have merely ‘emerged’, thereby neglecting the complex and gendered relations that occur within the development process itself. The thesis engages with technological design networks from inception to implementation and asks, are these gendered? In so doing, the thesis considers the social shaping of technologies, in particular, the concepts of ‘relevant social groups’ and ‘interpretive flexibility’. Furthermore, it reviews actor network theory and focuses upon the impact of the non-human actants that are present in design networks.

These two approaches have been combined with an analysis of gender to establish whether or not technological design networks in call centres are gendered. Through the social shaping of technologies, the social processes and actors behind technological artefacts are defined by revealing who make up the relevant social groups and how they interpret technologies. What of the user groups? These may constitute relevant social groups but are they excluded from the design stage? Are women included in technological design networks as either designers or users? Is this affected by the gendered division of labour?

Actor network theory identifies the non-human actants present in the design network, represented by the technological and other artefacts that are put into circulation by social actors. The limitation to actor network theory is that it makes no assumptions about the backdrop of social, economic or technical factors, its focus being upon the very process of building and operating the network. Consequently, the gendered division of labour, the structural backdrop to design networks, is ignored. Although

actor network theory may call for the symmetric analytical treatment of humans and non-humans, humans may well be those who put intermediaries (humans, texts, technologies and money) into circulation.

Whilst the social shaping of technology approach accounts for intentions through its consideration of the backdrop to technological design, actor network theory evaluates the impact of association and substitution within the design network and upon the final design. Through examination of technological design networks it is possible to establish whether gender relations have survived, unchanged, in the call centre environment and how technologies may be gendered in the constitution process. This can be achieved through analysis of the design and use of technologies, by identifying and distinguishing between the designers and users. Gender structure (patriarchy) is the main focus of this thesis (the gendered division of labour) as this aids the identification of where women are situated in the organisational structure and how this affects their place in the design and use of technologies.

Technology has been defined as a 'masculine culture' from which women are excluded (Cockburn 1983, 1991, 1999a, 1999b; Cockburn and Furst-Dilic 1994; Wajcman 1994). It has been historically and culturally constructed and certain choices made by male social actors are shaped by social arrangements that reflect men's power in the overall organisational structure. The concept of 'genderscript' (Rommes *et al.* 2001) demonstrates how gender relations are embedded in the design network because technologies contain certain scripts that attribute and delegate specific competences, actions and responsibilities to users. This sits well with the social shaping of technology as a product of social, political and policy-making, etc. The 'I-

methodology' of designers becomes evident as this occurs when innovators (or designers) consider their own preferences and skills to be representative of the user, who is excluded from the design process.

The design network becomes based on organisational imperatives, the private goals, knowledge and interests of designers and decision makers. If designers are predominantly male, then it is male, not female, knowledge that is incorporated into the design network, thereby revealing a 'genderscript' in the design process.

Wajaman (2000) supports this perspective, in that she argues that gender is marginalised in both the social shaping of technology and actor network theory, being linked to the exercising of power through the exclusion of women. This may impact upon the process of technological development as women's absence from spheres of influence is a key feature of gender power relations. Few women feature as any of the principal actors in technological design, as the sexual division of labour has excluded women from entering science, engineering and management. Therefore, a focus on the relevant social groups in design networks should be combined with an analysis of who is *not* included (e.g. non-relevant social groups).

Gender is the key analytic tool for an analysis of the knowledge economy, with gender being defined as a system of male domination and a mode of social organisation (patriarchy). As an analytic tool, gender offers a primary way of signifying relations of power (Scott 1986) and this can be applied to design networks. Power is a central concept in feminist theories of gender analysis and the analysis of the relationship between gender and the knowledge economy. The underlying social structures of

inequality between men and women involve the creation of structures in the interests of the dominant group. Patriarchy is central to this as it offers a structural analysis of gender inequalities within male dominated managerial hierarchies and design networks.

There are several key research questions emerging from this review: is knowledge gendered? Are call centres gendered by design? This question is analysed by identifying whether women are included or excluded in design networks. If they are included, is the design outcome more favourable? If so, for whom? What is women's relationship with technology in the knowledge economy? Is the design framework gendered? Are call centre technologies socially shaped, technologically determined, or a hybridisation of the social and the technical? Are design networks gendered?

Current research on the relationship between gender and the knowledge economy have informed the debate, the above research questions adding to and developing the thesis on the relationship between gender and the knowledge economy.

Chapter Three

Methodology

Introduction

The question of whether or not the knowledge economy is gendered has been broken down into three principal research questions:

What is the relationship between gender and the knowledge economy? Are women better or worse off in the knowledge economy compared with men? Knowledge types and skills in call centres may be gendered, which when coupled with 'flatter' operating structures in this type of organisation, has potential implications for women's progression. Are women 'getting on' in call centre management compared to their male counterparts? Fundamentally, are women 'winners' or 'losers' in the knowledge economy, compared with men?

Are call centres gendered by design? Are women included or excluded from the call centre design process? If they are included, does this result in a positive design outcome; if excluded, what are the implications of this exclusion for the design outcome? Call centres are a manifestation of massive technological changes and sites of knowledge. However, if badly designed and inappropriately managed, the potential for women's inclusion may be lost. By following the design and development processes from an historical perspective and the role that women may have had to play in this, it is possible to relate this to women's working experiences as 'users' within the workplace. Have gender relations been reproduced in the workplace through these

design decisions? Who gets to take part in the design network? Are women part of the design, innovation and decision making process? Do they have a part in the arranging, ordering, shaping and regulating of call centre design? If they do, what is the outcome of this?

What is women's relationship with technology in the knowledge economy? Is the design of the technological framework gendered? To what extent are women involved in design networks, as either designers or users? Is the design of call centre technologies socially shaped, technologically determined, or a hybridisation of the social and the technical (actor network theory)? Where do women sit within these hybrid design networks?

The methods used to analyse these questions are outlined and discussed in this chapter. The emergence of a knowledge economy is mapped, call centres being defined as knowledge-type organisations. The use of case studies is then discussed, followed by sampling of the research population. The use of different types of interview as the principal research method is then explained with reference to the specific research questions these have set out to answer with particular samples of the research population. Finally, ethical issues and data analysis are discussed, followed by some concluding comments.

Why the Knowledge Economy and Call Centres?

The knowledge economy is built upon the information technology revolution, the action of knowledge upon knowledge being the defining (intangible) product that is

created, accumulated, distributed and eventually, encoded, through information technologies, making knowledge more accessible to a greater number of people in organisations. Knowledge workers are not a new phenomenon as knowledge has always been a key part of society. However, the speed of the accumulation and diffusion of knowledge, enabled by information technologies, has shifted the economy towards one that is based on knowledge.

Knowledge economies are characterised by a substantial reliance on the new information technologies, not only for communication between individuals but also for the creation of new knowledge (Foray 2002). The knowledge-based economy is based upon the acceleration of knowledge production, the creation of new knowledge, innovation and a revolution in the instruments of knowledge (information technologies) (David and Foray 2000). Are women sharing in the creation and accumulation of knowledge and the information technology revolution?

Call centre working is a relatively new phenomenon in the UK economy where women predominate at adviser and team manager levels. Research into call centres therefore allows for the analysis of an important work arena (knowledge-type organisations that have been built upon the information technology revolution) where women may or may not be progressing in management positions in a relatively new area of work. There were no other identifiable research sites that could offer an analysis of knowledge-type organisations that are both predominantly staffed by women and built upon the information technology revolution. The success of call centres depends upon sophisticated information technologies operated by a skilled (female) workforce and

are built upon a different way of working in a relatively new sector of the knowledge economy.

Call centres are an ideal place for the exploration of the gendered social relationships between men and women in the workplace, with a workforce that is overwhelmingly populated by women and a senior management team that is predominantly male. It is acknowledged that call centres are knowledge-type organisations where different levels of contextual knowledge, as well as skill and discretion, are evident. It is also acknowledged that call centres can also be sites of strict labour control where creativity, discretion and autonomy are suppressed for the majority of workers, consequent upon the intensive use of information technologies. Call centre work can therefore be placed on a continuum which has knowledge work at one end and boring, repetitive processing at the other. The case study call centres in this research are neither 'high end' nor 'low end' knowledge-type organisations but generally sit within the 'middle range' of knowledge work on this continuum.

The growth and development of call centres has been attributed to four factors: outsourcing (to lower costs, for example, through the partial closing of the branch network in the financial services sector); the collapse of barriers to the financial services and telecommunications industries (deregulation); developments in technology; and socio-demographic factors, such as the availability of flexible, qualified labour (Market Assessment International 1999). A fifth factor may be the rise in customer expectations, manifest in the concept of service availability anytime, anyplace, anywhere.

The development of call centres has been very rapid and estimates of the numbers of call centres and people employed in them vary. Call centres are a relatively new way of working that is constantly evolving (through the transition to a contact centre) with continuing growth rates. Market Assessment International estimated that in 1999, call centres accounted for 1.8% of the UK's total workforce and had captured around 39% of the European call centre market. Bagnara (2000) estimated that between 1997 and 2000, the call centre industry accounted for 37% of all new jobs in Europe. The number of UK call centres has been predicted to grow by 100% over the next few years, to around 9,600 by 2004. Employment in the industry is predicted to follow the same growth patterns experienced during the late 1990s and should reach 860,000 by 2004. By 2003, it is also predicted that 1.3% of the total European workforce will be employed in call centres (Market Assessment International 1999).

Purcell (2000) maps the rise in employment amongst telephone salespersons and call centre operatives between 1991 and 1997:

Table 1: Rise in Employment amongst Telephone Sales Persons (by gender)

	Male	Female
1991	11,200	31,000
1996/7	14,558	36,852

Table 2: Rise in Employment amongst Call Centre Operatives (by gender)

	Male	Female
1991	2,888	11,000
1996/7	1,731	12,287

Occupational Classifications of Call Centre Workers (SOC 2000)

Call centre workers have only recently been included in government statistics on the labour market (SOC 2000). Before this, it was necessary to rely on secondary data from academic sources and company reports to classify and quantify the incidence of call centre employment. The new Standard Occupational Classification (SOC 2000) which replaced SOC (91) was introduced into the Labour Force Survey in July 2001, using the Spring 2001 dataset. This was to reflect the introduction of new occupations (Labour Force Survey Technical Report 2001) key features being the recognition of the development of customer care occupations and the emergence of remote service provision through the operation of call centres. Category 7 (Sales and Customer Service Occupations) now includes a minor group (7211: Call Centre Agents/Operators). Analysis of the Summer 2000 Labour Force Survey data shows a remarkable growth of 220% in call centre operatives between 1996/7 and 2000 (Labour Force Survey July 2001). In the period Spring 2001, Sales and Customer Services employment (compared with All in Employment) was as follows:

Table 3: All in Employment and Sales and Customer Service Employment (Spring 2001, Labour Market Trends)

	All in Employment	Sales and Customer Service
Male	15.5M	693,000
Female	12.6M	1,495,000
TOTAL	28.1M	2,188,000

However, according to the Incomes Data Service (IDS) the growth predictions by Market Assessment International (1999) and Bagnara (2000) are unlikely:

The extraordinary rapid rate of expansion we saw in the 1990s has inevitably slackened, though significant new start-ups continue to be announced and many first generation call centres have since moved into new phases of expansion (IDS 2001: 11)

In 2001, there were more than 5,000 call centres, or customer contact centres, in the UK (IDS 2001) but the numbers employed have, until now, been difficult to assess, given the lack of official classification and figures up to that date. Quite simply, the Standard Occupational Classification had not taken account of the call centre phenomenon. Consequently, estimates of the numbers employed in call centres have ranged from 250,000 to 1.25 million but most commentators place the current figure at around 400,000 (or 1.5% of the total UK workforce) (IDS 2001: 11).

Call centre workers have now been classified according to three categories of worker: Telephone Salespersons; Call Centre Advisers and Operators; and Customer Care Occupations. These classifications reveal how the call centre sector is gendered, with women overwhelmingly employed in all three categories and comprising around 70% of all call centre workers. The call centre sector also has a young age profile, with 63% of employees aged under thirty years (IDS 2001).

Call centres are an important sector of the UK's knowledge economy and this is reflected with the introduction of new occupations into the Labour Force Survey.

Research Design

Case Studies

Case studies have been selected because they offer the opportunity to conduct a detailed, in-depth analysis of four call centres in a relatively new and rapidly expanding industry during its development phase. This has allowed investigation of many areas of call centre working across four research sites.

This research has used a multiple case study approach through a set of individual cases of four case study call centres that share many common features (e.g. management structures, technologies and work processes). A range of methods have been used in this case study approach (interviews, non-participant observation and questionnaires) and these are discussed in some detail in later sections. Through the case study approach, there are no claims that the research outcome is representative of the wider population (e.g. the call centre industry in general) but the research outcome may indicate that similar cases can apply in other call centres in the financial services industry, given that they have been designed and set up in similar ways, especially in relation to information technologies. Furthermore, because call centres represent an ideal typical example of knowledge-type organisations, the claim that the knowledge economy is gendered may have a wider relevance within the knowledge economy itself.

Yin (1989) and Saunders *et al.* (2000) have defined the case study as a research strategy, thus arguing that there is no connection purely between case studies and qualitative research, as case studies can include and even be limited to quantitative

evidence. Therefore, the case study is not a specific technique but an approach which views any social unit as a whole (Blaikie 2000). This is the approach taken in this research, the methods being a combination of interviews, non-participant observation and questionnaires.

Although a potential list of eight case studies was initially offered to me through a contact in the call centre industry, only one organisation from this list (Bankco) expressed an interest in my research, offering access to two of its call centres. Access to a further two call centres (Finco) was gained through a personal contact in the parent organisation.

The case study call centres form part of two leading UK financial services organisations (referred to as 'parent' organisations) who decided to set up call centre operations due to increased customer demand for telephone contact with the organisation and competitive pressure from other financial providers, such as First Direct. Both organisations offer financial services (sales and service) to their customers on a twenty-four hour, seven day a week basis. Both are well established, highly reputable organisations that form an important part of the financial services sector in the UK.

Finco and Bankco share similarities and differences and these may be of interest in explaining different outcomes for gender inequality. Finco is a 'mutual', Bankco a shareholding organisation and this has implications for accountability, especially around cost (e.g. the cost of setting up a call centre operation). However, both organisations set up their call centre operations to, ultimately, save cost and offer

increased customer access to the organisation on a twenty four hour, seven day a week basis. There are differences in market share as Finco provides personal, Bankco both personal and corporate financial services. This may mean that the focus at Bankco is not fully customer-orientated towards its private customer base.

Finco is a large financial services organisation with approximately ten million customers and thirteen thousand employees, its two call centres employing seven hundred personnel at the end of 2001. Bankco is also a large financial services organisation with approximately fifteen million customers and just under eighty thousand employees, its two large call centres employing approximately four thousand personnel at the same date. There is, therefore, variation in organisational size but this has not led to differences in call centre design and set-up as both organisations' call centres are identical in terms of gender composition, management structures and technology systems, although there are differences in the working environments. This may have implications for the findings on the consultation process on the working environment as Finco may have more easily facilitated this due to its smaller set-up.

Call centres have been categorised into four different 'generations' according to the level of customer service offered and the sophistication of the technology used (Mintel 2000). Bankco and Finco have moved through the first and second generations (basic call centres) and are presently operating on the 'third generation' platform with calls being handled in a seamless fashion across multiple physical points within the one or multiple call centres. The information technology will instantly recognise the product in which the caller is interested and route the customer to a team specialising in that product. Customer information and knowledge is shared and distributed via the

information technology. The aim (and strategy) at Finco and Bankco is to migrate to fourth generation contact centres that are inextricably linked with the growth of the internet. This could have potential implications, however, for those who lack internet access.

Finco and Bankco have migrated their call centre models through the application of ever more sophisticated technology. At stage one (basic call centre) the Automatic Call Distributor (ACD) autodial and Interactive Voice Response (IVR) predominate. Stage two (advanced call centre) incorporates Computer Telephony Integration (CTI) adviser skill routing and predictive dialling. Stage three (the basic contact centre) incorporates fax, email, email response management systems and escorted web browsing. Stage four (the advanced contact centre) sees the use of 'natural language' telephony systems, remote agents and video (Intel 2000). Finco and Bankco are at stage three of this model (see Appendix I for definitions).

At the time of fieldwork, Finco and Bankco's call centres had not made the transition to contact centres but were well on their way to doing so, this being a function of the level and sophistication of available technology and the realisation of the importance of customer service. Although both organisations set up their call centre operations for reasons of customer care and competitive pressures, it could be argued that the people who were employed in them were not a prime consideration and thus the call centre sector has been likened to a 'sweatshop' industry. Initially, therefore, call centres have been viewed as a work arena where work is deskilled, repetitive and boring but as some call centres (e.g. Finco and Bankco) have adopted the use of more varied and

sophisticated information technologies, they have moved further towards being contact centres in which a variety of worker skills are required and drawn upon.

In the short to medium term, IVR and live agent access will still be the two prime mechanisms used in Finco's and Bankco's call centres. The future model of call centres will involve telephone, fax, website, email and post, facilitated by computer telephony integration (CTI) and management information systems (MIS) (see Appendix I). Further web integration will mean more 'call me' buttons, two-way text chat, text/web chat, voice over internet protocol (VoIP) video split screens and interactive TV (Mintel 2000). It is recognised by senior managers that call centres still have a long way to go before becoming contact centres although there was no doubt that this transition would take place.

Access

The creation and development of call centres is relatively new and constitutes one of the fastest growing industries in the UK (Mintel 2000). Secondary data on the call centre industry has been difficult to obtain, reflecting the situation that the majority of research activity is carried out by large, commercial organisations (e.g. Mintel; Market Assessment International; the Incomes Data Services (IDS); Calcom; Datamonitor) who charge a premium price for their information (circa £1,000 per report). Consequently, personal contacts in the call centre industry became my primary source of secondary data.

Access into Bankco's and Finco's call centres involved a long process of negotiation and research to understand the structure, layout and operation of the call centres. Negotiations for access and initial, informal interviews began in March 1999, the main fieldwork commencing in the Spring of 2001.

Bankco

Access was negotiated through a key gatekeeper in the call centre industry, a consultant who advises large organisations on advanced workplace solutions, to whom I was introduced through a personal contact who was employed at a senior level in Finco's parent organisation. I was offered potential access to eight organisations' call centres and it was agreed that this should be arranged through his 'call centre best practice group'.

A letter of introduction, addressed to senior managers in each call centre, was sent out, with a covering letter, identifying me as a member of the 'best practice' group. Addressees were asked to contact me direct if they were interested in my research. The letter failed to yield any immediate responses and despite a follow-up letter, only one organisation (Bankco) expressed an interest.

The contact at Bankco proved to be fruitful as two research sites were offered to me (both in the UK). I initially indicated that I would research one of the call centres and retain the other as an option (which I later took up due to restricted access later imposed at the first research site).

It was agreed that I should spend two days at the first call centre, familiarising myself with the set-up and talking to call centre employees. My questionnaire was discussed section by section and the inclusion of one additional question requested, which addressed the utilisation of existing skills amongst call centre employees. The redrafted questionnaire was approved and a letter of introduction for team managers forwarded to my key contact at Bankco.

Initial access to Bankco's call centres was straightforward and meetings to discuss access were well planned, organised, friendly and always formal. The questionnaire went through two rounds of approval after which access was granted into the call centres. Once 'inside' the call centres, I was generally able to walk around and observe the working environment unchallenged.

Finco

Access into Finco's two call centres was through a personal contact (a senior member of staff in Finco's parent organisation). I explained that I was interested in carrying out some initial, background research and was passed on to the person responsible for arranging visits to the call centre. At the time, the intention was to gather background information on Finco's two call centres, my first visit being in March 1999, whilst I was awaiting news of my ESRC funding application.

I subsequently arranged a day's visit to the call centre in July 1999, a key contact being identified for the arrangement of future visits. At this stage, access was straightforward and it was confirmed that I could begin my research in January 2001. I indicated that I

would like to interview all team managers in the call centres and at least two senior managers and the head of call centre. A further visit was arranged during which I interviewed key management and other personnel. During this visit, it was confirmed that the interviews with team, middle and senior managers were being arranged and that a two hour time slot had been allocated with each (I had originally requested one and a half hours). Although two hours seemed excessive, I accepted the offer. A start date for the research was agreed.

Although initially very helpful, my contact proved difficult to get hold of over the following few months and when she did finally make contact, it was not good news. A senior manager in the call centre had decided that two hour's of team managers' time could not be spared for interviews due to a change in their areas of responsibility and a new training initiative. The team managers had been re-organised into four cluster groups from which I would be permitted to select just one manager. I had only a few hours to decide on my final sample as the go-ahead had been given for the interview process to begin.

At this point, I was informed that all team manager interviews would have to take place at the managers' desk (in the open plan call centre) because there were no rooms available. I was unhappy with this situation (for reasons of confidentiality) and subsequently arranged an alternative room through my personal contact in the parent organisation. However, I was then informed that team managers were not permitted to 'leave the floor' as there was no cover and that this was normal practice. I was unhappy with this and tempted at this point to find an alternative organisation.

However, given the poor response from the call centre best practice group and as I had already carried out observation and interviews, I decided to continue.

When I arrived to carry out the interviews, there were some changes to the list of interviewees – one person had left the organisation, others were on sick leave, others on holiday. Therefore, the sample of interviewees, although not self-chosen in the first place, comprised a mixture of team managers who had been properly informed and selected for interview and those who had been asked to stand in at short notice.

Several issues and implications have arisen from this. Firstly, although my contact in the call centre industry had offered eight potential research sites, a poor response rate resulted in only one expressing an interest. The other seven call centres were based in financial services, retailing and computing services and access to these would have enabled a comparison between different call centre industries, rather than simply focusing on financial services.

Secondly, although initially offered access to the team manager population, both organisations' call centres dramatically scaled this down to 'cluster' groups and staff employed on daytime working parameters only. This was due to the restructuring of the team manager role and a new training initiative. Although this has not led to any major issues in my research, a larger number of team managers would have enabled me to carry out a more sophisticated analysis of a larger data set using SPSS. The restricted access to team managers now meant that my data would be of a more qualitative nature (interviews) instead of a combination of qualitative and quantitative

data, as originally planned. Access to non-daytime staff may also have facilitated a wider perspective on my research questions.

However, no major implications or issues are believed to have arisen from this as I was able to interview the team manager population using a pre-structured questionnaire, combined with a selection of open questions. Also, once 'inside' the call centre and face-to-face with my key contacts, it was possible to negotiate further interviews, especially with middle and senior managers and with team managers employed in the sales workflow at Finco.

Sampling

The principal research question asks, how are women progressing in call centre management compared with their male colleagues? A sample of team managers in the call centres and senior managers in the call centres and parent organisations was selected to address this question. Access to a sample of team managers (at the first managerial level) allowed me to explore and investigate how women were getting onto the first level of the management hierarchy through career progression, their relationship with knowledge (the key product of the knowledge economy) the skills required for call centre employment, their reasons for choosing to work in a call centre, whether or not their management styles were gendered, their experiences of the call centre working environment, their working experiences of call centre technologies and any involvement they may have had in the design process.

Through a sample of senior managers in the call centres and parent organisations I was able to explore and analyse a set of issues from a predominantly male senior managerial perspective. These senior managers were important decision makers and so their perceptions of the predominantly female workforce who were employed in their call centres and their decisions as to whether or not they chose to involve them in design networks, were important.

I had initially planned to draw a sample from a list of the entire team manager population in both organisations and then to sort this by gender, selecting every other name from the list of male team managers and then selecting an equivalent number of female team managers by selecting every third or fourth name from the list. However, due to the reduction in access, the sample was ultimately an outcome of a combination of my choice from an already pre-selected list of team managers and the organisations' choice. Although I had final say in who should be interviewed from the pre-determined list, I had very little control over the final outcome of the sample as this had often changed by the time I arrived at the call centres to conduct the interviews. Either team managers had left, were off sick or on holiday leave. The final sample comprised sixty one team managers, less than I had hoped to research, this sample being the result of restricted access to this research population.

Bankco

The initial intention was to interview at least half of the one hundred and ten team managers at Bankco's first call centre. However, this was not possible due to the business needs and a team manager training initiative that was underway. I had

initially requested to spend one hour with each team manager and was asked to cut this time to half an hour. I explained that this would not be possible but that I would not allow the interviews to go over the one hour time allocation and this was accepted.

From a list of the entire team manager population, I was permitted only to select team managers employed on the daytime working parameters due to issues of staff cover at other times (e.g. evenings and weekends). This reduced my sample substantially because the list contained only twenty nine team managers who were employed on daytime working parameters (five male and twenty four female) from which I was asked to select a sample. I selected all five of the male team managers and then divided the list of female team managers into workflows and selected alternate names from this list (twelve). I was informed that if any team managers were not available on the day, I would not be told of this in advance and that a suitable alternative would be selected on my behalf. The basis on which the team managers were approached was never discussed.

The final list of interviewees arrived by post four days before the interviews were due to take place. Five of the team managers on the original list were not available for interview and these had been substituted with alternatives. The final list comprised five male and eleven female team managers, the interviews set over a period of four days in private rooms. The remaining interviews with team managers in internet banking and other areas of the call centre were set up through a second contact. Out of a possible thirty five team managers, only seven were prepared to be interviewed. This was a disappointing number as I had hoped to interview at least a third. The final sample

comprised seven team managers (two male and five female). The interviews were arranged over a two-day period at the end of March 2001.

The final numbers offered to me at Bankco were disappointing given that the entire team manager population comprised one hundred and ten team managers. I had hoped to interview at least fifty five of these but the final number actually interviewed was twenty-two (six male and sixteen female).

I therefore decided that the option of carrying out interviews at Bankco's second call centre should be pursued to boost these numbers. I was sent a list of fifty nine team managers (the total team manager population) and decided to exclude seven of these as they were based in departments that had no equivalent in Bankco's first case study call centre. This left me with fifty two team managers and from this I was permitted to select daytime staff only (of which there were thirty one in total) and to sample from this list.

Given the gender imbalance of my sample at Bankco's first call centre it was necessary to select more men than women at the second call centre. The final list comprised six male and four female team managers which included all but two male team managers and the first, sixth, twelfth and nineteenth of the list of female team managers. Again, interviews in internet banking were arranged through a second contact and from a list of nine male and seven female team managers, I decided to interview four male and two female team managers. The names were sorted by gender and every other name selected from the list of male team managers and the first and fourth names from the

list of female team managers. The final sample in internet banking comprised four male and two female team managers. The entire interviews were held over three days.

The final sample across Bankco's first and second call centres comprised thirty eight team managers (twenty two female and fourteen male). Not all of those selected by me were interviewed as on several occasions the original interviewee had been replaced with no prior notice. This was not what I had hoped for but I was appreciative of the access and felt that I should go with what was on offer.

However, team manager interviews were supplemented with more senior manager interviews than I had anticipated. I was sent a list of eight key senior managers who were prepared to be interviewed, with interview dates and times. These were, of course, subject to change (the female senior manager cancelled and rescheduled her interview three times due to other work commitments). All other interviews with the senior management team were carried out on the specified dates and times, interviews lasting for between one and one and a half hours. The final sample of interviewees comprised twelve senior managers (four of whom were referred through other senior managers) and two middle managers from the call centres who had been identified by senior managers as important to my research.

Finco

At the initial stage of contact, I indicated that I would like to interview all team managers (thirty six in total) at least two middle managers and the head of call centre. However, following restructuring and a re-emphasis on training, this was no longer

possible and I was asked to select one team manager from the new 'cluster' groups, of which there were four. We finally agreed that I would interview five team managers, one male and four female, as I had managed to negotiate one extra from one of the cluster groups, and a middle manager. It was also agreed that I would interview two of the five team managers in internet banking (one male and one female were willing to be interviewed) and the middle manager responsible for that section.

I was also given access to Finco's second call centre and I selected, from one group, the only two male team managers and alternate names from the remaining seven female team managers, a total of two male and three female team managers. I also negotiated access to another middle manager. From the second group, I was given a list of four male and four female team managers and chose two from each group.

The final sample at Finco comprised sixteen team managers (six male and ten female) and four middle managers (three male and one female). However, it was not unusual to arrive for interviews to learn that some interviewees were unavailable, for various reasons and that they had been substituted with other team managers.

During interviews with team managers in the service workflows at Finco, I managed to negotiate further access to team managers in the sales workflow. Although the gender composition in sales was more evenly balanced, I opted to interview male team managers only (seven in total) to redress the gender imbalance in the overall sample across the four case study call centres. In the end, across service, sales and internet workflows, I interviewed twenty three team managers (fourteen male and nine female) and this balanced out the bias towards female interviewees at Bankco.

Interviews with senior managers in the call centres were arranged through my contact, interviews with senior managers in the parent organisation by me, through personalised letters sent direct to the senior manager, explaining the purpose of my research and my research activities in the call centres to date. The final sample comprised eight senior managers and five middle managers, a larger sample than I had first anticipated.

In summary, across all four case study research sites, my sample of team managers comprised thirty eight team managers at Bankco (62%) and twenty three at Finco (38%) a total of sixty one. The gender composition for the sample overall, across all four case study research sites, was 46% male and 54% female which was close to the 50:50 ratio that I had hoped for. The sample of twenty seven senior managers comprised twenty male and two female managers, the middle manager sample five male and two female managers.

Due to restrictions placed on access to team managers, the numbers I had hoped to sample from had been cut dramatically. I was offered daytime staff only and asked to sample from this restricted list. After some careful manoeuvring, I was able to obtain the correct gender balance needed for the team manager interviews. The restricted numbers of team managers was counter-balanced with more interviews than I had expected with middle and senior managers. Although the samples were not self-chosen, I was able to obtain access to sufficient sources of data to answer my research questions. Therefore, no major implications or issues have arisen from this.

Pilot Study

Pilot studies are an important and valuable part of the research process that can greatly assist in the formulating and refocusing of research questions. Given the restrictions now imposed on access due to time constraints and business requirements, it was necessary to ensure that the questionnaire was focused and could be covered in the time allocated, with some time for discussion on more open style questions. The questionnaire was therefore piloted with middle and senior managers elsewhere in the parent organisation at Finco (three men and three women) as no team managers from the call centres could be spared for the piloting exercise. Access to these managers was negotiated through my personal contact.

The pilot study proved to be invaluable as the questionnaire was in the early stages of formulation, covering only part of the overall sections. Piloting covered questions on managers' main areas of responsibility, career progression within the organisation and managerial functions and activities. I also explored whether respondents thought there were any differences between management and leadership responsibilities and management styles, respondents being asked to identify the ways in which their management styles were influenced by certain internal and external factors and whether they identified with either a transactional or transformational style of management.

The findings from this piloting exercise were used to redraft the questionnaire and refocus the questions. It was also decided to include several 'open' questions (as a

follow-up to closed questions) as respondents were keen to offer additional information after some of these questions were asked.

Interviews

Interviews were the primary research method used with personnel at all levels in the call centres, the type of interview dependent upon the research questions and research population. Unstructured, informal interviews were used during pre-arranged visits to the call centres as this allowed for a depth of understanding of the management structure and how particular areas in the call centres were set up, operated and interrelated. Structured interviews were conducted with team managers because not only did I need to complete the questionnaire, I also wished to learn more about the specific role of the respondents and the operation of the call centre more generally. Semi-structured interviews were conducted with senior managers in the call centres and parent organisations because although I had drawn up an interview schedule that addressed key questions, I also wished to encourage interviewees to talk freely about their roles more generally.

Interviews with Key Informants

This was the first stage of the research process where I was able to gather a large amount of information about the call centres, their management structures, work processes, technologies, working environments, individual roles and interrelationships between different sections of the call centre. Unstructured interviews, combined with non-participant observation (see below) were the best way to achieve this because apart

from two or three visits to call centres in the past, I knew relatively little about the adviser and team manager roles, how the call centres operated and the specific technologies used. These unstructured interviews were therefore used to explore these areas in a little more depth than observation or referral to secondary data would have allowed.

Although I had identified a few key questions, I decided that it would be beneficial to allow interviewees to talk freely about their specific roles, the call centre generally and their experiences of working in a call centre. Twenty six interviews were conducted with advisers, senior advisers, team managers, middle managers, senior managers, quality controllers, co-ordinators, technologists, analysts, system support specialists and customer support personnel, covering a wide range of managerial and non-managerial roles across the call centre.

Areas and topics covered included: the role of forecasting and scheduling of call centre staff working hours and adviser performance (management information staff) the various information technology systems used throughout the call centres and why these had been chosen, the degree of involvement in the design and introduction of new technologies, the adviser and team manager roles and the monitoring of quality throughout the call centres.

At Finco, the first visit involved interviews with a male and two female team managers (the male team manager being responsible for resourcing the call centre) a female multi-skilled, senior adviser and a male deputy senior manager. During these interviews, I asked respondents some key questions but left it mainly to them to tell me

about their specific roles and the call centre operation generally. Each interview lasted for around an hour and I spent at least three hours with the multi-skilled adviser.

During my second visit to Finco, I interviewed a male management information analyst, a male senior analyst, a female systems support manager, a male systems analyst and another female adviser. I was also able to interview a male technology and business analyst from the parent organisation. These interviews were specifically to help me with the construction of my questions on technology.

A total of eleven unstructured, background interviews were carried out at Finco with a wide range of personnel and this helped me to re-focus my questionnaire and interview schedules.

I visited Bankco's first call centre over a two-day period, for which a schedule of interviews with fifteen key personnel was put together for me by my contact. During this visit, I interviewed fifteen key personnel: a female quality team manager, four team managers (two male and two female) a female call quality senior agent, a female team manager co-ordinator, a male member of the technology department, a female senior manager, the (male) head of support services, a male adviser and a male senior adviser, a male senior manager, a female project assistant and a team manager responsible for internet banking. Although the schedule was structured, I was free to move around the call centre and between departments without challenge.

These interviews were invaluable and enabled me to gain an in-depth understanding of individuals' roles and the overall operation of the call centres. The interviews were

written-up and used to draft the questionnaire for team managers and interview schedules for senior managers.

Interviews with Team Managers

The second stage of the research, structured interviews with team managers, allowed me to engage directly with a group of key informants at both a structured and open style level. A wide variety of questions were covered on job roles, management responsibilities and styles, working relationships, use and experience of technologies, motivation, team management, career progression and personal details. Structured interviews were necessary due to the time constraints imposed on me by the organisations and having to interview team managers at their desks.

By carrying out sixty one face-to-face interviews, I achieved a 100% response rate on the questionnaire and equally as important, managed to capture a wide range of qualitative and quantitative data during the interviews. The questionnaire has enabled the quantification of responses, for example, on work practices (how much of the working week a team manager spent managing through technology) but also to qualify these answers by asking open questions about their experiences of technology. Although I had carried out research on the structure and operation of the organisation, there was still a great deal I did not know about the team manager role. I therefore decided that face-to-face interviews would be most appropriate because they would allow for some flexibility by using some open style questions.

The aim of the questionnaire was to gather data in relation to the three principal research questions and this was sub-divided into six sections, each section addressing different aspects of the research questions:

General: the questions in this section covered job title, the team managers' place in the reporting structure, managerial level in the overall hierarchy, number of people managed, job tenure and previous work experience. These questions enabled me to determine the extent to which career progression had occurred from adviser to team manager level, the timeframe in which this was achieved and whether this was gendered.

Management, Leadership and Management Styles: using Kotter's (1990) model of management and leadership responsibilities, I was able to determine the level of managerial responsibility in the team manager role and whether or not this was gendered. The questions on management style enabled me to identify whether or not management styles were gendered by using Rosener's (1990) transactional and transformational models of management.

Technology: to understand the team managers' relationship with technology, this section enabled me to establish the extent of technology use in parallel with people management responsibilities. Experiences of using technology and the rate of dependency upon technology to carry out the team manager role were also explored. Questions also addressed the extent to which the team managers had been involved in consultation processes when new technologies were being designed and introduced into the call centres, as well as the level of information they received about this. Levels of

satisfaction with the working environment were also explored in order to establish a correlation between the initial design and setting-up of the call centres and whether or not the working environment was experienced positively or negatively in today's terms.

Motivation: motivational issues were explored with team managers to determine the extent to which they were motivated by hygiene and non-hygiene motivational factors (Herzberg *et al.* 1959). Performance assessment was also explored as well as how team managers approached the motivation of their teams of advisers.

Career: it was important to determine the degree of career progression achieved by team managers given that this was an indication of progression into management. Levels of career satisfaction were therefore established, along with skill levels and whether or not team managers had faced any barriers in their call centre careers. The questions aimed to evaluate how team managers had experienced their careers so far, their career progression, what had attracted them to work in a call centre and whether this was gendered.

Personal Details: these were used to classify answers and to make statistical comparisons (e.g. by gender, age, etc.)

A mixture of closed and open questions were used, three sections of the questionnaire requiring self-completion. The main aim of the questionnaire was to identify whether gender differences existed between male and female team managers in the areas identified above (see Appendix II).

Interviews with Senior Managers

Semi-structured interviews with senior managers in the call centres and parent organisations formed the third stage of the research where I was able to address issues raised in stages one and two of the research process. A total of twenty seven semi-structured interviews were conducted with senior managers in the call centres and parent organisations, ranging from senior managers, executives, heads of department, main Board directors and outside consultants. Five 'themes' or categories were used as topic guides in order to address the principal research questions (see Appendix III):

General: these questions helped to establish the respondents' job title, place in the reporting structure and the extent and nature of involvement with the call centres and the call centre industry generally.

Design and Setting up of Call Centres: this set of questions aimed to identify who and what was involved in the design network: how the respondent had been involved in the decision to set up the call centre operation (was he/she a major decision maker) and in what ways (involvement in strategy formulation, report writing, etc.) requirements (geographical location and choice of technology) and the approach taken to this (methodology). The extent to which users were involved in the decision making network was also explored

Technology: the aim of these questions was to determine who and what was involved in decision making about the introduction of new technologies. It was important to identify how the decision making network was formed and whether or not there had

been a consultation process with users. The senior managers' view of what constitutes a team manager role was also explored.

The Labour Process: the team manager role was further explored to establish whether the tensions that had emerged in this role during interviews (the tensions between people and technology management) were apparent to senior managers. Perceived team manager career opportunities were also explored, along with the possibilities for team manager career mobility, as well as the senior managers' view as to why their call centres are predominantly staffed by women and the skills required for call centre employment.

The Future: it was important to determine the significance of the call centre operation to the organisation overall, especially as the call centres are predominantly staffed by women. Future plans for the call centres were also explored and whether or not respondents would have approached the design and setting-up of their call centres differently, given what they know today.

I decided to use semi-structured interviews because I felt it would be difficult to impose too much structure around the questions I asked as this could hamper the flow of conversation, given that these interviewees were senior members of the organisation and would no doubt have something interesting to say. This way, the interviews would be flexible enough to allow a more meaningful interaction between myself and the interviewees. Although quite relaxed, the interviews retained an air of formality and I was very aware of the status of the interviewees.

I found that, once in the interview situation, interviewees would sometimes 'lead' the interview and I found myself reining them back to focus on my particular questions. I always managed to ask all of the questions on my interview schedule and sometimes it was not necessary to ask certain questions as the interviewee may have already addressed the point during conversation. At other times, as interviewees were talking, this would prompt me to think of a follow-up question and these were noted down and asked when the interviewee had finished. The conversations that took place in these interviews were always interesting and it was easy to digress. However, the topic guide enabled me to focus back onto the questions.

An interview schedule or topic guide was drawn up prior to interviews which helped to ensure that I covered the main questions that I needed to ask. I was familiar with the questions in the interview schedules and when quickly checking down my list of questions, often found that I had already covered the necessary questions. It sometimes proved difficult to ask the questions in the order set out in the schedule as the conversation was sometimes taken in a different direction by the interviewee. However, it was made clear to interviewees at the beginning of the interview that I had a set of key questions that I wished to ask and they were happy with this.

The interviews therefore comprised a combination of structured questions and free-flowing conversation. This did not concern me as all interviews were tape recorded and I was able to read through the transcripts and organise the data under the question headings on the interview schedules. Interviewees showed an interest in my research and were always helpful, sometimes offering to introduce me to other managers who

might be useful for my research. I was grateful for the time that these senior managers had given, especially given the constraints on their time.

Non-participant Observation

Non-participant observation was continuously carried out throughout the fieldwork to gather important information about the structure of the organisation, the managerial structure and the organisation of the work process. This proved invaluable in the observation of interactions between managers and the workforce and between advisers and customers. The aim was to gain an overall feel for the working environment as this tends to shape function and impact on interactions that take place within the work space itself. For example, call centres are specifically designed to keep employees alert with the use of strong, bright colours. The consideration of colour extends to all aspects of the design and to supplement the impact of the chosen colourations, the lighting tends to be bright. Noise attenuation is another key factor, given the problems that arise in an open plan office with several hundred people talking in the background. I was able to experience this myself during the fieldwork and to also observe interactions between key personnel in the call centres.

Ethics

Three ethical considerations were addressed in this research.

Confidentiality and organisational and individual anonymity are key considerations throughout the research process. All organisations and individual respondents were

assured of absolute anonymity and confidentiality at all times, pseudonyms used to protect their identity. I clearly explained to team managers that they would be allocated a case number and that I would be the only person to know of their identity. Some of the data is of a sensitive nature, sometimes referring to relationships between the team managers and their teams, peer groups and line managers and the questionnaire contained a large section on the respondents' personal details. When addressing issues that had arisen amongst the team manager population with senior managers, I was careful not to reveal the source, instead turning the issue into an open question for further probing.

All semi-structured interviews were tape recorded, transcribed and stored, along with the questionnaires, in a secure environment. I have agreed to return to Bankco and Finco to present my findings but on the basis that respondents maintain their anonymity.

The research explores the relationship between gender and the knowledge economy, with a specific focus on women in call centre management. This focus was made clear to my key contact in the call centre industry but upon his advice, I did not draw gender out as a key variable of analysis when discussing specific research questions with the senior managers through whom I gained access. My reason for not making the gender angle explicit was because I did not wish to predetermine or draw out gendered stereotypes during these interviews because this might 'gender' the research process before I had even begun. I preferred to ask specific questions and to see whether or not stereotypes emerged naturally. Where I did address specific questions on gender (e.g. why did senior managers believe that their call centres were predominantly staffed by women) these were generally not well received.

Access was gained into Finco's call centres through a close personal contact who was a senior manager in Finco's parent organisation. The Board director responsible for the call centres knew of the relationship and agreed that it was not necessary to make interviewees aware of this as it had no bearing on my research. Therefore, this was never revealed at any time to interviewees in the call centres nor to senior managers in the parent organisation. I was aware that team managers might view me as being connected in some way with senior management in the parent organisation and would therefore be guarded in their responses to my questions. My personal contact had merely opened the door to Finco and left it to me to negotiate my way into the call centre, which I did through a third party. Interestingly, at no point did any member of the senior management team ask me how I had gained access into the call centre and so the issue of gaining access through a personal contact was never an issue.

Data Analysis

A range of methods for the data analysis were used. SPSS was used to analyse questionnaires administered in the interview process and the open style questions included in the questionnaire were categorised and coded. The fifty three unstructured and semi-structured interviews were transcribed and analysed using themes and sub-headings from the interview schedules. Any recurring themes were also coded.

Interviews

Data gathered from the twenty six unstructured interviews was typed up, categorised and used to draft the questionnaire and interview schedules. This enabled me to focus on the specific questions I needed to address with team and senior managers. For example, using the data gathered from employees involved with the use and design of call centre technologies enabled me to identify specific systems and ask team managers how much time they spent using each. From this, an overall summary of the extent of technology use was possible.

Data from the twenty seven semi-structured interviews with senior managers and consultants was tape recorded and transcribed. As the interviews had followed a schedule of key questions for all respondents, the data was then categorised under key headings that corresponded with these questions. Any recurring themes that emerged from these interviews were also noted.

Questionnaires

The questionnaires from the team manager interviews were analysed using SPSS. Most questions were closed and numerically pre-coded, SPSS being the best way in which to analyse and identify patterns in the data. I worked through a master copy of the questionnaire, deleting any categories that were irrelevant, such as job titles that were not applicable to any of the respondents. A coding frame was compiled and this was used as a master copy and each respondent was allocated a case number. Data coding and the compilation of a dataset took around a week to complete and I was then able to

determine the issues that were emerging from this analysis before completing the interview questions for senior managers.

Data was analysed using descriptive statistics - frequencies and cross tabulations (using gender as the key variable). Frequencies identified the numbers and percentages responding to each particular question and cross-tabulations allowed me to determine the extent to which practices and experiences were gendered (e.g. the ways in which men and women managed at team manager level and whether this was gendered).

The data was analysed section by section, corresponding with the different sections in the questionnaire and then used correspondingly for each data chapter in the thesis. Although all of the data was analysed, not all of this has been used as the questionnaire comprised ninety eight questions. Some of the questions were included because I believed that the case study organisations would find them of interest, especially as I have arranged to present my findings to these organisations at a later date. It materialised, however, that only Bankco senior managers were interested in the contents of the questionnaire, a request from Finco to see the contents never being received.

The questionnaire also contained several 'why' or 'open' questions (see Appendix II) which followed on from a closed question where I felt it necessary to probe further. For example, when I asked respondents whether, in their experience, men and women managed in similar or different ways, I then followed this up with a 'why' question. Similarly, when respondents replied that they had never been consulted and/or informed about the introduction of new technologies into the call centres, I asked why

they thought this to be the case. In total, the questionnaire contained eight 'why' questions and a further three open questions. These were analysed separately from the main questionnaire and any recurring themes noted. Respondents also tended to add comments when answering certain questions and these were also noted down and attached to each completed questionnaire. These were later analysed for patterns, any recurring themes also being noted.

The data analysis stage involved the analysis of respondent data by introducing key variables, such as gender, age, marital status, level of educational qualification, etc. The Pearson (P) chi-square test was used by creating a cross tabulation between, for example, reported management styles and gender. If the (P) value ($p=0.00$) was less than 0.05 then the null hypothesis that the two variables were independent was rejected. Regression analysis was also used to test, for example, whether respondents were being consulted about technological changes (the dependent variable) and whether this varied in terms of their gender, age group, level of educational qualifications, type of workflow in which they were employed, etc. (the independent variables). Again, if the (P) value was less than 0.05, the two variables were not independent and a cross-tabulation could be performed. This was a quick way to determine the affects of certain variables in relation to one key question.

Conclusions

This chapter has outlined and explained the rationale behind the choice of research methods. A mixed method approach has been used, incorporating the use of secondary data, interviews, questionnaires and non-participant observation. The ethical

implications of the research have been outlined and the data analysis explained. The choice of methods is believed to be robust, enabling the gathering of data to answer the three principal research questions. Each method was used in a time sequence (Blaikie 2000) where each stage of data analysis informed the next stage of data gathering.

The data generated from unstructured interviews and non-participant observation offered an invaluable insight into the call centres and their key personnel, the quantitative data from team manager interviews helping me to construct an interview schedule for senior managers. The methods chosen for this research have enabled the answering of the principal research questions and identification of the ways in which the knowledge economy may or may not be gendered. No major issues have arisen from this. Bankco and Finco, although having slightly different customer bases and varying in organisational size, have similar management structures, work processes, operating technologies and most importantly, gender compositions.

Although the initial plan had been to use questionnaires with a larger sample of team managers and then to sample a selection of these for follow-up interviews, the restriction on access did not permit this. However, the outcome of holding sixty one team manager interviews is that I have a sample that is closely matched in terms of gender (a questionnaire would have produced a more random sample according to the response rate) and a 100% response rate on the questionnaires has been achieved. I have also been able to pick up important information by interacting with respondents in an interview situation.

The thesis explores an important area of women's employment but does not include the adviser population in call centres, apart from two or three interviews in the early stages of research. Although this group arguably constitutes the main 'user' population, the team manager population offers a perspective on a combination of ex-adviser (three quarters of team managers were previously advisers in the call centres) and team manager experiences.

Finally, the case study sample does not facilitate generalisation of the call centre industry generally and this was not the aim of the research. However, it does offer a typical example of knowledge-type organisations in the financial services sector and this may have wider relevance beyond the case study organisations. Call centres have been chosen as a research site because call centre working is a relatively new and expanding sector where women are employed at the lower, men at the higher levels of management. Furthermore, the extent of technology use and the design of call centres around this technology are unprecedented. Call centres therefore represent an ideal typical case study for the investigation of women's relationship with the knowledge economy.

Chapter Four

The Knowledge Economy: New Opportunities for Women in Management?

Introduction

This chapter investigates the relationship between gender and the knowledge economy and asks, does the knowledge economy present new opportunities for women in knowledge-type organisations? Is the knowledge economy gendered? Are women better or worse off in the knowledge economy? These questions are analysed in the context of call centres (knowledge-type organisations) which form an important part of the next wave of economic development in the migration to a knowledge-based economy. Call centres are an evolving and unique industry in the knowledge economy, where women might be best placed to make a difference.

The structure and nature of the UK economy has changed, with a general shift from manufacturing to services accompanied by the increased use and application of information and knowledge (the knowledge economy). This chapter investigates whether call centres possess any of the characteristics of the knowledge economy but at the same time retain aspects of Tayloristic work practices in the organisation of work, consequent upon their extensive use of sophisticated information technologies.

The chapter begins by positioning call centres as knowledge-type organisations (a product of the information technology revolution) with the action of knowledge upon

knowledge as their defining feature of production. Knowledge is a source of wealth but also of inequalities between men and women, these potential inequalities being identified through the unpacking of Blackler's (1995) and Lam's (2002) knowledge types. It would appear that not only are these knowledge types theoretically and empirically gendered but that women are not sharing in collective and explicit forms of knowledge within the process of knowledge management. The skills required for employment in call centres are also identified as gendered, senior managers stereotyping why women seek employment in call centres. Call centres are identified as 'patriarchal institutions' that need and use women for their particular skills. Finally, career opportunities available to women in management are analysed in the context of the prediction of the 'end of career' by some knowledge economy writers (e.g. Carnoy 2001; Castells 2000; Flores and Gray 2000; Osterman 1996; Reich 2001). Do call centres signal the 'end of career' for women? As the call centre migrates from being merely a tool for simple, mundane transactions, to one that has the potential to sit at the heart of customer relationship management for many businesses, the potential for women's advancement to managerial positions is explored.

Call Centres and Call Centre Workers: a Definition

Call centres have been defined as:

A physical or virtual operation within an organisation, in which a managed group of people spend most of their time doing business by telephone, usually working in a computer-automated environment (Market Assessment International 2000: 2).

Call centre workers have been defined as:

Knowledge workers, because they carry out any activity by manipulating internal and external knowledge (Bagnara 2000: 2).

This knowledge may be distributed amongst clients, colleagues and the organisation itself, in the form of cognitive artefacts and the working environment. According to Kinnie *et al.* (2000) in many ways, call centres are an ideal environment in which to study the key issues involved in knowledge-intensive service work.

The Knowledge Economy and Call Centres

Call centres have evolved through the information technology revolution which has 'speeded up' the accumulation, spread, application and exploitation of knowledge. As Castells (2000) has argued, the action of knowledge upon knowledge in the production process is what has pushed the economy towards one based on knowledge, where knowledge has become the (intangible) product. The emergence of a technological paradigm (the telephone and computer) has enhanced the accumulation and sharing of knowledge in the call centre context and accelerated its flow. This research assesses the position of women at all levels of call centre management and within the team manager population in particular, this group sitting in the middle of a continuum that has knowledge work at one end and boring, repetitive processing at the other.

Call centres epitomise organisations in a knowledge-based economy, being focal points for the acceleration of knowledge production and the development of intangible products, with innovation as one of the dominant activities facilitated by the

revolutionary use of the instruments of knowledge (technology) (David and Foray 2002). Call centres gather customer and employee information and knowledge to create encoded (explicit and collective) knowledge within an overall knowledge system, where it becomes shared and externalised knowledge. This is combined/integrated with new waves of technological innovation to enhance customer service and improve the capability to monitor the workforce.

Call centres are informational, as they are engaged in information processing activities and those call centres that are used to actively manage the organisation's relationship with its customers, will have an extensive and sophisticated information management capability, supported by a large team of management information systems specialists. The pioneering nature of the call centre concept has meant that many have been developed as 'greenfield sites' with totally new structures, practices, processes and work environments. Fundamental to this approach was the development of an information gathering capability that was not only super-efficient but one which innately drives continuous improvement.

Call centres wholly depend upon their capacity to generate, process and efficiently apply knowledge-based information, allowing the 'action of knowledge upon knowledge' to become the (intangible) product. Information is therefore the commodity, the output of call centres and knowledge becomes the end product. This very knowledge, created through information gathering, means that knowledge is ultimately converted through codification (encoded) as it passes from individual ownership to collective (organisational) ownership. Call centres are thus 'knowledge communities' (David and Foray 2002) involved in extensive knowledge creation and

reproduction, using mechanisms for exchanging and disseminating the resulting knowledge, facilitated by the *intensive* use of new technologies.

Knowledge Types and Call Centres

Blackler's (1995) and Lam's (2002) knowledge typologies are useful in categorising knowledge in call centres. These four knowledge types are embrained (individual and explicit); embodied (individual and tacit); encoded (collective and explicit) and embedded (collective and tacit). When a gender lens is used to analyse these types, the inequalities between men and women in relation to knowledge becomes apparent (a point missed by Blackler and Lam) with obvious implications for women.

The first knowledge type (embrained) is historically gendered. Feminist historians have suggested that by the time women were allowed access to institutional knowledge, the form of that knowledge had been established and regulated by men:

Women and men were being taught men's history, men's psychology, men's science and so on (Evans 1997:58)

Underpinning this, the feminist view is that a male epistemology of the world has been established and should be challenged. Women's access to embrained knowledge has improved but it remains gendered through knowledge content (the subjects that men and women study) men being more likely than women to take 'A' level courses in mathematics and physics, women more likely than men to take subjects in social studies or English literature. When looked at in terms of results, women's access to embrained knowledge has improved greatly. In 2000, 30% of men had achieved two or

more 'A' levels/Scottish Highers, compared with 40% of women. Women were also faring well as students in higher education in 2000: there were 739,000 male and 922,000 female undergraduates and out of 2.1 million students in higher education at this time, 55% of these were women. Women were also nearly as likely as men, in 2000, to hold a Degree or equivalent qualification (17% of men and 14% of women) (Social Trends 2002).

Embrained knowledge is gendered by reference to both theory (e.g. formal, abstract, or theoretical knowledge that is learnt through reading books and formal education) (Lam 2002) and subject matter. This reveals a mixed picture but women's access to embrained knowledge has improved as they are gaining more 'A' Levels and nearly as many degrees as men. Women also make up a larger percentage of undergraduates.

Empirically, the team manager population in the case study call centres possess a relatively high level of educational qualifications and thus share in the acquisition of embrained knowledge, which is individual and explicit. This is important because education is both central to the knowledge economy (Bell 1973; Castells 2000; Drucker 1993; Foray 2002) as embrained knowledge enjoys a 'privileged' position in society, being linked to the 'professional-type organisation' (Blackler 1995; Lam 2002).

Of the team managers in the case study call centres, 32% of men and 33% of women have attained a Degree and 29% of men and 18% of women GCE 'A' Levels. Combining these two 'post-school' qualifications, 61% of men and 52% of women hold post-school qualifications. This compares with 17% of men and 14% of women having attained a Degree or equivalent qualification and 30% of men and 17% of

women GCE 'A' Levels or equivalent qualifications in the UK population as a whole (post-school qualifications for men being 47% and 34% for women) (Social Trends 2002). These team managers therefore possess embrained knowledge at a higher rate than the national average. Call centres may therefore be attracting knowledge workers. 14% of men and 12% of women hold management qualifications and 7% of men and 15% of women a specific call centre management qualification in the case study call centres, the overall sample constituting a relatively well-educated group of workers.

Access to embrained knowledge is therefore not gendered but embrained knowledge itself is. Women share in this knowledge type, which takes the form of tacit knowledge that becomes explicit through its use.

The second knowledge type (embodied) relies on the formal knowledge of its members (embrained) but also draws its capability from the diverse 'know-how' and practical problem solving skills embodied in the individual (Lam 2002) for example, during the interaction with technology and the customer in call centres. This knowledge type takes on a tacit and individual form and is broadly gender-neutral, in that all men and women are capable of and able to 'embody' knowledge. Partial gendering occurs because of its reliance upon embrained knowledge.

Empirically, there is evidence of embodied knowledge in the case study call centres, in that all employees are capable of and able to 'embody' knowledge. Advisers are constantly developing embodied knowledge through the process of dealing with customer queries and problems. Team managers' involvement in problem-solving exercises is much greater, dealing with both customer and employee issues through the

exercise of their management roles and active involvement in team meetings and associated activities, where the exchange of ideas and solution building are common place. Women are therefore creating and sharing their tacit and individual knowledge.

A large proportion of accumulated, embodied customer and employee knowledge remains dormant and may only come to light under particular circumstances, for example, when technological innovation is introduced which requires an understanding of adviser interaction with the customer. Due to the very low percentage of team managers who have been consulted about technological changes (25%) this level of knowledge evidently remains individual and tacit. Many team managers specifically complained about the lack of a consultation process and highlighted that knowledge accumulated about customers and system users was not being made explicit and shared (see Chapter 7 for a fuller discussion of this point). In terms of access, embodied knowledge is not gendered in that men and women in call centres enjoy equal access to it. However, where this embodied knowledge could *potentially* become explicit and shared within the knowledge network, this is not occurring for women and as a consequence, is gendered.

The third knowledge type (encoded) is shared within organisations through written rules and procedures and formal information systems (Lam 2002) and takes on a collective and explicit form. This 'formal' information system is enabled through sophisticated information technologies, which, in themselves, are 'masculine' (see Chapters Six and Seven). The very information and knowledge that becomes encoded is itself gendered through the use of gender categories and the application of an encoding approach that is usually the result of a male decision making process.

Call centres operate on the basis of codifying (encoded) knowledge, connected with customers and employees through the software systems (at the discretion of senior managers) where it becomes explicit knowledge that is shared predominantly amongst senior managers. Codified knowledge plays a central role in the knowledge economy (David and Foray 2002) and this is also the case in call centres. This information is shared within the organisation through written rules and procedures, using formal information systems that often reflect the bureaucratic nature of the organisation. Worker experiences and skills become codified into objective scientific management within the machine bureaucracy, which has a collective and standardised knowledge base, where the dominating principles are specialisation, standardisation and control (Lam 2002). Customer interactions and employee performance become shared knowledge that can be written and codified into the information system (e.g. scripted) and standardised (e.g. how to deal with the customer). Advisers (the largest female population) have very little access to encoded knowledge, team managers restricted access and senior managers full (unrestricted) access. Therefore, women are not sharing in this explicit and collective form of knowledge.

The fourth knowledge type (embedded) has strong links with organisational culture, reflecting the shared values of the organisation and taking on a collective and tacit form amongst male senior managers. By definition, this knowledge type is gendered as embedded knowledge is usually present at the top of organisations, where culture (and strategy) is formulated and made explicit to those 'in the know'. Therefore, as women are numerically under-represented in senior management, compared with men, embedded knowledge is itself gendered. Embedded knowledge is, in many ways, at the

edge of understanding and the most important type of knowledge needed to 'get on' in otherwise male-dominated organisations. Access to embedded knowledge is thus generally restricted to men and is therefore gendered.

There is little evidence of 'embedded' knowledge in the call centres studied, except at senior management level. Embedded knowledge is relation-specific, dispersed and operates in the absence of written rules, which contrasts with the highly structured environment of a call centre, where knowledge becomes codified, explicit and shared. As embedded knowledge refers to knowledge that cannot be shared or transformed into information systems, then it is not unusual that there was not much evidence of this knowledge type in the call centre case studies.

Embedded knowledge is highly gendered and the importance of this should not be underestimated when assessing women's place in the knowledge economy, as it could be argued that it is the most important knowledge in any organisation because of the level at which it is made (highest) and its nature (cultural and strategic).

These findings add a new dimension to Blackler's (1995) and Lam's (2002) knowledge typologies because when a gender lens is used, they become gendered and problematical for women. David and Foray (2002) suggest that encoded knowledge (explicit and collective) is the most important type of knowledge in knowledge-type organisations because this is shared, organisational knowledge. However, women are losing out because encoded knowledge is gendered through restricted access. Lam (2002) argues that tacit knowledge (embodied and embedded) is the most important because it constitutes the richest source of learning and sustainable competitive

advantage in the knowledge economy. However, if this knowledge remains tacit and not drawn upon through the consultation process, then this, (1) excludes women from sharing in collective forms of knowledge; and (2) means that important tacit knowledge cannot be codified and shared within the organisation as a whole.

Generally, where knowledge is 'collective' (embedded and encoded) women are excluded from knowledge-sharing but where it is individual (embrained and embodied) women fare a little better. The key point is that individual knowledge has to become collective in order for it to be of any use in the call centre context and women are not able to share in this. Where women are involved in collective knowledge, this tends to be on an individual basis and not where it counts most (e.g. embedded knowledge) at the senior managerial level where women are not fairly represented. Knowledge thus constitutes an important element of the patriarchal structure of paid work in the context of the knowledge economy.

Skills

A range of social and technical skills are required to create, capture, diffuse and encode knowledge. Are these also gendered and does this cause a problem for women? Call centres represent a sector of the knowledge economy where specific social and technical skills and attributes are required, these being most commonly linked to women (e.g. 'soft' skills) with a specific bias towards 'social' rather than 'technical' skills. This section identifies the particular skills required in call centres and assesses whether women, because they possess these particular skills, are being 'held back' because of the process of gender stereotyping by male senior managers.

A consultant specialising in the design of call centres offered his view on the range of skills required in call centres:

People think, oh, you know, it's just a bunch of people answering some 'phone but actually it's quite a, I think it's quite a, particularly in this kind of environment where you're dealing with people around some complex products where the user really is looking for advice and guidance. There are constraints in terms of what you can and can't say because of the regulatory environment but you've got to have a lot of knowledge and experience as well as being able to drive these systems and at the same time be able to talk to someone in a way that seems professional and human and I think there are a complicated set of things that you have to do at the same time

Advisers

The adviser group, which is gendered by a ratio of 75:25% female to male, is required to deploy a wide range of social skills in its day-to-day activities. As the majority of team managers were previously employed as advisers in the case study call centres, it is worth examining this particular range of skills. In terms of social skills, call centre advisers have the closest interaction with the customer, playing a significant role in the accumulation of customer knowledge (a great deal of which remains tacit). This role is essentially people-orientated and advisers are required to deploy a great deal of discretion when dealing with customer issues. Emotional resilience is often necessary, as customers can be both demanding and difficult. Importantly, advisers represent the 'public face' of the business, call centres becoming one of the most important entry points for customers into the organisation.

Customer requirements can vary enormously, from a simple account balance to the purchasing of a new product or service. Advisers build empathy with the customer.

demonstrate patience and understanding, as well as demonstrating friendliness and active listening skills and the ability to communicate effectively. Having the 'right personality' is what counts, along with a positive attitude, a sense of humour and enthusiasm when dealing with the customer. This customer/adviser interaction takes place for the adviser while simultaneously operating information technologies and navigating several knowledge systems. Additionally, advisers are monitored and measured on their interactions with customers to ensure that they remain customer-orientated at all times, whilst still under pressure to meet performance targets set by senior managers. More simple transactions can be repetitive and boring, compounded by the use of 'scripts' to answer calls. Information technologies are used not only to measure 'hard' targets but also to allow team managers to listen in on 'live' or archived adviser-customer interactions (how the call is answered, tone of voice, friendliness, helpfulness, empathy, etc.) to assess 'softer' skills.

Advisers are required to demonstrate a wide array of technology skills (up to eight software packages combined with the use of the telephone, computer and internet) as well as technical knowledge of the product range which is constantly changing. Overall, they have to work to the speed of the automatic call distributor (ACD) which will route calls to advisers according to customer requirements, usually within three seconds of a completed one. High standards of keyboard skills (speed and accuracy) numeracy, literacy (especially in the use of email) the use of appropriate grammar, spelling and product knowledge are vital for this role. Gaining employment in a call centre is therefore not an 'easy' option and most have highly specialised recruitment and selection procedures in place, with several stages: application form, telephone interview, face-to-face interview, completion of spelling and maths tests, role-play

exercises and, in some cases, personality testing and attendance at assessment centres (Belt 2003).

Call centre advisers therefore sit in between what Frenkel *et al.* (1998) have described as users of ‘lower-order’ contextual knowledge (knowledge about company-specific products and procedures) and higher-order contextual knowledge (conceptual understanding of different products, the market and the industry generally). Advisers are largely dependent on lower-order contextual knowledge for the routine aspects of their role but also display a degree of creativity and social and organisational skills in their execution of more complex tasks.

Women employed in call centres exercise a wide range of social and technical skills, with the onus on ‘soft’ skills in the adviser-customer interaction. These, along with other core competencies, are set down by (male) senior managers. This resonates with Enloe’s (1988) definition of ‘patriarchal institutions’ whereby call centres ‘need’ women because of specific skill requirements.

When senior managers were asked why they thought their call centres were overwhelmingly staffed by women, a whole range of stereotypes began to emerge:

I think the public, on the telephone, prefer a woman’s voice...the hours tend to suit women...it’s the sort of work that is relatively short-term, that burn out factor and maybe, and this is maybe, the girls do not want a longer term career path upwards, maybe the men do because that’s life and it’s always been...
(Main Board Director, Parent Organisation, Finco)

A senior manager in the call centre held a similar view:

...part of it's probably about the career side of things, there might be something about maybe women like talking and maybe men don't like talking so much and that's very general (Senior Manager, Call Centre, Finco)

Senior managers are making assumptions about the role of women which is based upon their view of women generally. It would appear that call centres 'need' women because the public prefer a woman's voice, women fit in with the hours (due to their orientation to the family) and do not expect to have a career. Are call centres reinforcing patriarchal relations in society and the paid labour market? Are women attracted to call centre work because of their circumstances?

The head of call centre was the only respondent at Finco to mention the possibility that women could and should have a career in the call centres:

There's less than there is in other places I've been, believe it or not, so I think call centres are predominantly female, a female career...I've no issues because they're females, they can carry on going to the top as well (Head of Call Centre, Finco)

However, there was not much evidence of this at Finco, with only one female in middle and no females in senior management roles.

This head of call centre also believed that his 'best workers' are 'returning mothers' due to their ability to build empathy with the customer:

I think it's very much females are far better at building that empathy with people and without a doubt they are. I can range my best advisers on a number one, returning mothers working part-time, they just have that empathy, they're

here for a fixed time and they do it and they probably enjoy coming in because they want to see and socialise with people as well. My poorer advisers are eighteen to twenty four year-old males

The 'returning to work mum' was identified as the preferred archetypal call centre worker:

I think part of it is, there's a lot of part-timers, there's a lot of people come to work because they need to up their income whereas unless you're very young, most males come to work to support a family. Some women do but the majority would be males. So I think that part-time is typically more attractive to women...it's not a particularly well paid job and you know, it would be difficult to be a head of household and you know, be a primary earner and work in a call centre (Senior Manager, Parent Organisation, Finco)

Male managers in call centres appear to hold stereotypical perceptions about female workers yet, more importantly, they openly recognise that they *need* women for their particular skills. The strongest stereotype is that women work in call centres because of the hours, followed by the pay (because it is a secondary income/job to their male partner). The senior managers interviewed also acknowledge that there are limited career opportunities which they believe does not present a problem for women as they do not tend to have career aspirations. Women are also perceived to possess 'good communication skills' and to have the ability to build empathy with the customer. Overall, the 'returning mum' is the one that most closely fits the above criteria.

Do these stereotypical perceptions prevail at Bankco, where there are more women than men in middle and senior management positions in the call centres? A senior manager in the parent organisation offered his view:

It's quite attractive for us to have part-time workers because if you're trying to reflect the peaks and troughs of customer demand, small blocks of work are

easier to plan and schedule and match customer need so they're more effective. That leads to, well, who likes working for four or five hours a day? Return to work mums, people who have got childcare arrangements and they want to be able to pick their kids up from school. I think maybe the pay might have something to do with it...what else? Communication skills, women are natural team leaders aren't they, they get on better with people than men do sometimes...we want people who are able to cosset, care for our customers in a remote sense (Senior Manager, Parent Organisation, Bankco)

Business needs are the overriding factor and the desire to meet customer demand are balanced by the employment of a flexible female workforce. Women, it is believed, are needed to 'cosset' and 'care' for the customer.

Another senior manager offered his view:

...I think for the social side...some of them just come and say, well, I can work for a very short period of time, we do offer you know, ten hour contracts, twenty hours, twenty four, and so on, so it does fit with people's needs (Senior Manager, Parent Organisation, Bankco)

Women are identified as 'attractive' to the call centre to allow for the peaks and troughs of customer demand and this allows the senior managers in the parent organisation to plan the schedule and workloads. Women as 'return to work mums' are the ideal call centre worker and the belief is that their 'social needs' are being met through this type of employment.

Finally, the Head of Call Centre offered his view:

Um [long pause] not, not one you could possibly hear with the tape machine running...I honestly don't know...I really have no idea why it's predominantly female other than that the possibility that it is seen as a second income as opposed to a primary income so that, what, oh, I've thought of another reason actually...the other reason is probably around the hours. Because there are a lot of reduced hours type roles, again it doesn't lend itself to a breadwinner

situation. Now that sounds, that sounds as if it's sexist in that I'm assuming that the man is always the breadwinner in the family (Head of Call Centre, Bankco)

Hours of work are the most mentioned reason as to why these call centres are predominantly staffed by women, followed by the (low) level of salary, women's perceived communication skills and the socialising element of the job. Again, the 'returning to work mum' is characterised as the typical call centre worker.

Senior managers appear to have a set view about why call centres are predominantly staffed by women. At both organisations, the hours and level of salary were the principal reasons cited, followed by the predictable, 'women are better communicators/empathy builders' scenario. Men's stereotyping of women in this way is not only inaccurate but has also been found to impact upon women's career development (Wirth 2000). The crucial point is that call centres *need* women because women will keep the customer happy, will empathise with them, fit in with the hours that suit the needs of the business and are prepared to work for a lower wage. Therefore, call centres *use* women.

These stereotypes can be challenged by the empirical data from the case study call centres. Firstly, advisers have an average target salary of £17,000.00 per annum at Bankco and Finco and team managers a target salary of £25,000.00 per annum at Finco and just over £18,000.00 per annum at Bankco. These salaries hardly constitute a 'second income', especially when bonuses, incentives and financial benefits offered by the organisations (reduced mortgage rates, loans, etc.) are considered. Secondly, 54% of men and women have no children. This does not seem to correspond with the 'returning-to-work mum' suggested above.

Furthermore, these team managers were attracted to call centre working for reasons other than those identified by senior managers. Only 12% of respondents chose to work in a call centre because of the hours (12% of women and 11% of men) and just 16% of all respondents chose to work in a call centre because it was a 'chance to socialise/work with people (18% of women and 14% of men). Furthermore, 16% of respondents overall saw it as a chance to use their communication skills (21% of women and 11% of men). Company brand name was only important for 10% of respondents overall (3% of women and 18% of men) thus making this a far more important criteria for men than for women. Women are far more attracted to the nature of work than men (22% and 12% respectively). However, the overwhelming reason for both men and women working in a call centre is that the 'opportunity arose', with 48% of men and women identifying this as the reason for their employment in a call centre.

Although the data challenges the stereotypes of why women work in call centres, the reality remains that call centres need and use women because they serve the requirements of both a patriarchal perspective and institution.

Both the focus for call centres and the adviser's skill requirements are likely to change at Bankco, due to its strategy to increase the development of technology:

There's gonna be much more, there will be much more technology and we'll be automating the simple stuff for customers which means that agents won't have to deal with so much mundane kind of activity. They [the advisers] will need to become much more interactive with their customers, need to be able to think on their feet a bit more, resolve queries, avoid complaints arising, sell products without the customer knowing they're being sold to....it will be the tough stuff that the agent has to deal with, not the simple stuff (Senior Manager, Parent Organisation, Bankco)

This means that simpler activities will be increasingly automated through the Interactive Voice Recognition system (IVR) which it is hoped will change customer behaviour:

So I see over a period of three years, considerable upskilling both in terms of their [advisers] knowledge and ability to steer customers and about the product range and helping customers on a broader front...customers will do it themselves. So, real sort of strategic headline, but that is where I think we're going (Senior Manager, Parent Organisation, Bankco)

Team managers

The team manager population is female-dominated (75:25% female to male ratio) and has close day-to-day contact with the adviser population, being responsible for people management and the deployment/use of information technologies. The extensive use of information technologies to monitor adviser performance creates a 'quality/quantity' conflict for this group, the need to offer a good quality service for the customer, contrasting with the hard edged quantitative targets set by senior management. This extensive use of IT for monitoring purposes can often interfere with the team managers' people management role (see Chapter 7 for a thorough discussion on this point) and highlights the inherent conflict within the role, in trying to meet the needs of both advisers and senior managers. This underscores the need for team managers to develop and maintain a good relationship with both the adviser and middle/senior management populations.

Though remote from the customer, one of the most important elements to the team managers' role is to motivate the advisers, to keep customers and senior managers happy. This is achieved through the application of a mixture of 'hard' and 'soft' skills: personal 'one-to-one' meetings with advisers; team meetings with advisers and other team managers and middle/senior managers; the coaching and training of individual advisers; remote and 'live' call listening to ensure quality of interaction between the customer and the adviser; maintaining individual and team performance; keeping advisers informed of immediate and future changes; being available to help with adviser and customer queries; and encouraging good performance. Broadly, they deal with most work and virtually all personal-related problems that arise on a daily basis amongst the adviser population.

Team managers possess the specific social and technology skills required by the knowledge economy (proficiency in the use of information technologies, teamwork, communication, learning skills and the need to keep up with incessant change) and apply these in the call centre to achieve an extensive and increasingly technically complex range of tasks.

Management Styles

Management style is an important issue in any organisation but it is particularly important for the team manager population in call centres as the people management role has to be successfully combined with the technological. These management responsibilities are generic in call centres, as men and women work to the same job descriptions. However, the ways in which men and women approach their daily tasks

(their management styles) may be gendered. It is important to explore this question because call centres represent a relatively new way of working, are knowledge-based and represent areas of work where women may have the potential to progress.

The debate on management style is on-going and has its theoretical base in the sameness/difference debate (Felski 1997; Holli 1997; Scott 1986; Wajcman 1993). Proponents of the 'difference' debate claim that women manage in a transformational and men in a transactional way (Rosener 1990, 1995). Conversely, those who argue for 'sameness' in management style state that there are no differences in men's and women's management styles and this is often taken to mean that women are generally 'managing like men' (Wajcman 1998). Which of these styles prevails in call centres?

The management styles of the team manager population were assessed to establish the ways in which team managers carried out their managerial tasks, using the (male) transactional versus (female) transformational ways of managing (e.g. Rosener 1990, 1995). Respondents were presented with a set of statements and asked to what extent they identified with specific management styles (see Appendix II). The transformational style of management is associated with involving and encouraging direct reports to transform their own self-interest into the interests of the group (consulting, sharing, encouraging, empowering, influencing); the transactional style as a series of transactions between managers and direct reports, power being exercised through organisational status (instructing, centralising, rewarding only good performance, the encouragement of individual rather than team contribution, controlling and use of organisational position).

The set of statements presented to team managers covered the range of team manager responsibilities – how they made decisions, distributed information, aimed to achieve performance-related results, encouraged team or individual contribution, the extent to which they controlled or empowered their direct reports and the extent to which they used status or influence.

Overall, the majority (88%) of men and women identified with the transformational. 48% with the transactional styles of management. By gender, 86% of men and 89% of women identified with the transformational and 45% of men and 50% of women with the transactional styles of management. This also held for all respondents by type of workflow in which they are employed: respondents in all three workflows (service, sales and internet banking) identified most strongly with the transformational style of management (89% of men and 89% of women in the service, 79% of men in the sales and 89% of men and 83% of women in the internet workflows having a transformational style of management).

This reveals that the ‘male=transactional’ and ‘female=transformational’ ways of managing are not relevant in the call centre context and that both men and women are more likely to identify with the transformational management style. These findings therefore transcend the gender division of male and female management styles and it is concluded that team managers in call centres do not conform to the gendered style of management found in other research. The overlap between transformational and transactional styles of management could be due to the paradox inherent in the team manager role (face-to-face people management and the surveillance of individual and team performance through information technologies).

In terms of the sameness/difference debate it could be argued that the 'sameness' argument is relevant in the call centre context. However, this argument is traditionally founded on women conforming to male ways of managing, e.g. they manage in the same ways as men. Conversely, it could be argued that men and women are managing in terms of 'sameness' because men have taken on 'female' (or transformational) styles of management ('men are no different to women'). Women and men are 'biologically' different but their management styles have not been found to be gendered. It is argued, from these findings, that management styles in call centres are being re-gendered, because men are taking on styles of management that are usually associated with women.

Respondents were then asked whether they thought that men and women managed in the same or different ways according to their observations (or perceptions) of peer groups. The findings are interesting in that 59% of all respondents said that they thought men and women managed in 'different' ways (54% of men and 64% of women). When examined in terms of workflow: in the service workflow (which is predominantly staffed by women) 65% said 'differently' (67% of men and 64% of women); in the sales workflow (which is 55% male to 45% female) 71% of men said 'differently' (only men were interviewed in the sales workflow); and in the internet workflow (which is more evenly represented between men and women) 27% said 'differently' (0% of men and 60% of women).

Therefore, when team managers are asked their perceptions of others' management styles, differences emerge. A difference between 'doing' and 'perception' is evident

(what Wajcman (2000) identifies as a major discrepancy between the rhetoric of ‘soft’ management and the ‘hard’ reality of practice’). It would appear that workflow has an effect on whether or not men and women perceive management styles differently. Where women are in the numerical majority, men and women are as likely to say ‘different’, e.g. in the service workflow. Where men and women are more evenly represented (the internet workflow) a low percentage said ‘different’ and these were all women. Therefore, the presence of more women means that men as well as women perceive differences but where the group is more evenly represented by men and women, there are fewer perceived differences.

To confirm some of the stereotypes, respondents were asked ‘why’ they thought men and women managed differently. Words associated with men were: direct, controlling, statistical, competitive, dictatorial, practical, laid back, humorous, matey and lighthearted. Words associated with women were: encouraging, approachable, sympathetic, sensitive, personal, touchy-feely, understanding, fun, collaborative, networkers, influential, flexible, learning, decisive, organised, achieving, controlling, assertive, efficient, hard, experienced, organised and committed.

The empirical findings (the reality of how men and women approach their management responsibilities) contradict the ‘difference’ argument as men and women in call centres are managing in the same way. Men are taking on management styles usually associated with women and it is hypothesised that this is related to gender composition in that where women are in the majority numerically their ways of managing are the dominant style. Therefore, women are not ‘managing like men’; but are ‘men

managing like women'? Does this signal the re-gendering of management styles in the call centre context?

Call Centres as Networked Organisations: Flexibility, Flatter Structures and Career Progression

Women's progression (or lack of) in call centres can be further assessed by examining how these knowledge-type, networked organisations are organised with regard to flexible working arrangements, flatter managerial structures and the consequent career progression routes that may or may not be available to women. Examination of these three key areas will complete the assessment of whether or not women are 'getting on' in call centre management.

Call centres are knowledge-type organisations that operate around the clock on a networked basis across multiple sites in a seamless fashion. They are process-driven and have a flat hierarchical structure, based around teams. Measurement is endemic, customer satisfaction being used to assess employee performance and fix rewards for both individuals and teams. The technology ties together a network of suppliers and customers and operates on the basic principle of using information as a catalyst for improvement and the training and retraining of employees at all levels. New organisational forms are housing what Castells has described as 'flexible work' (2000: 283). Technology profoundly transforms the nature of work and the organisation of production and this makes working hours more flexible and not constrained by the traditional patterns of thirty five to forty hours per week in a full-time job. Bankco and Finco epitomise these 'new organisational forms'.

Call centres often have an international reach to enable them to operate in global markets, twenty-four hours a day, seven days a week, supported by a flexible workforce. As Huws *et al.* (1999: x) have noted:

One of the most rapidly developing forms of delocalisation is the call centre. Concentrating a group of functionally specialised workers on a remote location within a telecommunications link to customers does not just bring about a relocation of employment within countries but also between them, with international call centres constituting a growing proportion of the total

Flexibility

Atkinson's (1986) numerically flexible workforce model fits the call centre concept, the majority of the numerically flexible workforce being female (Walby 1997; Perrons 2000) but not necessarily constituting 'peripheral' workers as their activities may be core to the organisation (thus arguing against the 'reserve army of labour' thesis). Bagguley (1990) has pointed out that the strategy of 'numerical flexibility' (as well as functional, distancing and pay) has restructured employment into 'core' and 'periphery' workers. Within the numerically flexible groups (which may involve the use of part-time, temporary, short-term and casual workers) these workers are peripheral employees. Bagguley points out, however, that what most authors fail to recognise is that these forms of flexibility are gendered.

This section of the analysis investigates to what extent numerical flexibility is gendered and also argues that this type of workforce can and does constitute the 'core' workforce in call centres (female advisers and team managers) who are employed on numerically flexible contracts in order to meet the demands of the business. These working hours

also serve to attract a wide range of employees who prefer to work flexible hours (but not necessarily to fit with childcare commitments). This can perhaps enable us to dispense with the core/periphery dichotomy in certain research contexts (Bagguley 1990). This flexibility opens up a whole range of possibilities for differential engagement in the workplace and can be both employer and employee-led (Perrons 2000) although the question is whether or not call centres are corresponding with traditional models of flexible working or whether they are offering new forms of flexibility? Perhaps it is time to move beyond the full-time/part-time split (core and periphery) and instead concentrate on the range of new forms of working in the knowledge economy.

Both organisations' call centres use just over one hundred working parameters to cover their twenty-four hour, seven day a week operations with dedicated personnel employed solely to schedule, resource and co-ordinate working hours. Information technology allows constant monitoring of personnel cover against call volumes (and types) both predicted and actual. 'Off 'phone' activities are also monitored to create a full staff scheduling capability.

Hours are scheduled by a scheduling team which would normally comprise a team manager, a senior resourcing adviser/analyst, two or three advisers/analysts and several co-ordinators (who are strategically positioned around the call centres). A wide range of flexible hours are available: full-time, reduced hours (25, 20, 16 hours per week), zero hours (where employees are called upon if needed) annualised hours (where employees commit to work a particular number of hours per year but with no fixed hours) fixed hour contracts, fixed rotating (alternate weekends) and flexible contracts

(which must include twenty-five core and ten unsociable hours). Full-time working incorporates flexibility through the application of working 'parameters' which operate on the principle of alternating start and finish times over a two-weekly cycle. These flexible forms of working allow for the call centre to be covered twenty-four hours a day, seven days a week. Working hours can change every quarter and this is determined by the needs of the business, as monitored by the scheduling team.

Examining the actual hours worked by the team manager population, it is interesting to note the significant absence of a full-time/part-time split between men and women. Only 6% of team managers interviewed were employed on a part-time basis (4% of men and 9% of women) which is probably not surprising, given that managers are generally less likely to work part-time. The most often worked parameters for team managers are full-time with flexible hours (76% of men and 52% of women) with males showing the strongest preference. 43% of men working these hours have no children and for those who do, they are never the sole carer, with men either acting as a joint carer (11%) or the partner acting as sole carer (18%). 4% of men in this category work part-time with no children. Of the women working these hours, 34% have no children and for those who do (18%) they act as joint carers with their partners.

The only other working parameter used by these men and women is full-time fixed hours with no in-built flexibility (22% of men and 39% of women). 7% of men who work these hours have no children, 15% having children with a partner who is sole carer. 18% of women in this category have no children and for those who do (21%) their children are of school age.

The traditional full-time/part-time split is absent in call centres. Men overwhelmingly work full-time flexible hours but in the majority of cases those who work these hours do not have children (42%) and therefore do not do so to meet childcare responsibilities. Just over half of women work full-time flexible hours but again, for the majority, this is not to fit in with childcare responsibilities because 34% of women who work these hours do not have children. Interestingly, for those women who do have children (18%) they act as *joint* carers with their partners. A minority of men work full-time fixed hours (20%) compared to 39% of women and although more likely to have children than those women who work full-time flexible hours (22%) these are all of school age. 18% of women who work full-time fixed hours have no children, a lower percentage than for those who work full-time flexible hours (34%). Evidently, women with children who are in need of care (e.g. who are under the age of ten) work flexible hours to fit in with this.

This could constitute a new form of flexibility in call centres. At the adviser level, which is 75% female to 25% male, employees are most likely to work flexible hours. Therefore, flexible working is gendered in call centres and this is not new. However, there are new forms of flexibility in use, such as one hundred plus different working parameters on offer to advisers to cover a twenty four hour, seven day a week operation. Amongst the team manager population, a narrower range of flexible working hours are taken up and the traditional male/female full-time/part-time split is absent. The majority of team managers work full-time flexible hours (flexible working usually being associated with family, domestic and childcare responsibilities). This is not the case in the case study call centres as the majority of women who work these hours have

no children. Further, men, it would appear, are more numerically flexible than women at the team manager level and not for reasons of childcare responsibilities. Bagguley (1990) found evidence to suggest that men are more functionally but not more numerically flexible than women in the hotel and catering sector.

'Flatter' Structures

Both organisations' call centres operate with flatter structures from adviser to head of call centre and this means that where spans of control have been optimised women are over-represented at adviser and team manager levels, which are highly gendered. The situation at middle to senior managerial levels however is more complex and varies by case study organisation. Women are well represented at Bankco at the middle and senior managerial levels but under-represented at Finco, where the spans of control are much broader.

Middle level managers are responsible for the implementation of the call centre strategy, operational matters and people management; senior managers for strategy formulation and other operational matters. There are a variety of special management positions covering information management information, measurement of performance, IT, market and human resource management. The degree of autonomy increases the further up the management hierarchy, strategy and change being decided near or at the top of the management hierarchy.

The following data reveal the gender composition of middle to senior management positions and the extent to which women have progressed within the differing levels:

Bankco

- *Middle Managers:* Bankco has thirty four middle managers in total, with a gender composition of 75% female to 25% male. Seventeen (50%) of these middle managers are ex-advisers and nineteen (just over half) ex-team managers. This demonstrates that there is considerable scope for both advisers and team managers to move up into this position. This is a predominantly people management role, these middle managers each dealing with seventy employees through seven team managers and their direct reports. Predominantly, they assess team managers' performance, people management skills being paramount at this level. Women have achieved a critical mass at this level but the scope for decision making by women is not sufficient to make a difference.

- *Senior Managers:* there are ten senior managers in total, with a gender composition of 60% female to 40% male. Just one of the senior managers is an ex-adviser, five (50%) ex-team managers and six (60%) ex-middle managers. Again, this demonstrates the scope for movement up into this position, becoming more likely from team manager level upwards. This is more of a strategic and operational rather than day-to-day people management role as the senior managers manage the call centre as well as other areas (e.g. resourcing, quality control). Each has three or four middle managers as direct reports and approximately seven team managers and their seventy advisers. This is more of a process-based, analytical, specialist role, requiring a broader view of the call centre. The role requires sales management experience and coaching experience, a track record of delivering

business results and the ability to think broadly and globally. Senior managers report directly to the head of call centre. Women who progress into this role possess a different set of skills to those of middle managers but as the majority (60%) are ex-middle managers they are able to combine their people management skills with a broader operational focus. However, the 'real' decision making occurs at the level of the head of call centre and the head office senior management team. At senior managerial level, women may be in a position to influence decision making at a local (call centre) but not at the strategic business (head office) level.

- *Head of Call Centre:* the two (male) heads of call centre are each responsible overall for several call centres that are geographically split. All call centre management in a particular area reports to the head of call centre, who is responsible for the overall operation. The head of call centre sits on the Executive at Head Office and forms part of the decision-making group for the call centres. This covers strategic resource allocation/prioritisation (including budgets) reviewing emerging priorities and changing circumstances that potentially have an operational impact and the changing business requirements. Women are not represented at this strategic decision making level.

Overall, in terms of the gender composition and skill requirements, women are well represented at middle managerial level where the need for 'softer' people management skills predominates. Women are also well represented at senior managerial level where operational capability is paramount but not at the strategic 'head of' level. Women are therefore not positioned to make a major contribution at the level where it counts.

Finco

- *Middle Managers:* there are eight middle managers in total, with a gender composition of 25% female to 75% male. Middle managers directly manage a team of around nine to ten team managers who in turn manage around one hundred advisers between them. The role involves the use of a mixture of line and operational management. The major part of the role (80%) is line management, ensuring that key objectives are met and that team managers receive the relevant training to coach their teams effectively, keeping them focused on objectives and managing any personnel issues. Middle managers report directly to a senior executive. The broader span of control may explain why women are poorly represented at this level at Finco.

- *Senior Executive Manager:* this is a strategic role that is occupied by two males, each having four middle managers as direct reports.

- *Head of Call Centre* (1 male): the head of call centre controls three prime operational areas - sales, service and internet service - and is responsible for the development, implementation, monitoring and fine tuning of the strategy. The present strategy is to push the call centre further along the web-enabled route (via the internet) and to manage the call handling strategy across the entire business, including the branches. The head of call centre's brief comes from a main Board director.

Opportunities do exist for women to move up through the management hierarchy in call centres but this is far more likely at Bankco. Team manager and middle manager positions are a springboard for progression to senior levels, where management and incremental development of the overall operation would occur but with limited input into the strategic management/development of the total call centre operation. At Finco, the jump from team manager is much higher as the next available level (middle management) has a much broader span of control. Therefore, the less graded the hierarchy, the less opportunities there are likely to be for upward movement for women. As call centres are predominantly staffed by women, this has important implications for the managerial aspirations of women.

Where women enjoy a critical presence a mixed picture is revealed. Where roles tend to favour women, these are predominantly linked with people management. Where men and women are more evenly represented, women generally have a greater opportunity to influence decisions at the local rather than the senior management level.

In terms of *Senior Management* in the parent organisations, as might be expected, the more senior the role, the less evidence of female representation. At Bankco, the highest level at which women are represented is that of non-executive director (two female). There is also a female director responsible for the call centres, who manages a large team of all-male senior managers. Women are far better represented below these levels at management and assistant management levels in the parent organisation. At Finco, there are two female non-executive Board members. The call centres report into an executive director (male) who in turn has a team of seven heads of department, who are all male. Throughout the parent organisational structure down to head of department

level, women are not represented and at the highest level where they are represented (head of department) they occupy only nine out of seventy four positions. Senior female managers are therefore very poorly represented at both organisations but the situation is slightly better for women in Bankco's call centres.

Career Paths: Upward Movement from Adviser to Team Manager Positions

For both case study call centres, women progress from adviser to team manager positions, the first rung on the managerial career ladder. Progression after team manager level, however, is more likely to involve a lateral move into the parent organisation at Finco where there is a much flatter managerial structure in the call centres. Adviser to team manager progression is most relevant for upward mobility for women as 71% of the team manager population are ex-advisers. The background to this career progression therefore warrants further attention.

The gender composition across all four call centres for both advisers and team managers is approximately 75% female to 25% male. Gender composition for the sample population of team managers is 46% male and 54% female. The largest single age group is that of 25-35 years, the total percentage for the under 35's age group being 75.%, denoting a young workforce. In terms of age and gender, again, 25-35 years is the largest single age group (57% of men and 67% of women). The total percentage for the under 35's age group is represented by 71% of men and 79% of women. 18% of men are over 40 years, compared with 15% of women. Both men and women in the sample tend to be young, women tending to be slightly younger than men.

Men and women are equally as well qualified: just over one third have attained higher level qualifications and nearly half, either a further or higher level qualification. Women are as likely as men to hold a degree. Men are slightly more likely to hold a management qualification (14% and 12% respectively) and women more likely than men to hold a call centre management qualification (15% and 7% respectively). 97% of respondents identified themselves as 'white'. Only 6% of team managers are employed on a part-time basis (4% of men and 9% of women). 61% of men and 70% of women are married/living with a partner and 46% of both men and women have children. All respondents identified themselves as non-disabled.

Overall, the profile of these call centre managers is a young, white, non-disabled and well-qualified group of people. In terms of gender, women tend to be slightly younger, as well qualified as men at the higher educational (degree) level. Just over half of women have attained either further or higher level educational qualifications. To map career progression from adviser to team manager levels, several areas of past experience and job mobility were explored. Firstly, team managers were asked what attracted them to work in a call centre (to establish whether or not this was a career move). Secondly, the percentage of team managers previously employed as advisers in the call centres was established to demonstrate the extent of upward mobility and the timeframe in which this was achieved. Thirdly, sources of recruitment, previous employment in a call centre and job tenure were established. Finally, career satisfaction was also explored as well as the potential for team managers to move up into higher managerial positions, according to the view of senior managers.

Table 4: what, if anything, attracted you to work in a call centre?

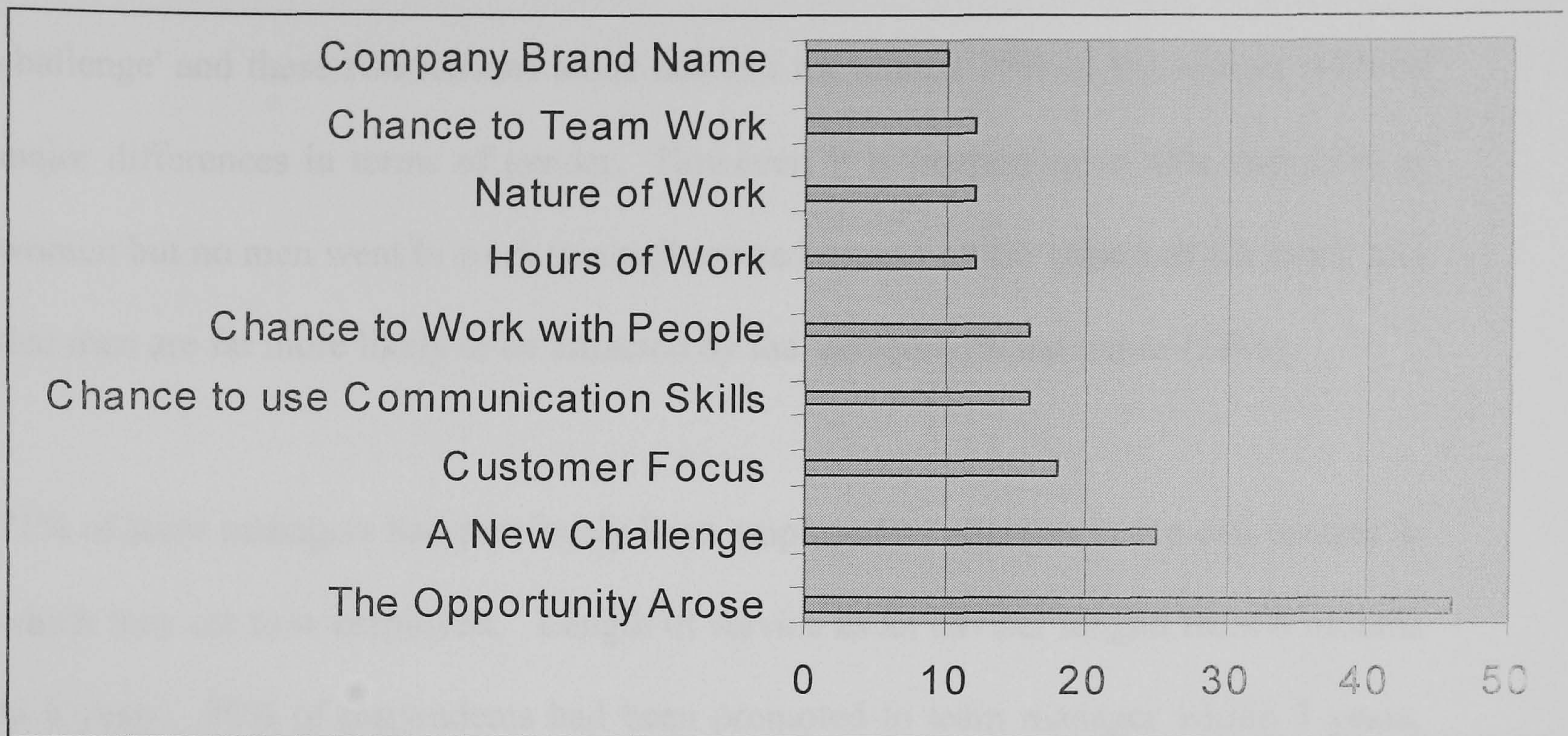
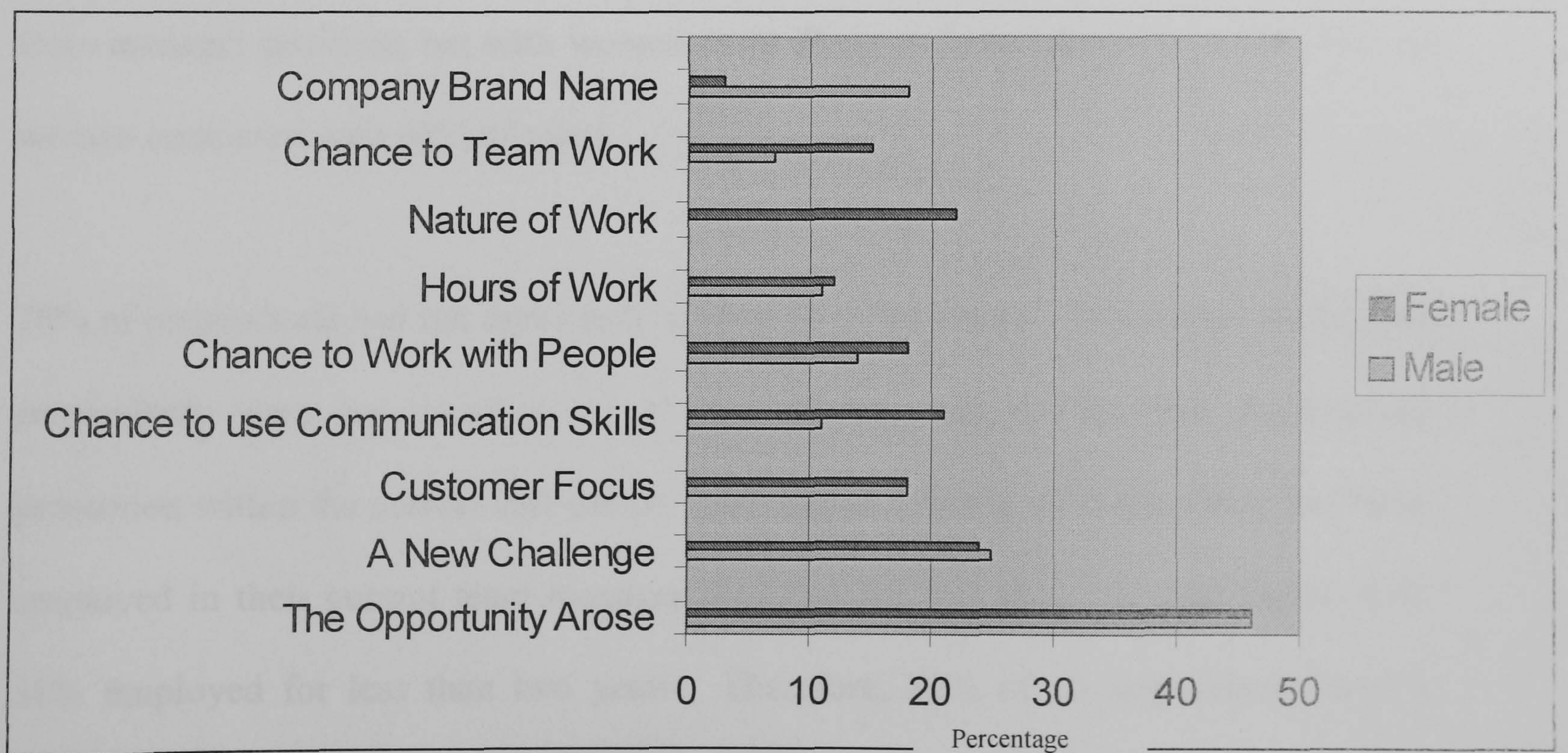


Table 5: What, if anything, attracted you to work in a call centre?

(By Gender)



That almost half of respondents stated that the 'opportunity arose' indicates that this was not a career choice. Almost a quarter of respondents saw their job choice as a 'new challenge' and these two reasons alone account for almost 75% of the sample with no major differences in terms of gender. However, it is interesting to note that 22% of women but no men went to work in a call centre because of the 'nature of the work' and that men are far more likely to be attracted by the 'company brand name' (18%).

71% of team managers had previously been employed as advisers in the call centres in which they are now employed. Length of service as an adviser ranged from 6 months to 6 years: 80% of respondents had been promoted to team manager within 3 years, 65% within 2.5 years, 49% within 2 years and 8% within a year. Women are more likely than men to have been an adviser (79% and 60% respectively). 88% of men and 73% of women were promoted to team manager within three years, 71% of men and 62% of women within 2.5 years, 53% of men and 46% of women within 2 years, and 29% of men and 19% of women within a year. Promotion was therefore more rapid for men at all stages. Recruitment from within the call centre was the most likely route to team manager positions but with women more likely to have taken this route (79% of women compared with 68% of men).

76% of respondents had not previously worked in a call centre. This demonstrates that respondents were not moving around the industry and so far, had experienced promotion within the current call centre. The largest majority of respondents had been employed in their current team manager positions for less than one year (44%) with 38% employed for less than two years. Therefore, 82% of all respondents have a length of service of under two years. Women have a longer length of service than men:

30% of women had been in their current role for more than two years but only 3.6% of men. Men therefore, overall, tended to have a much shorter length of service than women.

When asked 'how satisfied are you with your career progression to date'? respondents replied as follows:

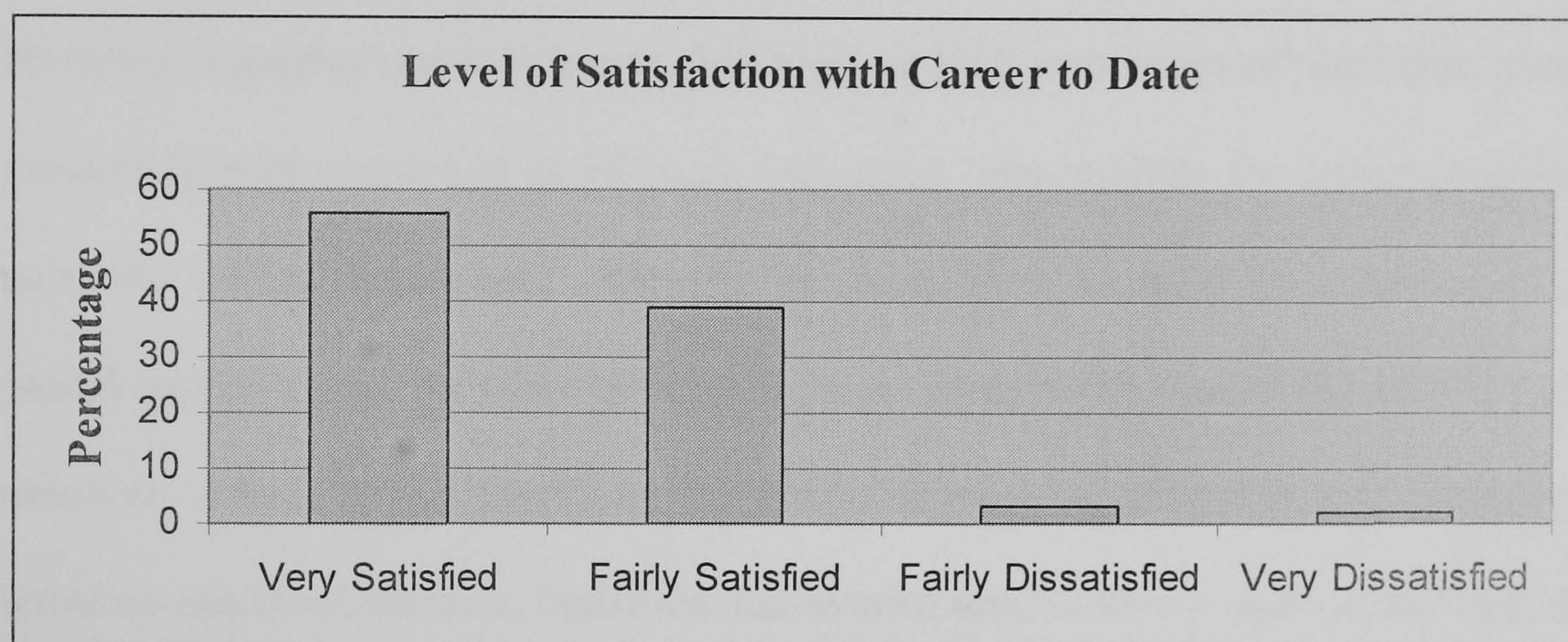


Table 6

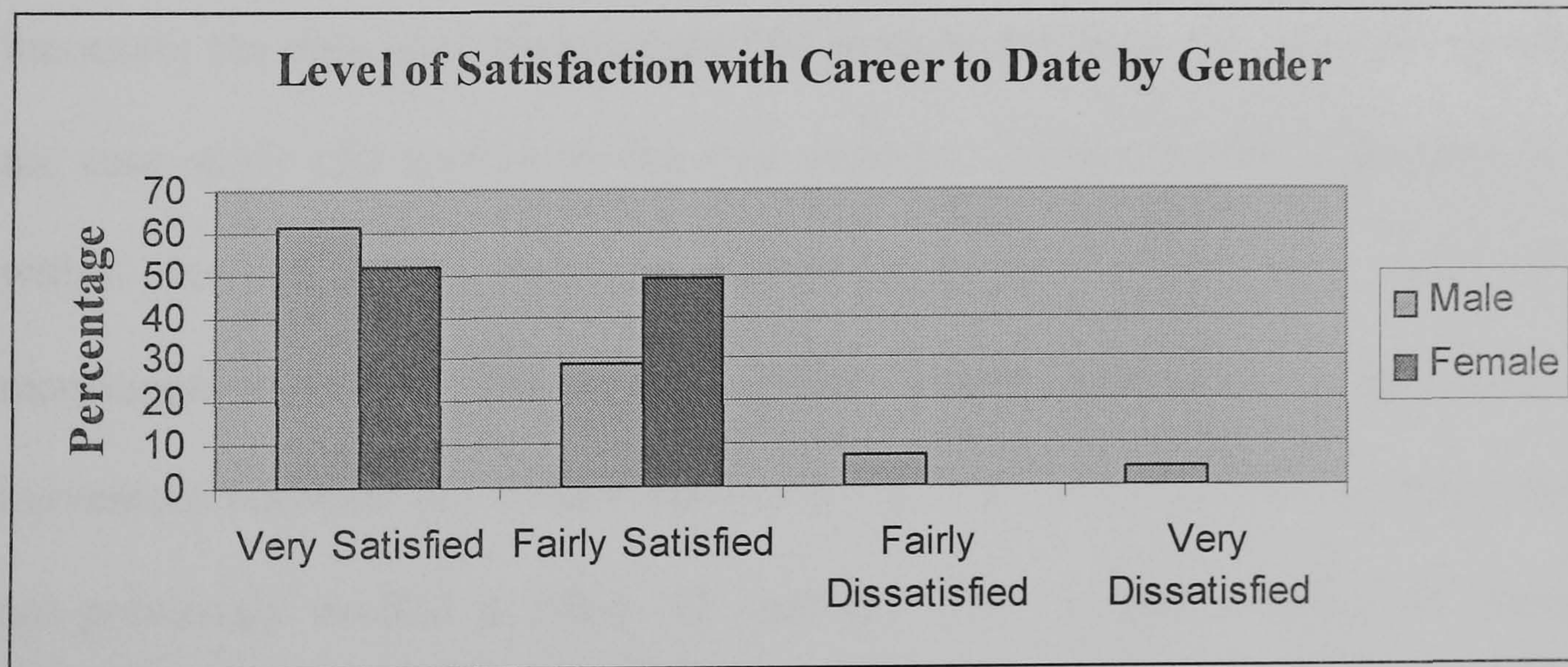


Table 7

This is a high satisfaction rating with men being more likely to be 'very satisfied' or 'fairly/very dissatisfied'. Women are more equally spread between being either 'very satisfied' or 'fairly satisfied'.

Overall, almost half of respondents did not see their initial employment in a call centre as a 'career move', even though over half of them were promoted within two years. However, a quarter saw it as a new challenge. A high percentage of team managers had previously been employed as advisers, indicating opportunities for career progression, normally within three years. Women are more likely to have been advisers and so would appear to take the more traditional career progression route from adviser to team manager. Men's advancement, on the whole, is more rapid than that of women's. In terms of career satisfaction, both men and women tend to have a high satisfaction rating, women being slightly more inclined to be satisfied overall.

In terms of length of service: 82% of respondents had a length of service of less than two years but more than one year, with 44% employed for less than a year. In terms of gender, women have a longer length of service than men. Referring back to the careers literature: the data analysis suggests that there is evidence for occupational careers in the case study call centres as the vast majority of respondents were recruited either within the call centre itself or within the present organisation, with very little recruitment externally (Kinnie *et al.* 2000). There appears to be very little sectoral movement between call centres (Bagnara 2001) as just over 75% of respondents had not previously worked in other call centres. There is also evidence of occupational career progression with the large movement from adviser to team manager positions, as

well as the promotion opportunities taken by women at Bankco, where they predominate not only at the lower but also the intermediate levels of management.

Career Opportunities: the View from Senior Managers

What are the possibilities for team managers to progress further within the call centres?

Both call centres have 'flat' management structures with variations near the top and the bottom. For example, at Bankco, the span of control is more evenly graded which could be argued to favour the upward movement of women into senior management.

Senior managers at Finco identified the following routes to senior management:

- project work within the call centre (which will give access to Board and other senior members of the parent organisation);
- 'putting yourself out' by working long hours, 'putting yourself in difficult positions', taking on more responsibility;
- having the 'right attitude', exhibiting the right behaviours;
- a move into a managerial role at the same level in the parent organisation and subsequently into a senior management role;
- taking external courses, such as an MBA, DMS, or marketing degree.

Project work is one of two main routes for progression for team managers in the call centres. However, there are normally only three or four project teams operating at any one time.

The benefits of this were made clear by the head of call centre:

You've got to get them out of the sort of bubble of the call centre and start looking at other parts of the business which, a project will give someone that push, get exposed to some Directors

The other route is by 'putting yourself out' or 'having the right attitude', as explained by a director of the parent organisation:

It's realistic and it's not. One of the problems we have, with a man or a woman, people tend to say, well, why aren't I being promoted and the answer is, because you're not actively doing anything to get promoted, you're expecting somebody else to manage your career, what are you doing in a call centre that actually says, I want to go further, are you taking, for example, an MBA, are you doing a DMS, are you doing a marketing degree, are you doing anything externally? Now, if you've got the capability and all the other things and you actually put yourself out, work long hours, put yourself in the difficult situations, take on more responsibility, have the right attitude, do the right behaviours and do the external work that we've all done in going up higher then you will go higher

This *could* have implications for women as taking external courses and working long hours is not always a possibility for those with extra responsibilities at home, such as children (46% of female team managers have children). It would appear that there are a number of opportunities for promotion within the call centres but with the 'flatter' management structure, these opportunities are limited. Progression via an organisational route is probably therefore more likely at Finco.

Senior managers at Bankco identified the following routes to senior management:

- movement into middle management level, where there is a 'reasonable turnover' of staff, thus creating the opportunities for team managers;
- team manager opportunities in other parts of the call centre/support services;

- using recruitment into the call centre as a springboard into other management opportunities within the parent organisation.

Senior managers at Bankco view the call centres as a 'fertile recruitment ground' for other parts of the business, the flat structure in the call centres being viewed as a barrier to progression within the call centre itself.

As one senior manager from head office pointed out:

We've got some phenomenally capable and qualified people and we've seen, I think, last year alone, we've seen sixty promotions in...alone, many of whom have actually come to this building [head office]. This place is actually littered with people, you say, didn't you used to work in the call centre? And they work across a whole range of teams here so, it's a very fertile recruitment ground

The chances of progression are also arising due to expansion:

Well, more than fifty per cent of my managers started here on the telephones so one of the things I say to new advisers when they arrive and I do induction talks is to say that it is an environment where they can progress and it's not, it's about meritocracy, it's not about dead man's shoes and so yes, it is, the opportunities are there, we're expanding, you know, we've just recruited fifty new team managers for.....twenty from within the organisation, the remainder from outside (Head of Call Centre, Bankco)

Conclusions

This chapter has investigated the relationship between gender and the knowledge economy and concludes that the knowledge economy (in the context of call centres) does not present new opportunities for women in management. The knowledge economy is gendered and women are 'worse off' in call centres in comparison with

men, despite call centres being an evolving, unique industry where women might be best placed to make a difference but have not had the opportunity to do so.

Call centres originally emerged as a means to speed up processes and enhance the efficiency of vertical bureaucracies but increasingly, they are being developed as nodal centres for customer relationship management with knowledge about knowledge being used to create added value within a technology framework that can manage increased complexity over distance. In a real sense, they are a knowledge economy phenomenon, where the organisation of the labour process is a combination of the application of skill, knowledge and complexity, on the one hand, and the execution of repetitive and routine tasks, on the other.

The aggressive application of information technologies and knowledge management techniques allows businesses to operate with a maximum span of control within flatter networked operating models. Inevitably, there is a transfer of knowledge from the individual to the knowledge management system itself. The recommended span of control in a call centre at team manager level has been put at between a minimum of six and a maximum of ten advisers. The four case study call centres all conform to this 'best practice' model.

This research argues that Blackler's (1995) and Lam's (2002) four knowledge types are gendered. This is an important finding because knowledge is *the* product of a knowledge economy in general and call centres in particular. Although all four types of knowledge are present in call centres (embrained, embodied, encoded and embedded)

women have restricted access to some of these, this access (at all levels) being determined within a male culture of decision making.

Embrained knowledge is theoretically gendered through men and women studying different subjects. However, women's access to embrained knowledge has improved, generally matching the performance of men at all levels. Embodied knowledge is more difficult to assess in terms of gender because whilst it is linked to embrained knowledge (which is gendered) it can also be argued that all categories of call centre workers 'embody' knowledge. This knowledge type is tacit and individual and remains so, due to women's exclusion from consultation processes in the technological design process. Encoded knowledge is gendered in that the information technologies upon which it relies for the sharing of knowledge are 'masculine' (defined by male senior managers) and their access to it is limited. Male senior managers are the only group to enjoy full, unrestricted access to this knowledge type. Finally, embedded knowledge is gendered in that it links into a (male) organisational culture which can only be accessed at the most senior managerial levels where women are not represented. Knowledge types are clearly gendered in call centres at the theoretical and empirical levels. This equally applies to skill levels, the managerial role and women's career opportunities.

Advisers are required to exercise a wide range of social ('soft') and technical ('hard') skills in their interactions with the customer, whilst simultaneously navigating around complex software systems, using higher and lower-order contextual knowledge (Frenkel *et al.* 1998). Female skills in call centres are stereotyped by male senior managers, their assumption being that women work in their call centres because of their 'softer' skills. Team managers deploy a wider range of skills, combining customer,

adviser role and people management skills to encourage better performance and to actively manage relationships with middle and senior managers.

When the management styles of the team manager population are analysed, it emerges that the ways in which men and women at this level carry out their managerial tasks are emerging as being re-gendered as men have management styles that are usually associated with women. These findings contradict previous studies that have either found management styles to be gendered (e.g. women have a transformational and men a transactional style of management (Rosener 1990, 1995) or that there are no differences between male and female management styles because women are taking on 'male' ways of managing (Wajcman 1998).

Rather than women taking on 'male' ways of managing, it has emerged that men are taking on management styles usually associated with women. However, when team managers were asked about their perceptions of peer group management styles, 59% said that they thought these were 'different' (54% of men and 64% of women). Practice and perception are clearly different, creating a major discrepancy between the rhetoric of 'soft' management and the 'hard' reality of practice (Wajcman 2000). However, in terms of the actual ways in which men and women are managing, men are managing in ways usually associated with women. Consequently, management styles are becoming re-gendered in the call centre context.

The new organisational forms of the knowledge economy (call centres) have led to flexible working and flatter operating structures. What impact has this had on women? At the adviser level, women are employed on a range of flexible contracts but at team

manager level only two types of flexible working are used – full-time flexible and full-time, with both men and women most likely to be employed on the full-time, flexible contract but with men more likely to be so. At the adviser level, the female flexible worker is evident but within a much broader range of working patterns than previously seen. At the team manager level, there is less scope for flexible working for both men and women, due to their managerial responsibilities. Numerical flexibility suits both the needs of the business and presumably, those of the (predominantly female) adviser population.

Women's career progression within the flatter structures endemic in knowledge-type organisations is limited. At Bankco, women predominate numerically at the people orientated middle managerial level. At senior management level, this tilts in women's favour numerically and ensures that they are in a position to influence decisions at a local (call centre) level. The senior management group in the parent organisation is male, apart from a single (token) female director. Is this woman a low risk choice who exhibits male characteristics? The situation at Finco is worse, with women being unrepresented at director level and under-represented at the senior management levels.

For those businesses with a relatively small call centre operation (Finco) the inevitable consequence of flatter structures and knowledge transfer are reduced opportunities for career progression for women. This is managed through either a greater emphasis upon 'lateral' development and/or progression within the parent organisation. Bankco's more evenly graded structure would appear to facilitate improved career progression opportunities for women. In both Bankco and Finco, women predominate within the bottom two levels (advisers and team managers). However, at the next two levels,

women continue to dominate at Bankco but men dominate at Finco. My initial analysis would suggest that career opportunities are as much a function of span of control as the number of work levels and when the span of control is broadened, men appear to dominate.

Each of the jobs at different levels in the management hierarchy at both Bankco and Finco are comparable in terms of the job content. At the lower and middle management levels, Finco managers are paid more than Bankco managers but this could be a result of the location of these call centres. It could also be that the former have a broader span of control. At the middle layer, Bankco has a narrower span of control with relatively more women but at lower salaries than at Finco.

Call centres may not be 'careerless' environments for women but the situation is complex. Belt (2002) found that for the majority of women in call centres, career progression tends to stop at team manager level. This research does reveal considerable upward movement from adviser to team manager level, usually within a two to three year timeframe. This research also reveals that career progression can and does continue beyond this level but that women are not making it into senior, decision making positions.

In the case of Bankco, a call centre career is a reality and there is also scope to move laterally within the parent organisation. In the case of Finco, there is very limited career progression for women in the call centre above team manager level but there is considerable scope for progression into the parent organisation at middle managerial level. In all cases, this is due to the physical proximity of the call centre to the parent

organisation. The differences in career opportunities within the call centres at Bankco and Finco are due to the spans of control within the already 'flat' operating structures. These findings both contradict and reinforce Castell's (2000) and others' predictions of the erosion of career in the knowledge economy. At the same time, a 'glass ceiling' would appear to remain in place and precludes women from the more strategic managerial positions.

If networking and knowledge management are key skills for the knowledge economy then the data suggest that women are more attracted than men by the opportunity to exercise such skills. However, on the basis of the evidence from research at Bankco and Finco, this does not convert into increased opportunities for women to progress through the organisation, unless the operating model itself is appropriately structured.

The overall conclusion for this chapter is that women are losing out in an important sector of the knowledge economy (call centres) when compared with men. Women do not enjoy equivalent access to certain types of knowledge, are exploited for their possession of particular skills and lack any real career progression. There is, however, one important caveat to this: a management style usually associated with women, is predominating in call centres and this could be due to the gender composition at the team manager level.

Chapter Five explores and analyses another important area where women may or may not be making a difference, that of the design and setting-up of call centres.

Chapter Five

Gendered by Design? Call Centres and the Design Process

Introduction

This chapter explores a further critical dimension to women's relationship with the knowledge economy, by investigating the call centre design process. The key questions for this chapter ask, are call centres gendered by design; are women included or excluded from design networks? Do women have a part in the arranging, ordering, shaping and regulating of call centre design? Do women constitute relevant social groups in the technological design network – who is included and excluded? Do women's experiences as users have any influence within the design process?

Actor network theory (ANT) is drawn upon as a key theoretical framework because as a concept, it traces the design (or innovation) process and in so doing, unravels 'who' or 'what' is included in the design network. The heterogeneous networks of human and non-human actants elucidate how the social and the technical interact in the design process (texts, technological artefacts, human beings and money). Whilst actor network theory is useful in tracing and following this network, the social shaping of technology is adopted to identify the relevant social groups involved in shaping the network and its outcomes.

This chapter will argue that when a gender lens is used, it reveals that the design networks are gendered and hierarchical, in that they are dominated by men, who exercise their power through their positions in senior management. This chapter

integrates key elements of actor network theory and the social shaping of technology. According to actor network theorists, 'successful' innovations (designs) involve the construction of durable links which bring together human and non-human actants. This chapter unpacks the design network and thus exposes the gendered relationships therein, revealing gender relations as surviving, unchanged, through successive designs.

The analysis begins by, firstly, exploring the relationship between organisational strategy, design networks and gender. Women are absent from decision making positions in design networks and so do not take part in strategy formulation. The different strategic approaches taken by Finco and Bankco have resulted in the building of diverse networks, where the female user group has been included by the former and excluded by the latter. Women's inclusion at this level may, therefore, be more likely where a clear-cut, formal strategy is absent, as is the case at Finco.

Secondly, the design network is analysed from conception to the setting up of the case study call centres, from both design and use perspectives. Callon's (1991) intermediaries are drawn upon, as the presence and absence of human and non-human actants are explored. The subsequent inclusion or exclusion of women in the design network at the 'user' level is revealed, as well as the views of (male) designers on the inclusion of (female) user groups in design networks (relevant social groups). Finally, the user perspective is analysed by establishing how their experiences of the current working environment impact upon the environment created through these design networks, it emerging that the presence of women's tacit knowledge in these networks results in a more positive outcome and experience for the user. It is argued that male designers are therefore making a fundamental mistake in excluding women from the

design process. The chapter takes an historical and contemporary perspective on the design and setting up of the case study call centres and in so doing, locates gender within different times and places in the design process.

Gender

Gender is defined as the social relations between men and women (masculinity and femininity). This definition distances gender from the biological category of 'sex' and gender, in the context of this research, is used as an analytic category (Hawksworth 1997) to explore the power relationships that operate between men and women in knowledge-type organisations because, 'gender is a primary way of signifying relationships of power' (Scott 1986: 1067). A 'top-down', hierarchical and male-dominated form of power is relevant within the context of design networks where those holding the 'power' (men) exclude women. The numbers of women involved in design networks (e.g. critical mass) is important, as women within call centres constitute an untapped resource of tacit knowledge. If the design outcome is found to be more favourable due to women's involvement, does this mean that difference is valued? If so, by whom; the designer or user populations?

Strategy, Design Networks and Gender

It is relevant to consider the connection between organisational strategies, design networks and gender because the presence or absence of a male-defined organisational strategy, will impact upon the outcome of design networks and the extent to which these are gendered. The presence or absence of a clear organisational strategy has

implications for women (e.g. whether or not they are drawn into the design network as users of the working environment) and the likelihood of the presence of female knowledge in that design network.

Senior managers at Finco and Bankco emerge as relevant social groups and hold different views about the relevance of a planned organisational strategy for the design and setting up of their call centres. From the beginning, Bankco adopted a well-planned, strategic approach to the setting-up of these, whilst Finco's approach was more informal and less strategic. Has this led to differences in the design of call centres? Does strategy impact on design? Does strategy impact on gender relations? In other words, does a well planned strategy result in a successful design network in which women are included?

Organisational strategy can be defined in broadly two ways – as a plan or as a system of management (Brown 1998: 208). Strategy as a plan is:

...a plan for interacting with the competitive environment in order to achieve organisational goals. Such plans are generally characterised as formal, explicit, devised by senior executives, long-termist and having a significant effect on how the organisation behaves in its environment

This definition derives from military strategy. On the other hand, strategy as a system of management is:

...less structured and more informal and implicit in its formulation. The idea here is that strategy is something intrinsic to the process of leading and managing. Rather than being a set plan, strategy is a set of principles or heuristics for managing that are encoded in a system of management and which allow for considerable flexibility and adaptability in dealing with the exigencies of a changing environment

Most organisations appear to have an identifiable strategy both in the sense of a plan and a system of management (Brown 1998). Senior managers decide upon which technology to adopt, how it is introduced and used, what products are to be manufactured and in which markets they are to be sold (Buchanan and Huczynski 1991: 419). As women are under-represented in senior management positions generally (e.g. Davidson and Burke 2000; Wirth 2001) this means that women are excluded from the decision making process within which strategy is formulated.

Finco

Finco conforms to the 'strategy as a system of management' definition as there was no strategic master plan to set up the call centres, as they developed as part of a drive towards greater efficiency and improved customer service. This is the stage at which the design network begins to unfold and the decision making at this formative stage is revealed as gendered, with women being absent from it. How did the network evolve from the perspective of those who were involved (i.e. men)? That the design of the call centres was not a logically planned, strategic process was made clear by the director responsible for designing the call centres:

Rather than some strategic master plan to provide a wonderful service and a sales opportunity, it was borne out of necessity and a drive towards efficiency (Director, Parent Organisation, Finco)

This necessity derived from an increase in the growing number of customers demanding increased access to the organisation via telephone, against the backdrop of the emerging call centre phenomenon. Discussions at Board level within the parent

organisation culminated in a decision that a call centre was needed 'in some shape or form' to address customer demands and direct competition from competitors (such as First Direct). The initial decision making network involved the main Board and the director responsible for central services. Direct competitors were next to be drawn into the network as part of a benchmarking exercise, involving visits to their call centres. The result of this benchmarking exercise was the decision to set-up a 'mini' call centre, employing around fifty people. This was viewed by the director and the rest of the Board as 'the embryo of something a lot bigger'. Consequently, a network emerged at Finco that included customers, the Board, the external business environment and direct competitors. However, women were absent from this initial stage of the process.

Once set up and running, the call centre expanded rapidly, its importance growing within the organisation, the main emphasis being on customer service. Eventually, with two hundred employees employed at an off-site call centre, the vast majority of whom were women, the decision was taken to move the call centre to the head office location. This decision was taken after consultation with outside consultants who had advised about possible locations for a larger call centre operation in Glasgow and the North East of England. The Board wished to keep its Southern base:

The general view was that we are southern based, southern biased and we would much rather...we would find it easier to manage within our home environment rather than a divorced environment (Director, Parent Organisation, Finco)

Finco employees and outside consultants were involved in the network but not as decision makers. At this stage, the property and human resourcing departments became involved in resourcing the design and setting-up of the call centres. The call centres

were set up in existing buildings (to save cost). Several internal and external consultants were involved in this process, once key decisions had been made by the Board. The call centres were not viewed as a replacement for the branch network but as an additional customer contact channel.

A senior manager who was also involved with the initial call centre design gave his reasons as to why the call centre was set up and at the same time, confirmed the lack of strategic focus:

We went from having initially lots of departments who all of a sudden decided, let's have two or three people who answer telephone calls rather than doing the admin, and that's what we did and we set up small help desks and they gradually grew into help desks of ten people, and at some stage, about six/seven years ago, we decided to bring some of those help desks out of the main admin areas and bring them together as one group and that's what we've really got here now is a group of help desks all joined together (Senior Manager, Call Centre, Finco)

In retrospect, the director responsible for setting up the call centre recognised the need for a strategy:

If time, money and resources had been different, we should have started off with a clear strategy with, we want a large sales and service centre built in a separate area....in a proper environment with experts to manage the service standards, efficiency and the sales targets. That way we would have had more telephone sales and would have been in a better position

This view was also taken by the senior manager:

I'd start with greenfield, I wouldn't bring in lots of help desks together, because you end up with a mess with technology and I think I would work on a different site to the rest of Finco's head office

Finco now has a strategic focus. The current (male) head of call centre, who had been in his role for just over two years at the time of interview, has responsibility for the development, implementation and 'fine tuning' of the call centre strategy. He identified two points of focus within this strategy: the first to pursue web-enablement as part of a general shift to developing a contact centre and the second to manage the call handling strategy across the whole business. This approach has been developed in consultation with a main Board director, responsible for a wider area of the business. Strategy is now much more structured and a clear approach for the use and application of technology in the call centre now exists. For example, one of the major changes the head of call centre has made since arriving at Finco is to change the measurement strategy. The call centre had been what he described as a 'classic call centre' with punitive measures which were very much out of the control of advisers, who were measured on grade of service and monitored with the use of wallboards. As the head of call centre explained, this had an undesired effect:

There is absolutely nothing they [advisers] can do other than perhaps give poor service to the customer they're talking to. They were measured on sort of average call handling time which by the nature of the measure is that we try to get it down as low as we can...so we tried to change

The focus of the new strategy has been to change the basis of measurement to 'talktime', where advisers are now targeted to spend a minimum of 65% of their working day talking to customers:

If they're [advisers] going wrong then the strategy's wrong somewhere, it's nothing to do with advisers. Team managers are probably the glue in the

middle; they've got a good understanding in terms of where I'm going in terms of the strategy and how I want things to be

The strategy is therefore to have 'less technology'. As the head of call centre explained:

When I came in here we were putting in a telephone banking solution which I scrapped, it was an automated telephone banking system, no human intervention at all but we scrapped it. We saved ourselves probably a million pounds a year in maintenance costs and we still have telephone banking where you go through to an adviser you know, if you want to, you say, I want to make a bill payment. We do it but it's done through an adviser. So I hope we stay down that route....on the technology side then, slowly, slowly, slowly

Finco began with a decision at a high level to set up a call centre and this network involved customer demand, the Board, the competitive environment, direct competitors and a main Board director. Finco employees, the property and human resourcing departments and outside consultants were then drawn into the network, as well as a senior executive and employees from the call centre. There was no clear strategy, rather, a series of 'ad hoc' decision making and a 'wait and see' approach. However, since the new head of call centre joined, a more strategic focus to this network has emerged. There was no female involvement at senior level (women being excluded) the decision making network at Finco being gendered.

Bankco

Finco was an example of women being excluded from 'strategy as a system of management' but what about exclusion from 'strategy as a plan? The setting-up of a call centre at Bankco was much more the result of a strategically planned decision making process. The decision to move over into call centre working was made at a

high level (members of the Board) and three remaining members of the original senior management team. Bankco, like Finco, realised that customers were demanding access over the telephone and there was competitive pressure from First Direct. The decision was made to 'do a First Direct' and set up a call centre operation outside of the head office location but within existing Bankco premises. Bankco undertook a major restructuring programme and the then marketing director was examining the strategic positioning of customer service and telephone banking within it:

I guess, as with all strategies, there's either a degree of naivety or hindsight would be wonderful but what we did was build another channel at cost and give it away for nothing, so customer service, if you like, cost us...it was a customer-led strategy and at the time that the strategic programmes were being, sort of going up the echelons to be debated, we started doing lots of research...and a couple of others of us were doing quite a lot of benchmarking and visits to other call centres (Senior Manager, Parent Organisation, Bankco)

The initial network at Bankco was formed as part of a strategy and there were no women involved in this process. The network included all-male members of the Board, the marketing director, three senior managers, customer demand, the competitive environment and direct competitors. Benchmarking was an important part of the strategy:

It was an emerging idea that we might do something. We looked at what was happening in the States, we looked at the UK, we tried to work out what best practice was, we very soon realised that we needed to build something that was of a reasonable size (Senior Manager, Parent Organisation, Bankco)

The measurement of 'best practice' (benchmarking) and competitors from both the USA and UK became an important part of the network.

The development of the call centres was therefore a strategic plan which would involve moving as much work as possible away from the branches (making several hundred branch managers redundant). There were two costlines to the strategy – to set up the call centres and to centralise the work and some lines of savings. The research phase was an important part of the network, this being carried out by an (all male) senior management team at head office:

It was my level doing the research and the analysis and the building up. It wasn't even the business case, it was get the strategy bought into, this is something that we should do and should take seriously (Senior Manager, Parent Organisation, Bankco)

This stage of the strategy involved different intermediaries (texts) such as research, analysis, reports, strategy papers and other important texts.

Stage one of the strategy was to set up a prototype, which was an idea put forward by the marketing director. This was an innovation by Bankco as no other company had set up a prototype call centre for learning. The cost of the prototype was high and it was used as an 'experiment' which allowed senior managers to learn about call centre layout, team size, management structure, functionality, operational management and above all, customer service. Seventy employees were involved and around forty two thousand customers recruited. The experiment lasted for two years and culminated in a further strategy paper being presented to the Board, followed by the opening of a new three hundred seat call centre. A second, similar sized call centre was opened nine months later. This prototype call centre became an important part of the network, along with the employees and customers involved in it.

One of the key criteria for the setting up of the call centres was location. Existing Bankco premises had to be utilised and a small project team was assembled to set the criteria for location, which included clarity of voice, a large employable population at the right salary level and a building that would seat between two hundred and fifty and five hundred employees. Availability of government grants was also an important requirement. Research was carried out by the internal human resourcing department to determine where a sufficiently large pool of labour might be available. Information technology was also an important criteria and business requirements were meticulously set out to ensure optimum systems performance. This was the stage at which a list of ten 'pre-marked' suppliers were brought in, for their expertise. These suppliers were presented with documented requirements that included cost, functionality and a good supplier/client working relationship. This was described by senior managers at Bankco as, 'a tried and tested evaluation process'. A small project team, government grants, the HR department, information technology requirements (which were documented) suppliers and other documents, became a part of the network.

The importance of the prototype was made apparent by one senior manager:

I think the learning was done from the prototype so I'm not saying we got everything right, I mean there will be some things but nothing comes out and smacks me in between the eyes and say, oh my God, we really got that wrong

Unlike Finco, the future strategy at Bankco is to have more technology to deal with the more mundane customer tasks, such as account balances and other simple transactions and to build more complexity into the adviser role:

There's gonna be much more, there will be much more technology and we'll be automating the simple stuff for customers which means that agents won't have to deal with so much mundane kind of activity (Senior Manager, Parent Organisation, Bankco)

At a higher (director) level the future strategy for the call centres was clarified:

The point is that, you know, all the call centres become virtual, they stop being call centres by the way and start being contact centres and then it's about them then adding value because if we can, a lot of our customers are then using the internet or IVR to contact us to deal with their basic transactions...so that's the next challenge, sort of it's saying, how can we automate those skills that they [advisers] need for the next level, sales and service. On the back of that you've also got the need for multimedia call centres (Director, Parent Organisation, Bankco)

A broader network evolved at Bankco compared to Finco, this being due to the presence of a clearly defined and planned strategy. Initial involvement was at a high level – the Board and senior managers – against a backdrop of customer demand, the competitive environment and direct competitors from the USA and the UK. Best practice (benchmarking) was also an important part of the network, as well as a phased strategy of research, reports, papers and texts which culminated in a prototype. Employees and customers were drawn into the network but not at a decision making level. The network was completed with a five-strong project team, government grants, the human resourcing department, information technology, suppliers and further strategy papers and documents.

Bankco began with a clear strategy which resulted in a broader network that involved various people, departments, texts and sources of funding. The decision making process and the networks that built up around this were gendered, as women were not

involved in either business strategy, decision making or the strategic stages of the call centre design and implementation processes.

How important is organisational strategy in the design process and are women involved in this? The presence of a strategy can be linked to the establishment of a much broader network and vice versa, where the strategic focus is missing. Women have been excluded from this stage of network development, at the higher level of decision making, where 'embedded' knowledge is most prevalent. Although the culture for both organisations is associated with 'looking after the customer' (a focus traditionally associated with women) this was conceived and shaped by a group of male decision makers.

The lack of women's involvement in the design network at this level has been established and it is to the user population that we must now turn, to establish whether or not women have been involved in the design network at lower levels in the hierarchy (e.g. at adviser and team manager levels). Has the broader, well defined, male dominated network at Bankco led to the inclusion of female users in the design network? Or does Finco's non-strategic, narrow, male dominated network emerge to include female users?

Design, Use and Gender

Lam (2002) argues that tacit knowledge is the most important knowledge in today's organisations because it is an important resource. In the context of call centres, this knowledge needs to become explicit and collective in order to be of value to the

organisation. Therefore, are knowledge-type organisations drawing upon women's tacit, embodied knowledge?

Designers

Does the male-dominated design network include women at the 'user' level? The user population should be an important source of research and understanding during the design stage of the working environment. To what extent do designers consider users?

Finco

Finco's initial off-site call centre was eventually moved to the head office location because:

After a period of time I realised that (a) we needed more space and (b) we have a different working environment for a call centre, its not an office environment, it's different, it's a younger, more dynamic, bright, gay, environment, so then we decided we'd bring them over to this building which was newer and had the space and all the team could be in one area (Director, Parent Organisation, Finco)

Decisions about the type of furniture to be installed in the new call centre were made in consultation with existing (predominantly female) call centre staff who were asked their preferences:

We had different types of desks set out and the guys and girls tried it out...so it was self-chosen. Two reasons – one, it's a good idea and then we've got some more, some better kit, more up-to-date, better system (Director, Parent organisation, Finco)

This director opted for a 'different' working environment, which included uplighting and a different colour scheme to the rest of the organisation to differentiate the two environments. This, he believed, would help to build a 'different culture' which would draw interest from people within and outside the organisation. Many ideas for the design of the call centre were picked up from visits to competitors' call centres. For example, the team names suspended from the ceiling was one such, the senior manager feeling that this looked 'very professional'. A second, smaller call centre followed shortly afterwards and was set up in the same way.

A senior manager, who was also involved in the setting-up of the head office call centre, confirmed that consultation about the design and setting-up of the call centre had taken place between senior managers and 'users':

We actually involved the staff in everything that we did here really. We got together a group who had decided on what colour pillars we had, they decided about the colours of the banners we had and we rated actually four or five different desks that we brought in and we got them to sit at desks and everyone voted on what desks they wanted and they decided the colour of the seats and the carpets, every single bit, it's been chosen by staff (Senior Manager, Call Centre, Finco)

A consultant who was heavily involved in the design and setting-up of the call centres confirmed that the consultation process had involved senior managers, advisers and team managers (a cross-section of the user group) and that surveys, utilisation studies and reports had played a key role. He confirmed that a consultation process at every level in call centres was important:

It's vital. A lot of it comes back to management style, particularly in large organisations that sort of say, I know better than the people doing the job, I think that still prevails. In most cases, we will try to take a cross-section of the

organisation and the view of the agents is as valid as anyone else's. People just have different needs. Agents have some needs, team managers have some needs and all of these needs have got to be taken on board in some way...if you understand what they need then you minimise a mismatch

Finco's call centres were set-up in existing premises and are recognised by senior managers and employees as a 'different environment'. Decisions on the working environment were made in consultation with call centre staff and from visits to competitors' call centres. Senior managers at Finco believe that the working environment is important, a view that has been put into practice through consultation with user groups. Therefore, users were drawn into the network at Finco, not at a decision making level but rather as a source of knowledge in the decision making process and became the means by which their (tacit) embodied knowledge became explicit. Therefore, Finco's network, which had begun with no strategic focus, involved users and drew upon their tacit knowledge. Although not part of the early decision making, women were involved in the consultation process and played an important role in the arranging, ordering, shaping and regulation of the design outcome at Finco.

Bankco

The working environment is also an important consideration for senior managers at Bankco:

When we build each call centre, the working environment is a prime consideration (Senior Manager, Parent organisation, Bankco)

Bankco tends to work with a set methodology for the design and setting-up of its call centres, which are purchased through a central policy and ordering channel which has been devised and defined by the director's telephony strategy. However, there is a view amongst senior managers at Bankco that the working environment only becomes important in a 'mature' call centre as in a new venture, buildings should be filled gradually, as part of the 'bedding down' process:

Once the place is full and there's your first stage of maturity, I think the agents and the people generally will be saying, well, what's next? Change the environment then. I think the danger would be to put everything in up-front (Senior Manager, Parent Organisation, Bankco)

A direct competitor's call centre was drawn upon as an example of a new call centre that had been designed 'totally over the top' because it contained a swimming pool, creche, shops, palm trees, music and 'smells'. The view at Bankco is that to put these in at the beginning would 'blow people's minds'. Bankco's strategy is therefore to introduce additions gradually:

Contact centres are a bit different I think but I think if you've got all the other fun elements, providing the workplace is acceptable and I've got enough room to do my job, it's clean, it's tidy, it caters for all my sort of standard hygiene needs, then you can very, very easily go over the top, go too far (Senior Manager, Parent Organisation, Bankco)

This view is shared by the only female director, who joined Bankco after the first call centres had been designed and set up:

I don't believe, and indeed if you talk to people honestly, in all the quirks and sillies, you know, nice smells, palm trees, you know, hot and cold running chiropody and things like that. It is actually about a really professional, comfortable, pleasant environment that is a good place to be for the time that

you're at work but for heaven's sake, all the trimmings and so on tend to get in the way (Female Director, Parent Organisation, Bankco)

This female director expresses a similar opinion on the working environment to that of her all-male senior management team. She is a classic example of a token, virtually alone amongst all-male peers and who, according to Kanter (1977) operates at a disadvantage in the organisation. Whether or not this holds in this particular case is unclear, given her elevated position as director. What is clear, however, is her shared view of the working environment.

No 'user' involvement had been mentioned during these interviews. The first mention of this came from a senior manager who, although not party to the design and setting-up of the first two call centres, had been involved in updating one of those call centres and creating the two newest call centres in the group.

He explained how user involvement had occurred at one of the newer call centres:

We set up a small example of a workgroup at...and got half a dozen agents and team managers, proper team managers, from the [old call centres] to come along and say, well, what do you think and the opinion was well, it's very different from what we've got in...and it looks like, it feels a lot better and it looks like it will work but it's really hard to tell and we went from there and picked a supplier (Project Manager, Parent Organisation, Bankco)

Consultation evidently took place *after* the call centre was designed, built and set up.

However, past mistakes in the original two call centres had not been repeated, manifest in particular through the moving away from what this manager described as the 'battery hen' type seating: curved, shaped desks had been installed, with no dividers between them, to allow plenty of contact between advisers:

So it's trying to give them more of a feel that they're working together rather than just another battery hen producing eggs (Project Manager, Parent Organisation, Bankco)

When asked whether the 'user' had become more of an important consideration for Bankco when setting up its newer call centres:

I would say that it wasn't that we didn't think of the user, the agents, at the time but contact centres, call centres were fairly new then and there was little experience to base any decisioning on and the designs tended to be driven more around the, how would we set up if it was an administration building, if people were sat there doing the paperwork, and we put an interpretation onto that of, well, they're not actually going to be doing the paperwork so they don't need as much desk space (Project Manager, Parent Organisation, Bankco)

Bankco recognised that whilst it was important to consult with users, it was equally important to manage the differing expectations within such a diverse group.

The view was that many of these could not be satisfied:

At the end of the day we have to take a view as to which is the way we're gonna do some things and it's never gonna satisfy everybody. But we do it and we are getting involved with the user group, we just didn't have any representation this time round [at a recent user group meeting] (Project Manager, Parent Organisation, Bankco)

Designers at Bankco clearly perceive the working environment as important but there was no consultation process with users. Thus female tacit knowledge remained an untapped resource and played no part in the arranging, ordering, shaping and regulation of the design outcome. Bankco's call centres have been set-up in existing premises with an initial basic design without what they describe as the 'sillies'. Decisions on what the working environment should look like were made without consultation with

call centre staff and when consultation did take place, this was after the call centre had been designed, set-up and furnished. Senior managers at Bankco believe the working environment is important but failed to involve users in any form of consultation process.

The female director, who joined after the two case study call centres were designed and set up, shared the views of her (male) senior managers. At a late stage, when the final call centre in the group was designed and set up, one project manager from the network did acknowledge the importance of user consultation but this was *after* the call centre had been designed.

As it has been established that a consultation process took place at Finco and not at Bankco, it is important to consider the 'user' view (the group of existing team managers) to determine whether user inclusion or exclusion results in a more successful outcome for the designed working environment.

Users

Bankco began with a clear strategy and developed a broad network that did not evolve to include users in the design and setting up of the call centres. This network therefore ends at a high level and is top-down, hierarchical and gendered. In contrast, Finco began without a clear strategy and a much narrower network evolved but this network expanded to include users at the design and setting up stage and their tacit knowledge was encoded into the decision making network.

Has female embodied, tacit knowledge become a defining feature of the design network?

What impact has this had on the team manager population today, a sub-section of the user group? Has Finco's inclusive network led to a satisfactory working environment today? And has Bankco's non-inclusive network led to an unsatisfactory working environment?

The call centres at Bankco and Finco differ in their design and set-up and both are overwhelmingly used by women. The working environment at Bankco's two case study call centres is very traditional, this perhaps reflecting the male-dominated design network and lack of (female) user input. Advisers are seated at booth-style desks, partitioned at the front and sides at head height (when seated) with the front section concaved. The booths are sound-proofed and arranged in rows of six in each section. Hot desking is the norm, each booth having the standard equipment comprising computer, headset and logging-in turret.

The overall décor in the call centre comprises traditional primary colours and wallboards are used to identify the number of customer calls queuing. Team managers are seated away from their teams, within observation distance and occupy a double desk space with low partitions to allow monitoring of activity. Middle and senior level managers are seated around the call centre, the latter away from call activity. The second case study call centre at Bankco was in part identical to Bankco's first call centre, the remainder having been recently refurbished in a different style. The refurbished areas are brightly coloured with booth-style seating with shaped partitions to allow advisers to see one another. The adviser seating arrangements at Bankco

resembled the 'battery hen' layout that has been so widely criticised by commentators on call centres.

Finco's call centres are non-traditional, contemporary and modern, perhaps a reflection of (female) user involvement at the design stage? The first case study call centre is situated at the head office location. Overall, the head office building is impressive, the call centre having a modern, open plan style. It is spacious with white walls, bright lighting and grey, red and blue carpets. The call centre tends to be noisy due to its open plan layout. Desks are curved to allow maximum comfort and equipment comprises a computer, headset and turret. Team names are suspended from the ceiling. Finco's second call centre is smaller and situated in a 1960s-style building, the interior mirroring that of the first call centre.

The specific users in this analysis are the team manager population, predominantly women, of whom the majority are ex-advisers. Team managers were asked how satisfied they were with their working environment overall. At Finco, where the call centres were set up with no clear strategic focus but with the involvement of users, there was a very high satisfaction rating (96%). In comparison, Bankco respondents were less satisfied, but the rating was still quite high (82%) which may be accounted for by the presence of a clear strategy and some prototyping. Overall, men were more satisfied with their working environment than women at Bankco (93% and 75% respectively) the opposite being true at Finco (93% and 100% respectively). Men are equally as satisfied at Bankco and Finco but the women at Finco are far more satisfied than any other group (100%) which could be due to the early consultation process.

As senior managers at Finco had mentioned call centre employees being invited to take part in choosing furniture, such as desks, respondents were asked how satisfied they were with their current workstations. Finco advisers and team managers are seated at curved, open-plan desks (described as ‘curved oblong’) and Bankco advisers and team managers at booths. Respondents were shown different call centre desk designs and asked for their preferences from rows, curved oblong, cross, L-shape, square and circle (see appendix IV).

The most favoured workstation layouts for team managers at Bankco were equally rows (34%) (existing) and circles (34%). The preference rating at Finco was for the existing, curved oblong desk (48%). At Finco, where an initial consultation process was carried out, there was a clear preference for the existing design, whilst at Bankco, where there was no consultation process, the existing layout scored much lower and was not the only preferred choice. Men and women also appear to have different preferences. At Finco, it was men who preferred the existing layout (50%) compared with 44% of women, the majority (56%) opting for the ‘cross’ layout. Although initial consultation did take place, this is not now the preferred choice for women. At Bankco, where no consultation took place, the majority of women preferred the existing layout (42%) the majority of men the ‘circle’ layout (43%).

Given the different decors at Bankco and Finco’s call centres, respondents were asked how satisfied they were with the aesthetic surroundings of the call centres overall. Not surprisingly, respondents were far more satisfied at Finco (91%) than at Bankco (42%). Men are slightly more satisfied than women at both Finco (93% and 89% respectively) and at Bankco (50% and 38% respectively).

There is a high satisfaction rating in terms of the working environment at both Bankco and Finco but this is exceptionally high for women at Finco (100%). Finco also emerges as making the correct choice of furniture, after detailed user consultation, with nearly half of the team managers satisfied with the existing desks. However, women are less satisfied than men.

In terms of décor and aesthetics, Finco team managers clearly have a much higher satisfaction rating than those at Bankco. Again, this demonstrates that the initial consultation process at Finco between decision makers and users was invaluable.

Consultation

The consultation process involves the capturing of embodied knowledge (individual and tacit) and its conversion into encoded knowledge within the overall system (collective and explicit). Tacit knowledge therefore played an important role at Finco in the early stages of the design process and this in turn has led to the creation of a more successful working environment.

It was therefore important to ascertain whether the consultation process had continued at Finco and whether or not a consultation process had evolved at Bankco. Interestingly, 82% of Bankco respondents had been consulted about their working environment, compared to only 48% at Finco. Men and women at Bankco had more or less been consulted equally (86% and 79% respectively) but women were far more likely to have been consulted than men at Finco (67% and 36% respectively). Tacit

knowledge is now therefore less likely to be drawn upon at Finco. However, this type of consultation measures the rate of decay/appropriateness of the designed environment and not the potential solutions.

The most commonly used method of consultation at both Bankco and Finco is questionnaire but this is used far more at Bankco than at Finco (76% and 39% respectively). There are no differences in terms of gender.

Conclusions

Call centres are gendered by design because the design network is dominated by male decision makers, whose knowledge and power dominates the design process. This means that women are excluded from the design of call centres at a decision making level but they do have a part to play in the arranging, ordering, shaping and regulating of call centre design at a 'user' level, where the design network has evolved on an 'ad hoc' rather than on a formal, strategic basis.

The design relationships that evolve as part of the design and decision making network are gendered. Actor network theory is a useful theoretical tool in piecing together the network of designers and decision makers and in bringing to the fore the interaction between the social and the technical in the form of texts, technological artefacts, humans and money (Callon's (1991) intermediaries). The social shaping of technology is valuable for revealing who constitutes the human actants (relevant social groups). Women are excluded from this high-level network which is both hierarchical and gendered, correlating with a 'top-down' model for the distribution of power.

The importance of tacit knowledge in organisations is also demonstrated. Tacit knowledge at Bankco is not drawn upon in the design process and women therefore do not become a part of this network, at either decision or non-decision making levels. The encoding of this knowledge is therefore limited and thus remains tacit and untapped.

It cannot be confirmed whether a critical mass of women at the higher levels of the design network could make a difference to the design outcome because women are absent from decision making positions in the case study parent organisations and call centres. On the other hand, women are over-represented (or form a critical mass) at the 'user' levels (as advisers and team managers) and it could be argued that where women are involved in the design network at these levels, the outcome is more satisfactory for the user population today. It would appear that where women are involved in at least part of the design and setting up process, the outcome is successful and that the more female involvement there is in the network, the more positive and successful the outcome. The drawback in the case study organisations is that women were excluded from the higher level decision making element of the network.

Where two social groups (male-dominated (designer) and female-dominated (user) groups) joined together, the design outcome was successful. However, fundamentally, men dominate the decision making process and have the final decision about whether or not to include (female) users in the design network. It could be hypothesised that if women were involved at the decision making level of the design network, the outcome could be even more favourable.

A link also could be established between decision making and management styles. The transformational management style is associated with involving and encouraging direct reports to transform their own self-interest into the interests of the group (consulting, sharing, encouraging, empowering, influencing); the transactional style as a series of transactions between managers and direct reports, power being exercised through organisational status (instructing, centralising, rewarding only good performance, the encouragement of individual rather than team contribution, controlling and using organisational position). The latter could arguably prevail at senior management level due to men's dominant, numerical representation at this level and lack of consultation with users. If women were present then this management approach could shift towards the transformational style, as has been found at team manager level. It would appear that it is 'masculine' not to consult with users and transformational to do so.

The tracing of the design network has revealed that Finco lacked any kind of strategic focus and a narrow network evolved, which was formed at a high (Board) level because of customer demand and the competitive business environment. As the decision making process evolved, other members of the organisation and outside consultants were drawn into the network. Finally, the network included senior managers and employees from the call centre (advisers and team managers) this latter grouping being predominantly made up of women. Women were thus excluded from the network at the higher, decision making level but drawn into the network in their capacity as users and their tacit knowledge was ultimately incorporated into the design network.

From a contemporary perspective, users at Finco are very highly satisfied with their working environment. The consultation process, which involved drawing upon tacit knowledge and sharing this knowledge through codification, has paid off, especially amongst women. In terms of desk choices, in which users were heavily involved at Finco, just under half of the team managers were satisfied with these, men being more satisfied than women. Finally, the choice of décor, again with user involvement, has a very high satisfaction rating (91%) especially in comparison with Bankco's (42%).

This consultation process has not continued at Finco with only 48% of current team managers having recently been consulted about the working environment (67% of women and 36% of men).

Bankco had much more of a strategic focus and incorporated a much wider network at a higher (Board) level. This network was established due to customer demand and the competitive external environment. Best practice (benchmarking) was an important element of this network at senior managerial level. Bankco's network also incorporated a phased strategy, research, reports, papers, texts and funding, which culminated in a prototype, which in turn drew employees and customers into the network. The network was completed with a project team, government grants, the human resource department, information technology, suppliers and future strategy documents and papers. Women were predominantly involved as employees – a part of the 'experiment' - but not on a consultation basis or part of the decision making network. Bankco failed to draw upon the embodied knowledge held by its user population (advisers and team managers) even though the working environment is viewed by senior managers as being important. There is a set view amongst senior

managers that the working environment should begin with the 'basics' and that this should be built upon at a later date.

From a contemporary perspective, users at Bankco are satisfied with their overall working environment, with men being more satisfied than women. However, this satisfaction decreases when specific areas of the working environment are explored. The original choice of desks has meant that only one third of Bankco team managers are satisfied with the current set-up, women expressing the strongest preference for this. In terms of décor, there is a low satisfaction rating at Bankco when compared with Finco (42% and 91% respectively). However, the consultation process has evolved at Bankco as 82% of team managers say that they have recently been consulted about their working environment, with men and women equally as likely to be consulted.

It is concluded that women are 'losing out' in the design and setting-up of call centres, being absent at the higher decision making levels at both Bankco or Finco and where they are involved (at Finco) this is at a relatively low level in the organisational structure (adviser and team manager levels).

The presence of a clear strategy from the outset has not culminated in women's inclusion in the decision making and design networks. A clear strategy (like Bankco's) may mean that the network expands at the top end but this has culminated in the exclusion of user involvement in the design process, leaving the network incomplete. In the case of Finco, where there was no clear strategy, a narrower, tighter network evolved, which eventually included the overwhelmingly female user population. A

clear strategy would therefore appear to militate against user involvement in these case study organisations.

This chapter has integrated elements of actor network theory with the social shaping of technology (non-human actants and relevant social groups) and has concluded that women, in the context of the design and setting up of call centres, are generally losing out in the knowledge economy but that where they are involved, even at a lower non-decision making level, the outcome is more successful. The greater satisfaction with the working environment appears to be higher when female tacit (user) knowledge becomes encoded and distributed amongst the network.

Chapters Six and Seven explore women's relationship with technology in the knowledge economy by analysing the relationship between the 'social' and the 'technical'.

Chapter Six

Technological Design in Call Centres

Introduction

This and the following chapter investigate women's relationship with technology in the knowledge economy. The extent of women's involvement as designers and users in design networks is analysed through examination of the formation of hybridised networks of social (human beings) and technical (texts and technological artefacts) actants. Are women involved in the design of the information technology revolution? Is technology gendered? The chapters take a 'behind the scenes' perspective on technological design in the knowledge economy, the central question being, is the design process in the knowledge economy gendered? If it is, what is the outcome for women?

An analysis of technological frameworks in the knowledge economy contributes to the debates on technology and gender, the social shaping of technology and more complex theories that identify with the human and non-human actants involved in design (actor network theory). It is argued that decisions made by social actors cause technological change – technologies contain certain 'scripts' that reveal a gendered pattern (genderscripts). The social and the technical are not ontologically distinct entities but are rather defined as 'phases of the same essential action' (Latour 1988, 1991, 1993, 2000). However, the social and the technical appear to conflict with each other. Can actor network theory account for this?

Call centre technology is socially shaped to create and/or maintain particular social relationships in the workplace and actor network theory helps to unravel the complex network of actants in this process. According to actor network theorists, 'successful' technological innovations involve the construction of durable links that tie together human and non-human actants. Who and what are the actants and how successful is the design of call centre technology? On whose terms? The social shaping of technology identifies relevant social groups and how an artefact contains different meanings for different people (the interpretive flexibility of the technology).

This chapter begins with the mapping of the design of the technological framework (design networks) by establishing who and what gets to take part in the design of call centre technologies. It identifies the social actors who define these technologies (male designers) and thereby exposes this as a gendered process where women are losing out. Social actors are also identified as those who possess power in design networks through their responsibility for the circulation of non-human actants, such as texts and technological artefacts.

The analysis explores the issues of design and use of call centre technologies from a male (designer) perspective and what this means for women. This analysis reveals that the predominantly female 'user' groups of call centre technologies are excluded from the design network, even though they possess important sources of tacit knowledge that could inform it. The subsequent tensions that arise in actor network theory because of women's exclusion are then discussed. The chapter concludes that the technological design network in call centres is gendered because women are excluded from the decision making element of it and are not generally invited to share their operating

experiences, despite being the primary users. Call centre technology emerges from this analysis as 'masculine' as containing a genderscript, with technological design exposed as a tool used by men to exclude women (Cockburn 1983; 1992; 1999a; 1999b). Preferences for different technologies are found to be shaped by a set of social arrangements that reflect men's power in wider society (Wajcman 1991a) and innovators' preferences for certain technologies (I-methodology). The knowledge economy is a further example of another work arena in which men, as designers, are consolidating their positions.

Heterogeneous Networks

The first section of this analysis follows the formation of the technological design framework (design networks) by identifying who and what gets to take part in this network. The design network is gendered (male dominated) and this immediately creates a hierarchical structure within it. Furthermore, the relationship between human and non-human actants is inequitable, in that decision making by male social actors sets the non-human aspects of the design network into circulation. Each case study is discussed in turn, as each has taken a different approach to the design of the technological framework.

Finco

The technological design process is gendered at Finco, in that it is dominated by a group of male senior managers. The ultimate decision makers are the Board of directors, in conjunction with the director who has overall responsibility for the call

centres. The Board base their decisions on texts (reports, briefing papers, costings, etc.) that act as intermediaries that are circulated by social actors in the various head office departments involved in the design network. The technology department (which is headed by a male senior manager) is an important part of the network, working closely with several departments and groups, including the purchasing department, where funding (and thus money as an intermediary) is an important consideration and often the 'bottom line' in the decision making process. The technology department liaises closely with the usability centre, where new technology is 'tested' on customers (both male and female) and this is the point at which women make a contribution to the network, as customers of Finco.

This is also the stage at which, to a much lesser extent, a small number of the user group (employees at adviser and team manager levels) become involved in usability trials but this occurs only after the technology has been designed and set up and is ready for testing. A project team is involved in the decision making element of this network, which straddles responsibility between senior managers in the parent organisation and the call centres. Its brief is to work on specific projects involving the introduction of new technologies. Overall, this design network is hierarchical and gendered but retains the appearance of a network due to the interrelationships between different social actors and the role of texts, technology and money as intermediaries.

At the level of the call centre, the network extends to senior call centre managers who work closely with senior managers in the parent organisation, acting within the guidelines set down by the latter. In turn, senior call centre managers consult with their middle managers, the former formulating the technology strategy and the latter merely

implementing it, this whole process sitting within and being a function of the organisational strategy that is set by senior managers in the parent organisation.

The greatest amount of consultation at the level of the call centres takes place between senior managers and the management information, support and project staff. These staff, who are responsible for the measurement of advisers and the production of statistical performance measurements, play a key role in decision making, acting in an advisory capacity. Finally, team managers and advisers (the main user groups) are the least likely groups to be consulted about new technologies. It would appear that these are only consulted at the 'interface' or implementation stage, when a system has already been designed and built. Consequently, a hierarchy of decision making involving Board members, the technology and purchasing departments, senior management in the call centre, support and management information staff, project staff, team managers and advisers has evolved. Fundamentally, the further down the hierarchy, the less involvement there is in decision making and consultation (see Appendix V).

The (male) designer/(female) user dichotomy prevails in this technological design process, with the greatest amount of consultation and key decision making taking place at the top of the hierarchy, which is male dominated. Project teams are positioned to liaise and co-ordinate between the parent organisation and senior call centre management, the power of the latter being more limited than is immediately apparent, when the hierarchy overall is examined. In the context of the call centre, senior managers dominate the decision making process, the users of technology (team managers and advisers) having little power to decide and only a limited opportunity to

influence (through consultation). The higher up the position in the hierarchy, the closer social actors are to the decision making stage and the further away from the use (experience) of technology. The lower down the hierarchy, the further removed social actors are from the technology decision making process and the nearer they are to its deployment, use and application. Clearly, different social actors have different types of involvement, depending upon their position in the organisation and thus will hold different interpretations of the technology, prompting the need to define design networks in the context of hierarchies.

Numerical representation by gender within the key decision making group (at senior management levels) is a material consideration. At Finco, women are not represented at this level in the hierarchy; at Bankco, there is a 'token' woman, who joined the organisation after the case study call centres were designed and set up. If women had been involved at these levels, would this design network have been more inclusive of the user population? In the context of the call centres, the senior management team is again all-male.

At the level where women (and users) predominate (adviser and team manager) there is even less opportunity to be involved and as a consequence, they are not able to make a difference in the design network. It is hypothesised that if women were to be represented at senior managerial levels, their presence would make a difference. Numerical dominance is of little benefit if it occurs at the level within the hierarchy where there is no power to decide or influence. However, it is not possible to test this hypothesis in this work because women are absent from senior managerial positions.

Bankco

The technological design framework is also gendered at Bankco (male dominated). Like Finco, the all-male Board of directors initially responsible for the call centre project was the ultimate decision maker but a female director with overall responsibility for the centre operations has since been appointed. The male director responsible for the telephony strategy is next in the chain of decision making, this collective grouping together, cascading their requirements to the all-male executives/heads of department running the call centres. This link between the director and executives afforded two-way communication, it was not just a channel for top-down initiatives. The executive/heads of department group 'feeds down' its requirements to senior management in the call centre, the head of call centre constituting the link into decision making as he sits on the Executive Committee at Head Office. The executive/heads of department group also liaise and co-ordinate with the technology department based in the parent organisation, as well as external suppliers. Pivotal decision making rests with this group, as it is responsible for the formation of call centre projects and the appointment of project leaders to deliver those projects. Project leaders appoint sub-groups of senior managers in the call centres and some 'experts' in the particular area from within the organisation. In turn, the sub-groups of senior managers/experts will set up user groups, which are usually dominated by middle managers. At the bottom of the hierarchy are the operational team managers and advisers, who are generally the last to be consulted, if at all.

It became evident from interviews with senior managers in the parent organisation that the greatest amount of consultation takes place between key directors and the

executive/'heads of' group, the head of call centre being involved, as he sits on the Executive Committee. Team managers and advisers are the least likely groups to be consulted about new technologies, even though they represent the main user population. When they are consulted, it is usually at 'interface' or implementation stage, when the system has already been designed and is ready for use.

There is a hierarchy of decision making at Bankco which involves Board members, a (female) director, a strategy director, the executive/heads of department, project leaders, senior managers, the head of call centre, the IT department, suppliers, call centre senior management sub-groups, experts, user groups and, to a much lesser extent, team managers and advisers. The further down this hierarchy one goes, the less involvement there is in decision making and consultation (see Appendix VI).

The (male) designer/(female) user dichotomy is evident in the context of technological design in Bankco's call centres. The highest amount of consultation and decision making takes place at the top of the hierarchy, which is male dominated. Project teams are put in place to liaise and co-ordinate between the parent organisation and senior call centre management. Although powerful in terms of decision making about new technologies in the call centre itself, this power becomes more limited for these senior managers when the hierarchy overall is examined. Even in the call centre itself, senior managers dominate the decision making process and users of technology (team managers and advisers) have very little power to decide and little opportunity to express their views. The higher up the hierarchy, the closer the actors are to the decision making stage and the further away they are from the use of technology. The lower down the hierarchy, the further removed actors are from the decision making

process and the nearer they are to the operating stage of the technology. Different actors will therefore have very different types of involvement in the design process, depending upon their position in the organisational hierarchy.

Numerical representation for women is also an important consideration at Bankco. The technological design network is dominated by a male group, although a token woman director is now involved at this level. From interviews with her senior managers, it became evident that she works closely with her all-male team of senior managers and generally, takes up their recommendations. Within the call centre, the numerical split between male and female senior managers is more even. This group is consulted by the head of call centre but the real decision making takes place within the parent organisation. This is the highest level in the hierarchy at which women are well represented (apart from the token director) and they have no decision making power.

The groups below senior managers (middle managers, team managers and advisers) are numerically dominated by women but these are the least involved and consulted in decisions made about new technologies. These groups are therefore not in a position to make a difference to the design network, even though they are well represented numerically. Again, it is hypothesised that were women to be represented at senior management levels, then it may well make a difference to design outcomes. It is not just numerical representation but numerical representation plus power that makes a difference. However, it is not possible to test this hypothesis because women are absent from senior managerial positions.

Overall, the design and use of call centre technologies in the case study call centres is gendered. Women are excluded from this important decision making network and therefore excluded from the information technology revolution. Call centre technology is masculine in design and a tool for men to exclude women and this may well reflect men's power in wider society. Gender relations are being reproduced in the workplace through technological design and men are consolidating their positions. The gender-technology relation therefore involves the production of hierarchies within networks.

What of the non-human actants involved in the design network? Using the language of 'networks' closely links this research to actor network theory (ANT). The most important non-human actant is, of course, call centre technology itself (a product of the information technology revolution). This information technology affects (but does not necessarily cause) the decision making process and Latour's concepts of 'substitution' and 'association' (a human being replaced by a non-human and vice versa) are relevant here. Senior managers in the parent organisations regularly make decisions around the capability of the available call centre technology, where money as an intermediary is a significant constraint.

The evolving strategies at Bankco and Finco have been outlined in Chapter Five (Finco's strategy is to have less and Bankco's to have more technology) and this affects the relationship between the social and the technical. For example, if the organisational strategy is to spend more time 'looking after customers', then the technology strategy is to have less technology and for employees to spend more time talking to customers (Finco). Conversely, if the organisational strategy is to automate more tasks (account balances, bill payments, etc.) thus leaving advisers to deal with more complex issues,

then the technology strategy is to have more technology (Bankco). In the former, humans 'substitute' non-humans (e.g. technology) and in the latter, non-humans 'substitute' humans. Associations and substitutions therefore change depending on organisational strategies.

Do social actants hold power over technology, in that the ultimate decision making is a social one? Or does technology hold power over the social decision making process, in that the type of technology available will determine decisions? It is a fusion of these two perspectives, with social decisions being made in the context of technological decisions and vice versa. However, this relationship may not be equal as the design and decision making processes are gendered. How can actor network theorists account for this?

A relationship of power does exist because the design network is gendered, hierarchical and operates on the principle of top-down power. However, Latour's point that society and technology are not ontologically distinct holds because the designers of technology are interlinked with technology and vice versa. In adopting the use of actor network theory, it is evident that designers of call centre technologies are 'heterogeneous engineers' who work not in isolation from one another but as part of a heterogeneous network that involves both human and non-human actants. Intermediaries form an important aspect of this network.

Technology interacts with the social and 'things' draw actors into relationships with one another (Callon 1991). To examine the relationship between designers and users is also to examine the 'things' or 'intermediaries' that pass between them. In the context

of technological design in call centres, these intermediaries emerge as: (1) texts (reports, strategy papers, briefing papers, compliance papers, credit and audit requirements, process maps, documents, etc.); (2) technical artefacts (the information technology revolution generally and call centre technology specifically); (3) human beings (human actants' knowledge, skills and expertise); and (4) money in the context of purchasing power (cost and funding). Callon defines an actor as, 'any entity able to associate texts, humans, non-humans and money (1991: 140). Why do we need actors? To act as 'authors'. However, there is one important aspect missing: as technological design and decision making is gendered, these intermediaries must also be gendered.

Design and Use: a Male Designers' Perspective

It has been established that women are not involved in design networks at a decision making level. Are women involved at any other levels, e.g. as users of call centre technologies? Do users constitute a relevant social group in the design of technologies? Analysis of the consultation process between male designers and female users reveals how women's tacit knowledge remains an untapped resource in the technological design network. This section exposes the male perspective on technological design (the I-methodology) men's views on whether or not the (predominantly female) user group should be included in the technological design process and the reality of whether or not women's tacit knowledge has been drawn upon through a consultation process. The view of women (as users of technologies) is discussed in Chapter 7.

Finco

The (male) director responsible for the setting up of the call centres confirmed that some consultation had taken place with user groups when the call centre moved to the head office location and a new system was to be installed. Users were asked how the existing system might be improved:

Yes. We asked them [advisers and team managers] what they needed and what was coming out was, we don't want to go in and out of screens, there's too much screen navigation, so we tried to get better technology to avoid going in and out of one system...

These views were taken into account by senior managers, although the design requirements had already been specified by senior managers who had drawn upon the expertise of several outside suppliers of call centre technologies. However, as one senior executive in the call centre commented:

It's not a great system, at the time it was going to be, it was something that was in development...and so we wanted something new and we worked on this with people from [company] to develop a really fantastic automatic call distributor (ACD) that was the best and as it turned out, it probably wasn't the right decision and we've been living with that for the last four or five years (Senior Manager, Call Centre, Finco)

It is clear that although users were asked their view on the existing technology, requirements had already been set out by senior managers, in consultation with outside experts.

Finco was in the process of buying a new ACD from an alternative company at the time of fieldwork in 2001. Senior call centre managers confirmed the hierarchy in this

particular decision in the design network. The technology department had the final say about the type of system to be used, the purchasing department about the pricing of this system and these two departments represent two important decision makers in the design network. As one senior manager in the call centre explained:

So, actually, in terms of decisions, we've had to influence rather than have the last call...it's a large organisation so we'll have different bits of the business that makes certain decisions (Senior Manager, Call Centre, Finco)

To what extent had advisers and team managers been involved in the design of the new ACD, given that they constitute the main users?

In terms of agents, probably minimal. In terms of team managers and senior managers, they will get involved in actually just having a look at some of the options and putting their views through me and the head of call centre and the final decision will probably come down to us deciding which one we're going to go with (Senior Manager, Call Centre, Finco)

The decision making process thus involves a final decision by senior call centre managers, usually based on advice from outside experts, who then put their requests forward into a wider network of key departments and decision makers within the parent organisation.

There had been some involvement of team managers: two had visited a call centre that had recently installed a new ACD system and a few team managers had attended a conference where several different types of ACD were on display. Their comments and feedback are taken into account but:

In that type of decision, they probably won't get heavily involved (Senior Manager, Call Centre, Finco)

Adviser and team manager input into the technological design network is not perceived as an important consideration for senior managers. This senior manager viewed users as not really being affected by the system, as their concerns were considered to be with the management of calls and the customer interface. This is surprising given that the ACD is the key piece of technology used in any call centre operation.

The head of call centre confirmed that Finco had set up a usability centre earlier that year (2001). This had not been previously mentioned by any other interviewees:

There is, yes, we have a usability lab which is exactly what it says it is, and where we're going to get the members of staff, members of the public (Head of Call Centre, Finco)

The new IVR system that had been mentioned earlier was currently going through the 'lab'. New screens for telephone banking had been tested by advisers and over twenty changes had emerged from this piloting exercise and according to the head of call centre, all had been implemented. He offered an example of one of these changes:

Well, a good example, there was two boxes, one where it asks the customer for the second digit of the pass number and the fifth digit, so it's a random number. Once you put the first number in it didn't automatically tab down so you had to tab but you know, they said, why not just tab down. So, it's little things like that which make a massive difference (Head of Call Centre, Finco)

At this late stage in the technology development process, this hardly constitutes user involvement, the input from advisers being restricted to commenting upon interface issues and not matters of fundamental design. Users are consulted about 'simple' and practical functions, once the technology has been designed, set up and tested.

The head of call centre explained how consultation occurred at the design stage and at what stage usability trials might be held. In the example of the new IVR, the management team would decide a new IVR was needed and appoint a project manager from the project design and management side of the business (in the parent organisation) and all parties would discuss requirements and needs. This would be signed off by higher sponsors (e.g. Board members). At the early stages there would be working groups of advisers whose views would be taken into account. The team managers would be updated at quarterly briefings where the head of call centre would offer a case study of his vision of what the call centre would look like in twelve month's time. Team managers would be asked for comments at this stage in the process.

A senior manager confirmed that there were no examples to draw upon where the introduction of new technologies had involved the entire user population:

We'd keep them informed but we certainly wouldn't involve everybody, no
(Head of Call Centre, Finco)

As the technology department plays a pivotal role in the design network, it was important to find out the views of a key decision maker, the head of technology. He had previously been seconded as head of call centre for a year and had worked in IT for twenty years. He explained that every major development goes through the usability lab – an off-site centre where people (customers) go along and offer feedback on the technology. He explained that the technology tested in the usability centre went 'live' once it had achieved an 80% customer satisfaction rating.

Had users of this technology in the call centres been involved in these trials?

No, customers, we have had staff but it's mainly customers or not even necessarily customers, just internet users, potential customers (Head of Technology, Parent Organisation, Finco)

Generally, the call centre staff are not involved in trials at the 'lab', because:

We find staff are so familiar with our site that they, the results we get from staff are not as good as results we get from strangers (Head of Technology, Parent Organisation, Finco)

However, when discussing the importance of the effect of technology on users, wearing his 'ex-head of call centre hat' his attitude changed:

I was horrified by what I found, three to four hundred staff, the vast majority of whom came into work every day intent on giving excellent service and we, Finco, and we, Technology, put processes and systems in place and tied both their hands behind their backs and prevented them from giving an excellent service and then gave them a beating because we got complaints, you know, it was just horrendous. So I just wish I'd have worked there, before Technology (Head of Technology, Parent Organisation, Finco)

During his time as head of call centre, two major pieces of technology had been introduced – a 'one system for all', which later failed, and the launch of internet banking. The design decisions were made by the technology department, with some informal input from staff, mainly via project groups but no user groups had been set up.

As a technologist running a call centre, he offered his view:

Oh, personally, I found it embarrassing that we'd, we hadn't put more effort into making the lives of our customer-facing staff a bit easier. I mean, the first six months that I was in the call centre I was almost like a hero to the advisers

because I had lots of contacts in Technology and knew how to get things done quickly...I mean, more embarrassing for me was I was previously in a position where I could have helped them but I didn't

The problems referred to were connected with the number of screens (eight) through which advisers had to navigate in order to provide a service for the customer. For example, if a customer calls in to report a stolen credit card, three screens are accessed while the customer is kept on hold.

The majority of team managers interviewed had never been consulted about new technologies. The head of technology's view was that it is very difficult to ask everybody, to get an agreement on what they want a system to look like but that representatives should be involved in the consultation process. His view was that it is not possible to consult with everybody. However, there was recognition of the need for a partnership between the IT Department and the business, generally because, 'sometimes, users don't know what's technically possible'.

Technological design at Finco is gendered. Women are excluded not only numerically from the design and decision making network but also as users of technology, where they are the numerically dominant group but do not emerge as a relevant social group. Women are therefore excluded from the technological revolution of the knowledge economy. Gender relations are produced through the design of technology and men are consolidating their positions. Is this also the case at Bankco?

Bankco

During the period of fieldwork, two new systems were in the pipeline, with launch dates planned for the beginning of 2002. The senior manager responsible for resourcing and performance in the call centres explained how the project for the development and introduction of one of these new systems (used to forecast workflows, how many advisers are needed on the telephone at what times, etc.) operated. A team is put together at head office and the project broken down into three six-month phases. There were four sub-groups to the main working party covering forecasting, resource scheduling, call centre implementation and performance tracking. One senior team manager would be appointed from each site. Lower down the working party, experts would organise and hold four two-day workshops every six months for eighteen months. The combined groups would collectively agree sets of process maps, documents and a common understanding of the impact of these changes.

In terms of new technologies, there was regular contact with suppliers and sub-suppliers, attendance at conferences, networking with other call centres and consultants.

But what of the users of technology, the advisers and the team managers?

Yes, the feed-in for the.....team, the pit [brief] would be for the individuals in the call centres to take soundings of what they want and we'll take soundings of our team and that will be shared (Senior Manager, Parent Organisation, Bankco)

The individuals referred to in the call centres are senior managers, thereby confirming that consultation takes place at a higher management level and not within the adviser (user) population. Information on progress is passed to team manager level via these

managers but on an ad hoc basis. The decision as to which system 'to go with' will involve the review of seven or eight packages, with the decision being made at a senior level.

The team managers interviewed generally felt they were not consulted about new technologies, which was a source of complaint for some. When confronted with this finding, the senior manager claimed that user group meetings were held regularly but this was not referred to by team managers (see Chapter Seven).

A member of the executive group, responsible for performance development and operational support, was also dismissive of the involvement of users in the consultation process:

Well, the reality is that you can't consult with every single agent and team leader. And what you try and do is say, well, I've got another piece of work, you know, introducing new technology, or just a change, let's go and pick up the next half a dozen, so you never get to the end, so there will always be people saying, oh, I wish I was consulted but in reality, if they are, they're just not them. And yes, it's absolutely essential (Senior Manager, Parent Organisation, Bankco)

The (female) director responsible overall for the call centres explained how she thought users should be 'gradually' involved:

...what typically happens is you build whatever the sort of customer/agent interface is going to be and for about the first two years, after that you put that in, the agents don't, I mean, clearly, they're totally involved in building it in the first place and then as they start using it they realise how it could be better, how it could be slicker, what things they actually need on what screens to be as efficient as they can be with the customer...so the slickness of how it all works is one of the things the agents can tell you better than anybody else...so how the technology actually works at the interface is absolutely based on what the users tell us and that's the customers and the agents working together

However, there was no evidence of the 'total involvement' of user groups and this view does not correspond with the male senior management team. She described users as 'integral' because:

The agents are the ones who interface with the customer and the system

When asked whether a consultation process had actually taken place, she replied:

Yes, oh well, they're [the agents] totally involved

A senior manager and his team responsible for new technology products and upgrades, including 'defining everything that an agent does in a call centre', explained that this includes the usability and layout of the screen and the use of call scripting. His view is that you need good, designed systems in a call centre, not just good staff. The process involves liaising with several interested parties as systems have to be compliant, financially secure and capable of meeting credit and audit requirements. The systems also have to be user-friendly:

You know, we don't build all those systems ourselves by any means but we specify them to our IT department and get them to build them to meet our requirements...in parallel with that, we are educating the call centres as to what's about to hit them from a management level down to a team manager level, not necessarily to an agent level because there are far too many of them for us to communicate with (Senior Manager, Parent Organisation, Bankco)

The closest liaison is with the personnel responsible for training users to use the new technologies, the objective being to enable them to develop the appropriate training for the 'release' of new technologies.

The brief for new technology projects clearly comes from the 'top' - strategic projects formulated by the female director, the telephony strategist and the executive team. These are filtered through to marketing and development. The executive will ultimately decide which projects are viable from their experience and knowledge and the decision will take into account many factors, one of which will be funding. Requirements also filter through from the call centres, at a senior management level, the feasibility of these being considered by senior managers at head office.

The existing system used by advisers and team managers went through a selection process seven or eight year's ago. A fully prescriptive system was sought because that was believed to be the way forward at the time (and still perceived to be today). This involved heavy scripting of calls and compliance issues. It was clear from the start that a scripting system was necessary. However, there was very little evidence of any attempt to secure user feedback about the failings of the existing system:

There was very little input really, I suspect, well, call centres didn't even exist in those days (Senior Manager, Parent Organisation, Bankco)

However, the 'live' experiment outlined in the previous chapter was up and running at this time.

The new desktop due be introduced in 2002 had involved this team of senior managers reviewing what was available in conjunction with the IT department, the requirement being one that could apply across all six call centres. This senior manger sat on the selection panel and his view as to which system to go with was accepted by the femaie director:

I recommended to [director] three, four months ago that this particular product...was the best to meet our needs for the future and [director] said, thank you very much, I accept that, she accepts my view on it and we didn't involve anybody from the call centres because, basically, they don't know, you know, that's our field of expertise and knowledge (Senior Manager, Parent Organisation, Bankco)

Not involving anybody else in the call centres means that the users of this technology were not consulted, even though they are the ones that have to interface with the systems and customers.

Was this because the design was still in its early stages?

Well, absolutely, you know, when we do screen design, I have to be brutally honest, we know better than the call centres what is required (Senior Manager, Parent Organisation, Bankco)

Users are occasionally consulted at the prototype stage, once thoughts are put down on paper. However:

Occasionally we get some useful input, it doesn't happen very often (Senior Manager, Parent Organisation, Bankco)

Was this because he didn't perceive users to have the expertise?

Yes, the expertise is here, that's the sort of value we add, otherwise all we'd be is authors, yes, and that's not what we are, we add the value, you know, we are experts about process design, call centre implementations and you know, the people, the people managers in the call centres are not (Senior Manager, Parent Organisation, Bankco)

This is a classic example of the view senior managers have of the predominantly female user population. Some user groups had been set up in the past but these had now fallen by the wayside during the last six months. Ironically, this was due to the introduction of the new desktop, as no time could be made available for user groups. Potentially, this could have been the stage at which users could have influenced the design of the new technology, had consultation taken place.

When user groups had been held in the past, this had involved talking to middle and team managers in the call centres, the general purpose of these meetings being to *inform* users of what was happening:

Now, we paint the picture that we're going to get their ideas and to consult them, etc., and there's an element of that, the main things are getting them used to the ideas that are coming up because we don't get very good feedback, we get some things, silly's the wrong word to use though, it really is the wrong word to use, but some, you know, they're just uninformed, they don't understand compliance (Senior Manager, Parent Organisation, Bankco)

The user meetings were abandoned by this senior manager and his team because staff involved from the call centres (middle managers) were not feeding the information down to peers and direct reports. This was identified as a communication problem due

to the size of the operation which, it is claimed, is not resourced to get the message out to all users, despite having state-of-the-art information technologies at its fingertips.

A user group would be a regular monthly meeting where we would discuss everything and we wouldn't go into an infinite amount of detail...a high-level one to two-hour meeting to explain the schedule, the plan...it's more of a communication tool than a feedback loop (Senior Manager, Parent Organisation, Bankco)

User groups are therefore used to pass on information and this senior manager held a particular view about adviser involvement:

The agents, the agents are quite happy to sit there. They don't really give a monkey's if we're going to deliver [new desktop]...later on this year. What they need to know is when it's coming along (Senior Manager, Parent Organisation, Bankco)

In terms of the middle and team manager roles, he held a particular view about this:

...and that's what they're employed to do there and they have enough trouble doing that without taking on other people's roles (Senior Manager, Parent Organisation, Bankco)

A more senior member of this team, responsible for the systems, processes and technology, described himself and his team as 'users of the IT group'. His responsibilities cover business development, process design, call flow, the call centre agents (how they interface with the technology) voice systems and internet banking. He is also responsible for a team of senior managers at head office, business analysts, programmers and support and IT staff in the call centres, who act as the 'interface' between IT and the call centres.

This senior manager controls all on-going IT projects and is responsible for processes, funding, ensuring the business case is met, briefing and training:

If it's not a person in the call centre, it belongs to me (Senior Manager, Parent Organisation, Bankco)

This senior manager perceives the user population to comprise two groups - the customer (who he refers to as the 'real' user) and the advisers (staff who use the systems) the latter having formal feedback loops (user groups and a formal staff suggestion schemes) for their input. The ideas are fed back to this senior manager's team who decide whether or not they are feasible. This senior manager's view of technology is that:

The idea of technology is to allow the call to progress at the natural pace between human beings (Senior Manager, Parent Organisation, Bankco)

At the time of fieldwork (2002) this senior manager revealed that several projects were underway: the new desktop (discussed above) email automation, sales through service on voice response, self-help on the internet banking site and digital interactive TV.

At what stage would users become involved in any of these projects in the call centres?

We brief people in the call centres when we're ready to brief them (Senior Manager, Parent Organisation, Bankco)

Before any briefings, a series of structured management meetings, executive team meetings, operation planning meetings and a project and programme meeting would be held amongst the senior management teams. Consequently, decisions are quite concrete

by the time the call centres are informed of any changes. Information is often printed in the quarterly magazine that is circulated throughout the business and reviews are issued which outline the following year's plans:

My own personal view is, that's enough, yes, that's just my view and that's enough and we shouldn't say anything to people in the call centres because unless we've got something to say, you know, their job is to answer the 'phone and to do what the system tells them, yes, and keeping them as informed as much as we can, yes, at the end of the day, yes, actually to be honest, their opinion about whether we migrate is as irrelevant as mine (Senior Manger, Parent Organisation, Bankco)

However, this senior manager does concede that communication is a problem:

We're not very good at communicating some stuff to them because we all have the same opinion that we don't say anything unless we've got something to say, yes, but we're working on, we need to work on that, yes, and the staff have said, we could do with knowing a bit more generally so we work on that (Senior Manager, Parent Organisation, Bankco)

He then attempts to justify his views:

You'll have gathered by now that the reason I don't run all those people is that this nice, soft, touchy-feely stuff is not for me (Senior Manager, Parent Organisation, Bankco)

At the level of the call centres, it emerges that the head of call centre has a different view about consultation with user groups which became clear when he explained how new technologies evolved from the perspective of the call centre. Firstly, a 'technology wish list' is sent to head office around the middle of each year and personnel at head office put together a project portfolio, which then goes to the Executive. Projects are listed in terms of high priority (which is defined by the Executive and female director) down to important and then non-essential. What has the biggest customer impact and

produces the most in terms of operational efficiency is prioritised. Bids are then submitted to IT who will look at the total capital and revenue spend before the 'pruning exercise' begins. Priorities are compliance/audit, what the individual senior managers want, call centre and head office priorities and then other competing priorities.

The Head of Call Centre sits on the Executive and is therefore part of the decision making process:

Rather than things being done unto us, we're part of the decision making process...we have an opportunity to input to the debate and fight our corner (Head of Call Centre, Bankco)

Referring to the new desktop due to be introduced in 2002 and usability:

The [team from the usability centre] have been here in the last few weeks interviewing agents to say, if you could start with a blank sheet of paper what would you do and how would you do it? And what are the things that you would really like to see put on your desk, what would make your life easier, what would improve the customer experience, so we're into that stage so we can then go to the suppliers and say, well, okay, this is what you've got, we need it to do these things as well (Head of Call Centre, Bankco)

It is interesting that none of the user groups interviewed mentioned that they had been consulted in this way. He explained that consultation happened in several ways. Advisers are asked for their input into design and groups of advisers are gathered together to put across what he described as their 'moans'. There are also continuous improvement and incentive programmes where suggestions are put forward but these are not often implemented.

There is a different communication channel for team managers who are briefed at the beginning of each year when the business plan is outlined. Occasional team manager lunches are also held where four or five of them sit around the table to air any issues with the head of call centre. Senior managers also periodically hold open forums with team managers to secure their input into the design of systems, as they are expected to exercise more initiative than advisers

The head of call centre's view was that there is extensive involvement of advisers and team managers in a consultation process when new technologies are being designed. However, this was not confirmed by any of the advisers and team managers I interviewed, nor by senior managers at head office.

Tensions in Actor Network Theory: the 'Social' and the 'Technical'

This lack of consultation with the user population means that important tacit knowledge remains an untapped resource that could otherwise be incorporated into the design network, there being a tension between technology and its users, a tension between the technical and the social, specifically for the team manager population. The primary role of a team manager, according to senior managers, is the management of people (80% of their time). In reality, however, team managers also spend a large amount of their time using technology to manage their teams (and monitor target performance) even though middle and senior managers define them as 'people managers'. Team Managers are responsible for the management of approximately ten advisers and work from specific terminals where access is available to statistical data about individual

performance. The role is therefore much more of a mixture of managing performance through technology and people management, than senior managers believe.

There appears to be a *tension* between what senior managers in the parent organisations and call centres perceive the role of a team manager to be and what, in reality, that role actually involves.

Is call centre technology acting as a barrier to the people management role of team managers? Are the social and the technical in tension with one another? Are the managerial strategies (which formulates the decisions made socially about choice of technology) and the actual technology chosen in tension with one another? Are senior managers aware of this tension?

The role of a team manager, according to senior managers in the parent organisations and call centres was described as follows:

- people management;
- team performance management (targets);
- motivating, coaching, training and developing teams;
- achievement of targets;
- liaising between advisers and senior managers in the call centre and parent organisation.

The team manager role is believed to be key and one of the most important in the call centre, this being summed up by a senior manager in Finco's call centre:

The role of a team manager is to manage the performance of the people in their teams and to ensure that the service targets that we have are achieved or exceeded. That's where I see them focusing 80% of their time, if not more. Perhaps 10-20% tops might be things outside that, or things that are going to support those achievements. It's the targets, it's the people, developing the people, supporting their achievement, feeding back and coaching...I suppose ultimately they are the tools through which I get the results that I need to deliver...for me the Team Manager role sits somewhere in between team leader and call centre manager, so it has more of a senior edge to it (Senior Manager, Call Centre, Finco)

A senior manager at Bankco held a similar view:

There are probably two main roles. One is to develop and coach their people to better levels of performance and with that comes making them feel happy and making them feel like they belong and that it's a good place to work and the second one is to make sure people are working productively and they tend to share that...but everybody in the group has accepted that there is one role for the team leader, to coach, and workload planner and anything else that sits outside that gets done somewhere else (Senior Manager, Parent Organisation, Bankco)

The team manager role should therefore be focused on the management, coaching, motivation and training of advisers, the objective being to improve the performance of their teams and achieve delivery against the targets set by senior management. As will become apparent in Chapter Seven, team managers spend a large proportion of their time 'managing through technology' which is *not* a face-to-face people management role. A tension therefore exists between what senior managers perceive or wish and the reality as experienced by team managers. If this user population had been consulted about new technologies, these tensions may have been avoided.

Senior managers were then asked how much time, in their experience, team managers spend managing through technology:

I think actually it's wrong to be driven by the technology and I think they [team managers] should use it more as a guide to help support them in their role (Senior Manager, Call Centre, Finco)

This statement is made against the backdrop of senior managers setting punitive measures and targets for advisers and team managers to achieve.

The tension between the people management role and technology used to carry this out, was recognised by one senior manager at Bankco:

The technology for a team leader should just be there in support of that people manager role...I think there is certainly an issue, and it's an issue that we've got, is because you've got so many numbers available and so much technology it's often a lot more visible than perhaps it should be and it's seen as more of a driver than a support (Senior Manager, Parent Organisation, Bankco)

Conclusions

The technological design network in call centres is gendered. Women are excluded from most of the decision making and design networks and are therefore excluded from the information technology revolution of the knowledge economy. Call centre technology is masculine, containing a genderscript that attributes certain actions and responsibilities to the user who, in turn, is not involved in the design network. Gender relations are reproduced in the design of call centre technologies.

Actor network theory has relevance in this context but with significant modifications. Social actors have been found to be important in putting intermediaries into circulation (reports, papers, briefings, costings, etc.) and technology (as an artefact) is always present in the (design) network. Its use is constantly debated, as the concepts of association and substitution pass between social actors who make decisions about whether or not to replace a human with a non-human (technology) and vice versa. To an extent, this depends upon what type of technology is available at what cost and therefore, technological artefacts and sources of funding are important criteria in the decision making process.

It could be argued that the social and the technical do interact in the design network but there is one important caveat: the design network is gendered and hierarchical, where power operates in a 'top-down' way. Consequently, the network and the intermediaries that flow within it, are gendered. The social shaping of technology perspective helps to identify relevant social groups in this network (but also the non-relevant social groups). How can a network be complete without the involvement of the user population, which is again gendered? These users represent an important source of tacit knowledge and provide a useful insight into the hybridisation between humans and non-humans (advisers and call centre technology) in the actor network.

The view of senior managers about the involvement of users in the design process is mixed. Indeed, it is at the discretion of designers and decision makers that users are or are not involved in the design network. Their lack of involvement means that technology develops through the preferences of designers and decision makers (the I-methodology) and a genderscript. When the call centres were first set up, Finco senior

managers believed in the importance of consultation with users but in reality, this added up to 'lip service'. Senior managers do not seem to want to involve users in the design network and this could be attributable to their view of women generally (see Chapter Five on gender stereotyping of women's skills).

Where users are involved, they are usually picked at random and their involvement is both minimal and superficial. During the fieldwork period, several new systems were in the pipeline at both organisations' call centres but there was little evidence of user involvement. As a result, important tacit knowledge remains embodied within the (predominantly female) user population and this important resource is ignored/lost. Senior managers who define, create and implement call centre technologies are particularly dismissive of user involvement despite their commitment and skill in operating these technologies being vital to the delivery of the perceived business benefits.

This lack of consultation has led to a 'tension' between the technical and the social for team managers and finding conceptual ways of dealing with this would constitute a further development. This tension does not appear to be obvious to senior managers, as they broadly define the team manager role as that of people management. However, in reality, the users of call centre technologies are not consulted about its design and as a result, it is acting as a barrier to people management (see Chapter 7 for a thorough discussion of this point).

Women are again found to be 'losing' in the knowledge economy, as they are excluded from the important design and innovation stages of technological development. Call

centre design is masculine and as a result, call centres have become yet another 'patriarchal institution' dominated by men in powerful positions. Technology generally and call centre technology specifically, represents an important part of the patriarchal structure of paid work.

This chapter has synthesised key concepts from actor network theory (human and non-human actants) and also the social shaping of technology (relevant social groups, genderscript and I-methodology). Women, in the context of the information technology revolution in the knowledge economy, are 'losing out'. Chapter Seven takes a closer examination of women's exclusion by engaging with the user population to better understand their relationship with technology (how they experience and interpret call centre technologies) and the further tensions that emerge between the social and the technical (a further development of actor network theory).

Chapter Seven

Technology 'Use' in Call Centres

Introduction

Chapter Six reveals the technological design process as gendered and hierarchical in the context of design networks. The design network harnesses gendered power relationships where (male) designers are strategically placed at the top of the hierarchy, (female) users at the bottom. Latour has described the chain or network of human/non-human actants in the design process as horizontal relations of association and substitution, where a human may have been replaced by a non-human and vice versa. Designers are engaging directly with technological artefacts and by-passing the human (user) element of the design network. Analysis of the case study data suggests that, in the call centre context, this 'network' is gendered, vertical and hierarchical and men emerge as relevant, women as non-relevant social groups. Call centre technologies are designed from a male perspective (I-methodology) and thus contain genderscripts.

This chapter focuses on technology as experienced from a 'user' perspective, this population being gendered in that it represents, in Kanter's terms, a group that is skewed numerically in women's favour. Data on male and female team managers is compared to analyse the relationship of users with technology, which in some cases, is gendered.

There are two central questions that this chapter addresses: how do users of technology in the knowledge economy experience technology – what is their relationship to it and

is this gendered; and to what extent are users involved in the design network. Is this gendered?

Does the team manager population experience technology as enabling; or does technology act as a barrier to people management, thus causing a tension between the 'technical' and the 'social' and exposing an important oversight in this relationship? If this is the case, how can actor network theory account for this? Are users consulted about the introduction of new technologies in call centres? If not, do they accept or contest this? Do women challenge technological design? Are users able to arrange, order, shape and regulate call centre technologies? Although women are now included in the use of technology, what is their relationship to its design? Is call centre technology a manifestation of men's power in the workplace? Does it contain a genderscript? Is call centre technology profoundly gendered? Do women emerge as a non-relevant social group?

The Quality:Quantity Conflict: Tensions in Actor Network Theory

The role of a team manager is covered in some detail in Chapter Four but it is important to reiterate here that it is described by senior managers as having a 'people management' focus. Do team managers define their role in a similar way? Do they consider themselves primarily managers of technology, people, processes, or all three of these?

89% of team managers consider their role to be one of people management and none believe themselves to be managers of 'technology'. Men are slightly more likely than

women to describe their role in this way (93% and 85% respectively). The remainder consider themselves to be managers of both people and technology. Overall, 98% of respondents believe that people skills are the most important skill required to do their job (100% of men and 97% of women).

The team manager position is perceived by senior managers and team managers as a people management role, people skills representing the most important requirement for the job. However, the majority of these 'users' of technology spend between half and two thirds of their working week managing people through technology.

To what extent do team managers actually utilise technology to carry out their day to day responsibilities? This is an especially interesting question in the light of their overwhelming belief that they are managers of people and that people skills are the most important skills required for the job. What interpretations do users have of the technologies?

Team Managers are employed to work thirty seven (often flexible) hours per week but even though they define themselves and are defined by senior managers as 'people managers', 30% spend sixteen to twenty hours and 28% spend between twenty one and twenty five hours per week managing through technology, accounting for almost two thirds of team managers. This means that two thirds of team managers spend between one half and two thirds of the working week managing through technology.

It could be argued that a large majority of non-call centre employees also use technology extensively to carry out their day-to-day jobs (e.g. secretaries, travel agents,

doctors' receptionists, etc.) However, in the context of call centres, team managers use technology to monitor, measure, assess, coach, reward and discipline advisers on a daily basis. This is where the conflict emerges between the quality ('soft' people management skills) and quantity (the 'hard' measurement of targets and performance via information technology) based approaches. Which takes priority and for whom? Are 'hard' measures used at the expense of 'soft' measures? Does this create a tension for team managers? Senior call centre management set quantitative ('hard') targets and so it is assumed that these take priority.

It appears from the research that women spend more time managing through technology than their male colleagues. Although the majority of both men and women spend between 16 and 25 hours of their working week managing through technology, women (39%) are more likely to spend 21-25 hours on this than men (14%). In terms of use, women appear to be engaging with technology in the workplace more than their male colleagues. If the majority of team managers are spending this amount of time using technology to manage people then this does not constitute a people management role. This finding about usage is significant in the context of the main question for this chapter – are team managers consulted about new technologies in the call centres? This question will be addressed later.

82% of team managers believe that the measurement of 'soft' skills should have primacy over the measurement of 'hard' skills, even though it is recognised that these skills are difficult to measure using the information technologies available. Interestingly, given the perception that women are 'soft' skill experts, 20% more men than women believe that 'soft' skills should become more important (93% of men and

73% of women). Although of high importance for both genders, this is more important for men.

58% of team managers said that they would like more face-to-face contact with their teams and in the light of earlier findings, it might be expected that men would be more in favour of this. However, although the majority of both men and women said that they would like more face-to-face contact this was split (61% of women and 54% of men).

Finally, 97% of male and female team managers said that they thought the targets set for their teams were achievable which may reflect that the vast majority of them had previously been employed as advisers and had achieved the targets when in those roles.

How dependent are team managers on technology to perform their managerial role? 87% of team managers said that they are 'dependent' (82% of men and 90% of women) a high positive response rate that almost matches the percentage claiming that their role is one of 'people management'. This would appear to highlight a fundamental contradiction.

In summary, there is general agreement between senior managers and team managers that the role of a team manager is one of people management, requiring the application of 'softer', qualitative ways of managing. However, during an average thirty-seven hour week, between one half and two thirds of a team manager's time is spent managing through technology and this is most prevalent amongst women. A tension is

evident here between the use and application of qualitative ('soft') and quantitative ('hard') management skills.

Further, it was not clear that senior managers were aware of this tension, as this was not a point raised by those interviewed. However, team managers clearly are aware of this because a large majority believe the measurement of 'soft' skills to be more important than those of 'hard' skills. This view was particularly prevalent amongst men. The majority of team managers wished to spend more time having face-to-face contact with their team members, another indicator that technology is hindering the relationship-building that takes place around a people management role. Interestingly, 97% of team managers believe that targets are achievable but this is based on their past experience in the adviser role.

A tension therefore exists between the social and the technical in the call centre context. This is an important finding because actor network theorists claim that the social and the technical hybridise and interact in the design process. This is not the outcome experience of team managers in call centres.

Can this situation be improved by examining the design network and asking whether team managers are involved in the consultation process? In other words, is embodied knowledge, that is tacit and individual, able to become encoded (explicit and collective) to aid the design process and to perhaps overcome the tensions between the social and the technical?

Working with Technology: a Team Manager's Perspective

To better understand the relationship between team managers and technology and their interpretation of technological artefacts, team managers were presented with a list of statements and asked to either agree or disagree:

Technology as an 'enabler'

- *Technology enables me to meet my objectives/targets (statistical performance measurements):*

This question is important given that objectives and targets in call centres are centred around quantitative measurements, for example, grade of service and talk time. 84% of team managers agreed with this statement (82% of men and 85% of women). However, response did vary by case study: 97% of Bankco and 61% of Finco team managers agreed with this statement. This may be due to Bankco's more transactional environment where grade of service means that calls have to be dealt with/managed within certain time parameters. The objective target at Finco focuses on 'talktime', with advisers encouraged to spend 65% of their working day talking to customers, a far more qualitative measure.

A large majority of team managers agreed that the technology they used enabled them to be more efficient (87%) with 89% of men and 85% of women agreeing with this. Agreement was stronger at Bankco (95%) than at Finco (74%). 80% of team managers also agreed that the technology enabled them to be more effective (85% of men and

79% of women). In conclusion, technology is experienced by users as an ‘enabler’, especially by those employed at Bankco.

Technology as restricting

- *Technology restricts personal contact with my team members*

75% of team managers disagreed with this statement (68% of men and 82% of women) women finding the technology less restricting than men. Overall, team managers do not perceive technology as restrictive.

- *Technology restricts personal contact with other team managers*

79% of team managers disagreed with this statement (71% of men and 85% of women) with those at Bankco being far more likely to disagree (87%) when compared with 65% at Finco. Clearly, the majority do not experience technology as restricting relationships with their peer groups. Women generally are most likely to experience it as non-restrictive and Bankco’s team managers are more likely to experience it as non-restrictive, than Finco’s. This could be due to team managers at Bankco often sitting away from their teams and interacting more with peers, whereas Finco team managers tend to sit with their teams.

- *Technology as inflexible*

If call centre technology is designed and introduced by senior managers (decision makers) and is not the result of a consultation process, how inflexible do team managers experience this technology to be? Responses were more evenly balanced on this point. A slight majority of team managers (51%) disagreed with this statement (although 41% agreed and 8% said they didn't know). The majority of women (61%) disagreed with this statement, while a slight majority of men agreed with it (52%). Therefore, women experience technology more positively than men. The majority of Bankco team managers disagreed with this statement (77%) while the majority at Finco agreed (56%).

Technology as 'controlling'

- *Technology controls the way in which I work*

How controlling is call centre technology for its users, given the emphasis on targets/objectives and the constant surveillance of team and individual performance? Team managers are assessed on their team's performance, so how controlled do they perceive their working environment to be? 56% agreed with this statement (56% of men and 59% of women).

- *Technology enables me to exercise control over the way in which my team members work*

To what extent are team managers able to control their teams using technology? 61% of team managers agreed with this statement. The strongest agreement was amongst female team managers (73%) compared with 46% of men. The majority of Bankco team managers agree with this statement (71%) whilst a majority of Finco team managers disagree (57%). This is probably again due to the measurement criteria at Bankco. This is an interesting finding overall when responses on management style (Chapter Four) are considered, the vast majority of men and women identifying with the transformational rather than the transactional style of management but conversely, women are identifying more with the control element of call centre technology.

Women are far more likely than men to experience technology as enabling them to control their teams, an experience traditionally associated with male managers. Control is perceived more strongly at Bankco than at Finco but this is not surprising given that the measurement criteria is more intense at Bankco.

Finally, given the emphasis of the team manager role on people management, team managers were asked whether the technology enabled them to spend more time dealing with people issues. 49% of team managers disagreed, 3% agreed and 48% said they didn't know. This confirms the tension that exists between the technical and the social in the team manager role.

Women's relationship with and experiences of technology in call centres does not vary significantly from that of men, although some differences are evident. In Chapter Four, it was argued that men and women share the same management style in call centres, and that men are taking on female styles that are usually associated with women. Are

men also developing a similar relationship as women with technology at the user level? Is this attributable to gender composition in that where women are the numerically dominant group, styles usually associated with women predominate?

Firstly, technology is experienced as an 'enabler' (to enhance efficiency and effectiveness) particularly where the use of statistical measurement and more technology are present (Bankco). Where this is less intensive, technology is still considered to be an enabler but to a much lesser extent. There were no differences in these experiences between men and women. Therefore, technology as 'enabling' is not gendered, as technology is experienced by both men and women as enabling in terms of meeting objectives and targets.

Secondly, technology is not experienced as restricting personal relationships with both team and peer groups. However, in terms of peer group relationships, Bankco team managers are more likely to experience technology as non-restrictive and this is surprising, given that the intensity of statistical measurement is higher here. This could be due to Bankco team managers being seated away from their teams whereas at Finco, team managers sit at the head of their teams. This is slightly gendered, as women experience technology as less restrictive to their peer relationships than men.

Thirdly, the flexibility of technology is more ambiguous as there is an even split between technology experienced as either flexible or inflexible. This is slightly gendered as women experience technology as being more flexible than their male colleagues.

Fourthly, the majority of team managers experience technology as controlling the ways in which they work but this is not gendered. Team managers also experience technology as enabling them to control their teams but this is more likely for women.

Crucially, only 3% of team managers said that technology enabled them to spend more time to concentrate on people management and this reveals the tension between the technical and the social.

The majority of team managers spend between half and two-thirds of their working week managing through technology. 87% say that they depend upon technology to do their job. This is in the context of the comments by senior managers to the effect that they are 'people managers' and team managers' own views that this is their key role. Does this cause a tension for team managers between the people management role and the requirement that they use technology to monitor and measure their team's performance? Call centres are, after all, one of the most measured working environments today in modern business.

In terms of the user (team manager) relationship with technology; there do not appear to be any major issues in terms of gender, although the findings are slightly gendered. However, women are slightly more likely than men to experience technology as non-restrictive on relationships with teams and peer groups and are less likely to experience it as inflexible. Women are also slightly more likely to experience technology as enabling them to control their teams.

Therefore, men's and women's relationship with technology in call centres is not highly gendered. Management styles are also not gendered amongst this team manager population. Are men therefore not only adopting ways of managing that are usually associated with women but also female ways of coping and working with technology? To what extent is this linked to the type of working environment to be found in call centres?

The Consultation Process and Tacit Knowledge

Analysis of the use of call centre technology reveals tensions and dilemmas for team managers (a quality/quantity conflict). Gender is not at issue here, as only slight variations are apparent between men and women. Technology enables the meeting of statistical targets and the controlling of team members and team managers. However, technology also restricts the people management role.

How could this tension be resolved? How could the imbalance between the social and the technical be corrected? One way would be to include users in the design network through a consultation process. This raises the question, are users of call centre technologies consulted about its design? The group is numerically skewed towards female membership – will this have any bearing on the design outcome? Is embodied knowledge (individual and tacit) drawn upon in the design process, in an attempt to encode it into collective and explicit knowledge? Would this make a difference to the tensions discussed above?

'Consulted' and 'Informed' are defined separately to specify the former as team managers' involvement in the decision making process, the latter to indicate that they have been informed about new technologies after vital design decisions have been made.

Consulted?

25% of team managers had been consulted about new technologies, which means that 75% had never been consulted. Although 82% of all team managers had been employed in the call centre for less than two years in their current role, 71% had previously been employed as an adviser in the call centre in which they are now employed (80% of these team managers had been employed for three years as an adviser before being promoted to team manager positions). Gender is not significant in terms of consultation as 68% of men and 70% of women had never been consulted about new technologies.

The question, have you ever been consulted about new technologies, applied to previous roles as advisers and their current role as team managers. Overall, 49% of team managers accepted that they had not been consulted while 23% found it unacceptable. This lack of consultation is surprising given the amount of new technology that was in the design stage at both Bankco and Finco at the time of fieldwork (see chapter 6) and that new technology was due to be launched in 2001 at Finco and 2002 at Bankco.

Passive Acceptance?

Haraway (1997) has argued that feminists should contest how hybrids are constructed and thus that women should not take on a 'passive' relationship with technology. To what extent do team managers accept this lack of consultation in the technological design process? For those who have never been consulted about new technologies, female team managers are more accepting of this situation than their male counterparts (24% of female but only 7% of male team managers offered no comment at all on this lack of consultation, even though they were given the opportunity to do so). Women are therefore more accepting of this situation. Furthermore, 33% of female and 32% of male team managers accepted that this was the situation on the basis that there were specific departments to deal with this, that decisions were made 'higher up' and that this was not a part of their role. The data analysis therefore suggests that those male and female team managers who are not consulted about new technologies are accepting of this.

Acceptance?

Are team managers challenging their lack of involvement? 32% of male and 15% of female team managers were unhappy and very vocal about the lack of consultation, men being twice as likely to contest this. As one Bankco male team manager explained:

This is the single biggest area of complaint across the board from the people at the bottom.....we're better to influence the system and technology than anybody else, yet we're rarely consulted. If advisers had an input they would be more positive. This affects morale as they're not consulted. Team managers are not consulted, very rarely, perhaps once, personally, since I was with the Helpdesk. Customers point out failings in the system that cost the business money and

they're not resolved. There is a cost-cutting ethos in the business. The biggest single frustration is lack of consultation. This is the single biggest issue that we have. I'm annoyed that we're not consulted. Why aren't we consulted? Politics, departments, arrogance of the organisation. A range of things

Another Bankco (female) team manager, previously employed in the parent organisation on what she described as 'the development side of things', was equally unhappy:

I came from the head office development side of things and I wasn't listened to there and I'm not listened to now. Customers tell me problems and I try to pass them on but nothing gets done. If you do, it takes months

And as a (male) Team Manager at Finco explained:

I'm quite vocal about it. Finco will give you the car to drive but won't let you get at the mechanics. But I will speak informally to people in Technology

All other team managers who had not been consulted said that they would like to be, for various reasons. It was believed that the consultation process would enable practical issues to be brought to the attention of designers, even though specialist departments were there to develop the technology. There was a feeling of 'detachment', that decisions about technology were dealt with 'at a distance' and made 'way up the line.'

Male and female team managers are equally excluded from the consultation process and women appear to accept this more readily than their male counterparts. Does this mean that the majority of women remain 'passive' in their involvement with the gender-technology revolution and do not contest how designs are constructed? It

would appear that this is the case as men are twice as likely as women to challenge the lack of consultation and women three times as likely to passively accept it.

From Tacit to Collective Knowledge

For those who had been consulted about new technologies, this had occurred in a variety of ways, the most common source of consultation being through 'one-off projects'. Team managers were asked at which stage they had been consulted about new technology and analysis reveals that 25% had been consulted at design stage. Users were selected by management, attended user meetings, were involved in pilot studies and asked to give their views on the proposed/existing system being used elsewhere. Some had been involved due to their roles also as 'trainers'. Very few team managers had been consistently involved in either regular user meetings or a general consultation process.

The most frequent method of consultation was through team meetings (18%) and then one-to-one's with line managers (12%) and email (12%). Team meetings were the most likely form of consultation for male team managers (25% of men and 12% of women) one-to-one's for female team managers (4% of men and 18% of women). Consultation by email was as likely for both genders (11% of men and 12% of women).

Analysis of who consulted with team managers reveals that they are most likely to be consulted by staff from the technology department in the parent organisation (20%) followed by their line manager (18%). 18% of men and 21% of women were consulted by technology staff and 18% of both men and women by their line manager.

Call centres are driven by state-of-the art technology and are one of the most measured working environments today. The majority of team managers are spending a half to two-thirds of their working week managing through technology, women spending more of their time doing this than their male colleagues. The majority of users had never been consulted, with no variation by gender. A possible reason for this lack of consultation has been posited in the previous chapter in the discussion of 'gendered institutions.' There appears to be a general degree of passive acceptance of this lack of consultation as 49% of those team managers who had not been consulted accepted this situation (39% of men and 58% of women). Therefore, for those not consulted, a sizeable percentage of women appear to accept this while men are far more likely to contest it.

Where consultation had taken place, this was most commonly through one-off projects (the attendance at user meetings and involvement in pilot studies). Participants had been selected by senior management and had also been involved in their capacity as trainers. Very few participants had been involved in user meetings and none had been involved in the usability centres (see below).

The consultation process was carried out through team meetings, one-to-one's with line managers, being fairly low level forms of consultation. The most common form of consultation for men was team meetings, while for women it was one-to-one meetings with line managers. The technology department in the parent organisation was the most likely source of consultation for both men and women, followed by the line manager.

The greatest part of the working week for most team managers (and especially women) is spent managing through technology. The majority of users had never been consulted and female team managers appear to be more accepting of this than their male colleagues. Where consultation had taken place, this was at a relatively low level in the management hierarchy (e.g. where decision making does not take place about new technology) and through team meetings or one-to-one meetings with line managers at the middle managerial level.

However, it would appear that call centre advisers and team managers are kept well informed about new technologies (93% of men and 94% of women confirmed this). Although most team managers chose not to comment on this, those who did made reference to the lateness of being informed. Team managers mentioned that customers sometimes see the changes before they do, that there was insufficient notice and that sometimes, the first they would know about a change to the system would be when it was up and running. Men and women were more or less equally vocal about this. As one male Finco team manager explained:

There is sometimes not enough notice. Communication is not as good as it could be. We sometimes find out just before it is going 'live' and this depends upon whether it's a new system or an upgrade, on a need-to-know basis

This view was shared by a female Bankco team manager:

We can be informed two to three weeks before 'going live' or a day prior to going live. Depends whether it's a new product

Unsurprisingly, team managers were most likely to have been informed at the use/just before going live stage (72%).

Given the lack of consultation and in order to gauge whether team managers had a view on the technology they used, they were asked whether there was anything they would change about the technology. The majority said 'yes' (84%) their areas of complaint falling into three categories. The majority said that the system was unreliable, too slow and difficult to access, the next area of complaint being that there were too many systems, followed by complaints about the live listening system, this also being unreliable and difficult to access. There were no differences by gender.

Suggestion schemes are used in both organisations' call centres (85% of team managers claimed that there was one in existence). These comprise formal suggestion schemes that are staffed by personnel who put all suggestions forward to be considered by senior management. If it is a good, workable suggestion and it is put into action, an award is presented. However, team managers recognised that financial consideration would override all suggestions. The majority of team managers felt that their suggestions would be seriously listened to but a small minority remained sceptical.

Clearly, consultation does not take place with users of technology (team managers) in call centres, despite there being formal consultation channels in which users could potentially be included. Both organisations have set up 'usability centres' and Bankco also holds 'usability meetings'.

Usability Centres: Knowledge Communities?

Bankco

Usability trials of call centre technology take place at a separate institution in the UK. The usability centre is privately funded and comprises a (male) director (who is an ex-engineer) and approximately twenty (mainly male) members of staff (including a choreographer and a psychologist) who have expertise in voice response systems and automation in call centre technologies. The centre tests Bankco's call centre technologies with customers in terms of interface design and usability. All technology is 'measured' at the centre before installation into Bankco's call centres and at the time of fieldwork, the centre was working on the interface design for the new desktop.

No users from the call centres have been involved in the usability centre and all research at the centre is carried out with customers, using a Likert scale system, with anything above 'four' being a positive test outcome. Attempts were made to arrange a visit to this usability centre but in spite of several telephone calls and emails, the two meetings scheduled were cancelled by the interviewee and no further contact was made.

Finco

A visit was made to Finco's usability centre, which is located on an industrial estate on the outskirts of the town in which Finco's head office is located. The centre opened in early 2001 and along with the usability manager (who has a design background) employs a manager, an administration assistant, usability engineers and project staff

(all male members of staff except the administration assistant). The centre's aim is to achieve consistency in process and learning across the organisation and to act as a guide for the business overall. The directive for the usability centre had come from the chief executive at Finco. Although initially set up for usability testing across the entire business, the centre had recently begun to test call centre technologies.

The centre comprises a project room with several large and small viewing screens, video recorders, sound equipment and a computer. Project teams, that operate in this room, usually comprise six people, typically internal staff to Finco - designers, coders, project managers and sponsors. The project team carries out live observation of customers and Finco employees in the 'mock' rooms throughout the centre. Hand movements, body language and voice are observed, or as the usability manager described it, there is observation of any interaction that you can think of that happens with the organisation.

Customers are observed in a room which is fitted out as a lounge in a private house. A computer and telephone sit on a desk in one corner of the room and there are several cameras and microphones. The customer is observed by the project team in the observation room whilst he/she uses the computer and/or telephone. Customers are usually booked into the centre for two hour slots and this comprises a short introduction, one hour of contact with the product and half an hour completing a questionnaire. There are approximately twenty evaluations carried out per week at the centre.

Work with the call centre had only recently begun and the centre is presently working on the new call centre automatic call distributor (ACD). A design team in the parent

organisation will set up the project in conjunction with the call and usability centres. The usability centre will regularly interact with the business areas that carry out the development for the call centre, rather than interact with the call centre itself. On this particular project, a dozen customers and three or four advisers had been involved in the usability trials – a small number considering that the call centres employ nearly eight hundred personnel and Finco has thirteen million customers. The usability manager described a typical call centre employee involved in usability trials:

They typically pick their, um, well seasoned staff, people who are fairly well respected in there, um, it is typically the way that the people are targeted that come down here

This comment conflicts with the Head of Technology's comment that it is preferable to test the technology on those who are completely unfamiliar with it. The call centre room comprises a room designated for the trialling of call centre equipment. This room has no external windows and appeared to be in disarray, a stark contrast to the 'lounge' used by customers, the floor being strewn with wiring and cable. The room was supposed to emulate the call centre and the usability manager was planning to visit the call centre at head office to tape the background noise for use during trials.

Call centre advisers visit the call centre room to have their interactions observed whilst using the new automatic call distributor/interactive voice response systems. The technology is usually at prototype stage by the time it reaches the usability centre. Advisers are not trained to use the new systems, as no prior knowledge is desired, even though the usability manager said that 'well-seasoned' staff were 'typically chosen'. An 'actor' or member of the usability team will act as a customer and interact with

advisers over the telephone/internet. Only one or two advisers are observed at any one time.

Once usability trials are complete, the centre will feed back findings to the project team in the form of videos of the proceedings and a paper report, with an executive summary. The centre recommends an 80% score on all seven perspectives that are tested (these seven perspectives could not be discussed due to confidentiality). It is the project manager's decision as to whether they should accept anything less than 80%. However:

The only one that we get a little bit concerned about is one of the perspectives, we actually measure fit in terms of perspective of the end user to the core values that are espoused by the organisation. Now if that didn't meet 80% we would say, well, this product actually doesn't represent the values of the organisation so why would you be providing it? So that's the only one I would say that we would get probably a little hot under the collar if they wanted to proceed with it (Usability Manager, Usability Centre, Finco)

How important are the end users (in the call centres) considered to be?

Um, I think you've got to make a distinction here, users are not designers

The difference between designers and users was explained, the latter representing the employees who use the technology:

Sorry, yes, so we've got to be a little careful about some of their feedback. What I'd say is that their feedback gives you some very clear pointers as to what it is that you might want to look at rather than actually come up with genuine workable solutions because very often they'll come up with something that might be a solution for them but is not terribly workable from a design perspective. In terms of how important they are to the overall process, I mean, there's a couple of perspectives on that. The first one is...wouldn't you want to go out there and actually ask them [customers] what they wanted? ...and then there's a secondary question to that, is that, if you're developing something, be

it a service or a product, wouldn't you want it to reach the end users' needs? And there's no point in designing something in a vacuum. There's a little bit of a pinch of salt I think you've got to take with that and that is that it comes back to the point I made earlier that users are not designers. I can't have foreseen a user coming up with a Sony Walkman

User Meetings: Knowledge Exchange?

Bankco

User meetings are held at Bankco but not at Finco. Non-participant observation was carried out at a meeting held at one of Bankco's call centres. The meeting was chaired by a manager and four other members of his team (all male) a senior manager (female) and three middle managers (all female) and a female deputy middle manager. Just before the meeting began, the (female) senior manager commented, 'we haven't had one of these [meetings] for ages'.

The purpose of the meeting was to update the call centre staff in terms of current technology projects. There were no advisers or team managers present at this meeting (the main user population). The Chair opened proceedings by explaining the purpose of the meeting, which was to give attendees the opportunity to comment, to put forward questions and to raise issues. He explained that although these user meetings had fallen by the wayside, they were being re-launched and would be held every six weeks and act as forums, across all sites and services. The meeting covered a total of sixteen projects, each paper outlining the project title, project manager and the relevant call centre contacts for the project. Progress to date and plans for the future were outlined for each specific project. All projects were related to technology and had user

implications but no direct users (advisers and team managers) were present at this meeting.

Fourteen out of the sixteen projects were headed and co-ordinated by male project managers and all projects were concerned with new technologies or upgrades to existing technologies. Each project manager outlined the project and attendees were invited to ask questions and offer feedback.

The two major projects discussed at the meeting were the new desktop and the planned changes to the interactive voice response. In connection with the new desktop, the project manager explained how advisers and team managers had been visited by staff from the usability centre who had carried out an audit of the existing system and listened to users' 'likes and dislikes'. A roadshow was underway around the call centres in order to test different forms of navigation around the new desktop to assist a smoother adviser/customer interaction. More trials had also been held with customers and Bankco branch staff. A group of students had also joined the trials as they were perceived to be 'an IT literate group of young adults'. It was believed by the project leader that the research would set the standard across the board. It is interesting to note that none of the call centre staff interviewed mentioned the visits by the usability team or the roadshows. This project did not stimulate a great deal of discussion.

The other major project was the new interactive voice response system. No adviser or team manager involvement in research was mentioned, even though this new system would lead to advisers focusing more heavily on trying to sell to the customer and team managers coaching them to do this. It was agreed that advisers should be encouraged

to use the system themselves to see how it works. This clearly indicates that advisers have not been involved in the design process. Also, the customer identification and verification at the front end of the call would change due to the new system. This would mean that more customers would not end up talking to an adviser, with major implications for advisers and team managers alike. This project stimulated a number of questions but none regarding adviser and team manager involvement in the project. Further briefings were put forward on other projects, again from the perspective of informing attendees at the meeting.

At the end of the meeting, attendees were asked (by me) what they would do with the information from the meeting. The female senior manager said that she would brief her team (of middle managers) and the head of call centre, the middle managers that they would brief senior managers while some of the information would feed down to advisers but not in any detail.

In summary, Bankco has two formal channels of usability testing for new technologies in the call centres. However, there is no user involvement in the usability centres and users are also not included in usability meetings. Information from these meetings is usually cascaded down but not in a manner that would ensure all users are kept informed of changes. The usability process is male dominated. Finco's usability centre does not place users in a position of importance, focusing upon the ultimate customer as 'user.' Overall, there are formal processes of usability but the predominantly female user population is excluded from them which has important implications for the capturing of tacit knowledge in call centres.

Conclusions

How is technology experienced by the user population in call centres? Are users involved in the design network? Is experience of and involvement in technology gendered?

The specific user group that has been the focus of this chapter (team managers) define their role as that of 'people management', a definition shared by senior managers. Conversely, a half to a third of the team managers' working week is spent managing through technology. This causes a tension (or conflict) in the role, between the 'hard' (technological) and 'soft' (people management) skills required of team managers, exposing a tension in actor network theory in terms of the design outcome. How can this tension be overcome?

Both men and women (moreso) are spending a substantial amount of time managing people through technology which is surprising, given that the transformational (people centred) style of management is prevalent in call centres.

There exists a high dependency rate on technology amongst the team manager population, especially amongst women. Again, this reveals a tension between the 'social' and the 'technical' in the design outcome. Although actor network theory is useful as an analytical tool in unravelling design networks, the outcome of these networks should be taken into account because of these tensions.

On a practical level, the relationship that men and women have with call centre technology is slightly gendered. This could indicate that men and women are converging in terms of their relationships with technology. Is this again due to gender composition? Men and women experience technology as enabling them to meet statistical targets set by senior managers, especially where more technology is in evidence (e.g. Bankco). Men and women are not experiencing technology as restrictive of personal relationships with teams and peer groups, especially at Bankco. This is due to the social arrangements of the working environment. Technology is experienced as both flexible and inflexible, women relating to the former more than men. Technology is experienced as controlling and as facilitating control of the adviser population. Crucially, only 3% of team managers thought that technology enabled them to spend more time on people management and this is an important finding in the light of the tensions between the 'technical' and the 'social'.

This tension is not obvious to senior managers, as they perceive the technology as facilitating the people management role of team managers. However, it is argued that this tension could potentially be eliminated if team managers and advisers (as users) were involved in design networks. The second caveat to actor network theory also arises here because the (predominantly female) user population is not consulted about new technologies and this means that the design outcome is unsuccessful due to these tensions. Actor network theory is relevant where power is dispersed (in a Foucauldian sense) and where humans and non-humans interact through the flows of exchange within the network. However, the design network is identified as gendered, hierarchical and vertical because not only are women excluded as designers (see Chapter Six) but also as users. The important knowledge that is embodied by this

female population remains tacit but if this knowledge were to be codified (collective and explicit) this could potentially eliminate the tensions between the technical and the social.

Men and women are equally as likely, at this level, to be excluded from the design network (according to the case study sample) which is even more disappointing for women, as they comprise 75% of the user population overall. Men and women have different ways of dealing with their exclusion. Haraway (1997) has argued that feminists should contest how hybrids (the social and the technical) are constructed but it would appear that the majority of women are not doing this in call centres. Men are also accepting of this to a point but are also as likely to contest it and far more likely to do so than women. Male designers have argued that it is impractical to consult with all users of call centre technology given the numbers involved (see Chapter Six). This could be due to their perception of women generally and women who are employed in call centres specifically.

There are, clearly, opportunities for designers to consult with users of call centre technologies, through usability centres and meetings. Women are excluded from the former but do play a part in the latter, although not as project leaders. The large female call centre population is mostly excluded from usability centres and meetings, even though they are an important part of the design network. This exclusion of women means that the network is incomplete and that tacit knowledge remains an untapped resource for design. It appears that social actors make the key decisions in terms of call centre technologies and actor network theory can only be relevant when the 'powerful' include women at all levels, but particularly at the 'top.'

Women's lack of involvement in technological design in the knowledge economy means that women are 'losing out' in their relationship with technology. It could therefore be hypothesised yet again that technology represents a further structure of patriarchy both in terms of wider society (the knowledge economy) and call centres (knowledge communities). Women are excluded from the information technology revolution of the knowledge economy and of equal importance, they are not contesting their exclusion.

Chapter Eight

Conclusions

Introduction

This thesis has considered whether or not the knowledge economy is gendered by analysing three principal research questions: what is the relationship between gender and the knowledge economy; are call centres gendered by design; and what is women's relationship with technology? These questions have been analysed in the context of knowledge-type organisations (call centres) where women predominate at lower levels and men dominate at senior levels of management.

The rise of the knowledge economy could have presented opportunities for women in paid work, 'brainpower' now mattering more than 'sheer brawn' (Burnley *et al.* 2001: 1). The shift to a knowledge-based economy has seen a change in the nature of work which could favour women, 'muscle power' no longer being a fundamental requirement in the knowledge age, where keyboard dexterity, knowledge and relationship skills predominate. The knowledge economy is built upon the information technology revolution which has opened up more working opportunities as well as a wider range of flexible working hours.

The thesis concludes that the knowledge economy has not delivered equality for women in knowledge-type organisations (call centres) in comparison to men. Call centres are a work arena where women could possibly make a difference because they depend upon the fusion of 'soft' skills (that are traditionally associated with women)

and advanced information technologies for their success. This rapidly expanding new area of work, with its apparent predisposition for 'soft' skills could have presented one of the best opportunities yet for women to improve their place in the employment hierarchy but the male monopoly on power has prevented this from becoming a reality for women.

The thesis has examined women's relationship with the knowledge economy through their inequitable relationship with particular knowledge types compared with men, career progression and the design and setting up of the call centre working environment and related technologies. It concludes that the gendering of skills in call centres is reinforced by a male perception of why women seek employment in call centres, thus reinforcing the call centre as a 'patriarchal institution' that both uses and needs women for their particular skills.

This chapter begins firstly, by arguing that knowledge in call centres is gendered. It addresses Blackler's (1995) and Lam's (2002) important knowledge types which offer a multi-perspective approach on knowledge. These knowledge types are differentially gendered and as a result, women are excluded from certain forms of knowledge. Secondly, male, patriarchal perceptions of women's skills in knowledge-type organisations are assessed and it is concluded that the particular skills and attributes of women are 'de-valued' in the context of call centres as 'patriarchal institutions' where women are dominated and exploited by men.

Thirdly, the finding of a management style that is traditionally associated with women (the transformational style of management) is considered in the context that the

knowledge economy is re-gendering management styles. Fourthly, 'career' is identified as taking on a different form in the call centre context due to 'flatter' management hierarchies, broader spans of control and new forms of flexibility. Fifthly, the gendering of design networks is explored through following the design process and the technological design framework.

Gendered Knowledge

Analysing the relationship between gender and knowledge demonstrates how knowledge types are gendered, resulting in women's inequitable access to certain knowledge types. The simplicity of the four knowledge types has been challenged. As a typology, they are a useful aid for understanding the presence of different types of knowledge in organisations but when gender is introduced into the analysis, the inequalities that these types disguise readily becomes apparent. Taking each knowledge type in turn, women's exclusion/disadvantaged position quickly becomes evident. The first knowledge type (embrained) which takes on an individual and explicit form, is linked to education and is dependent on the individual's conceptual skills and cognitive abilities, represented by formal, abstract, or theoretical knowledge, which is learnt through reading books and participation in formal education. Historically, this knowledge type has been gendered, as women have not always had access to institutional knowledge, this being established and regulated by men. Whilst access is now generally equal, it is argued that embrained knowledge remains gendered through the gendering of its content (the subjects that boys and girls study at school and men and women study at university).

The team manager population in the case study call centres possess a relatively high level of embrained knowledge, with 32% of men and 33% of women having attained a degree and 29% of men and 18% of women GCE 'A' Levels. Combining these two 'post-school' qualifications, 61% of men and 52% of women hold post-school qualifications. This compares with 17% of men and 14% of women having attained a degree or equivalent qualification and 30% of men and 17% of women, GCE 'A' Levels or equivalent, across the UK population as a whole (post-school qualifications being 47% and 34% for men and women respectively) (Social Trends, Table 3.17, 2002). The levels of embrained knowledge in these knowledge-based organisations would appear to be significantly higher than the national average.

Embrained knowledge is an open and explicit form of knowledge to which most individuals have access. These findings demonstrate that women have both access to and hold embrained knowledge, though this in itself may be gendered because of the subjects normally studied by women.

The second knowledge type (embodied) takes on an individual and tacit form and is knowledge that is 'embodied' in the individual, being action-orientated and learnt through experience and training. Embodied knowledge may also rely on the formal knowledge of its members (embrained knowledge) but most importantly, it draws its capability from the diverse 'know-how' and practical problem solving skills embodied in the individual, formed and shaped by the life and work experiences of all types of worker. That this knowledge is not fully drawn upon in the design process (see below) leads to gendering through the exclusion of the female perspective.

The third knowledge type (encoded) which takes on a collective and explicit form, is shared knowledge within the organisation that has been 'encoded' into the information technology systems. It is generated through written rules and procedures and formal information systems. The technology used to encode this knowledge (including tacit forms) is gendered, having been designed by males. The predominantly female adviser population has very limited access and the female team manager population restricted access to this knowledge type because male senior managers decide which groups of call centre workers should have access to it. It is only at the (male dominated) senior managerial levels where access to knowledge is unrestricted.

Finally, the fourth knowledge type (embedded) which takes on a collective and tacit form, is closely linked with culture and built into routines, habits and norms that cannot easily be transformed into information systems. It is produced through social interaction among different members of the organisation and supported by its shared cultural norms. It is strongly linked to culture as it emanates from the top of the organisation and is only shared with those 'in the know', e.g. male senior managers. Embedded knowledge remains tacit simply because it cannot, by its very nature, be readily transformed into the information systems. This knowledge type is a function of the distribution of power and is gendered because women are poorly represented at the most senior managerial levels.

Analysis of these knowledge types and forms with reference to gender highlights the potential problems for women in knowledge-type organisations because of either restricted access or pre-gendering when it really matters – with the collective forms of knowledge (encoded and embedded types). Where women do have access to

knowledge, this remains mainly personal and individual and as such, an unheard and untapped resource.

Through the analysis and gendering of these four knowledge types the thesis shows how women are more likely to share in and have access to knowledge types that are individual whilst men retain the monopoly on collective forms of knowledge and thus continue to set the framework for the routines, habits and norms (culture) in organisations. Consequently, the higher orders of knowledge continue to be gendered and perpetuate the gendering of knowledge. Knowledge, the core product of the knowledge economy, is being combined and applied in organisations to create new gendered knowledge and this is a major source of inequality in call centres.

Skills and Patriarchal Perceptions

Women are often attributed with possessing ‘caring’ or ‘relational’ skills that are a key requirement for employment in call centres because of the relationship between the organisation and the customer. However, possession of these skills reinforces the socially-constructed stereotypical view of women as the ‘caring face of management’. Male senior managers have a set view about why women seek employment in call centres: the flexible hours, (low) salary level and because women are better communicators and empathy-builders. The ‘return-to-work-mum’ is portrayed as the archetypal call centre worker.

The thesis findings contradict these perceptions at several levels by setting out the reasons why women seek employment in call centres and this challenges these

patriarchal perceptions. Firstly, salary levels do not constitute a 'second income', especially when bonuses and incentives are taken into account. Secondly, the majority of team managers (54% of men and women) do not have children and so do not fit with the 'return-to-work-mum' scenario. Thirdly, women are attracted to call centre work for reasons other than those mentioned by senior managers: only 12% of women chose to work in a call centre because of the hours; 18% because of the 'chance to socialise/work with people', and 21% because they saw it as a chance to use their communication skills. In contrast, 22% of women did choose to work in a call centre because of the nature of the work but significantly, 48% were working in a call centre simply because the opportunity to do so had arisen. These findings reveal the significant differences between the patriarchal perceptions of senior managers and the realities for the female worker.

The thesis contributes to the theoretical concept of patriarchy through analysis of organisational skill and gender. There is a requirement for 'soft' skills in call centres, those most often associated with women. Women 'pay the price' for their perceived possession of these skills, as senior managers view women as lacking the drive and ambition for career advancement. This manifests itself in the expressed views of (male) senior managers about why women predominate.

This research identifies call centres as 'patriarchal institutions'. Patriarchal perceptions are embedded in a wider set of patriarchal institutions because male senior managers who run call centres *need* and *use* women because they are women. However, through empirical analysis, this research challenges the stereotypical perceptions that male senior managers have of women. Analysis of women's skills and the patriarchal

perceptions that men hold of women, reveals that call centres are patriarchal institutions where men dominate and exploit women.

Although strongly contested on the basis that it is essentialist, universalising, ahistoric and homogenises the position of women, patriarchy is a key analytic tool that highlights how the experiences of women in call centre management are similar to women in management generally, under the domination of men. Patriarchy is defined as, 'a system of social structures and practices in which men dominate, oppress and exploit women' (Walby 1990: 20). The concept of patriarchy is therefore relevant to this analysis and through its adoption, the unequal relationships between men and women in the knowledge economy and the ways in which men dominate and exploit women, are drawn out.

The Re-gendering of Management Styles

Management styles (how team managers manage) are important in call centres where relationship and people management are key skills. The thesis contributes a new perspective on the sameness/difference debate and management styles in the context of the knowledge economy because it emerges that men and women in call centres have adopted the 'transformational' style of management that is usually associated with women. This finding could mean that the knowledge economy is generating the re-gendering of management styles. The re-gendering of management styles has been found in other research (e.g. Wajcman 1998) but in a reverse context, namely that women have taken on 'male' ways to 'manage like men'.

This research has found that men are taking on management styles usually associated with women (transformational). Is it appropriate to say that women have a 'transformational' and men a 'transactional' style of management? This research concludes that men and women are both adopting the transformational style of management but is this a female management style or one that has usually been associated with women (consulting, sharing, encouraging, empowering, influencing)? Has the 'difference' argument been used to keep women out of the higher levels of management, where the transactional style may prevail (instructing, centralising, rewarding only good performance, the encouragement of individual rather than team contribution, controlling and using organisational position)? If so, what does this mean in the context of the re-gendering of management styles for men in call centres?

Analysis of men's and women's management styles in the knowledge economy has developed the debate on this issue because men and women are clearly managing in the same ways and this could mean the re-gendering of management styles.

This analysis has also investigated both the realities (how men and women manage) and perceptions (how men and women perceive each others' management styles) of men's and women's management styles. This twofold approach is one not often taken by researchers of gendered management styles and thus extends the traditional debates on the issues.

Men's and women's management styles were analysed by asking how managers approached the management of their teams, at an individual and collective level. Management style emerges as re-gendered due to men adopting a 'transformational'

style thereby changing the gendering of management styles. The majority of research into gendered management styles has argued from two perspectives: the first that women and men have different management styles (that women are transformational, men transactional) (e.g. Rosener 1990, 1995); and the second, that men's and women's management styles are the same, this argument often being associated with women taking on male ways of managing (e.g. Wajcman 2000). This research shows that men are taking on management styles that are usually associated with women in that the majority of men and women are, in practice, managing in a transformational way.

The perceptions about male and female managers' styles of management show significant differences, the majority of respondents stating that they thought men and women managed in different ways (54% of men and 64% of women). This reveals a significant discrepancy between the rhetoric of 'soft' management and the 'hard' reality of practice (Wajcman 2000). It is argued here that men may be taking on management styles usually associated with women due to a critical mass of women at team manager level (the gender composition being 75% female to 25% male) where the transformational style of management may be more suited to the call centre environment. Consequently, a critical mass of women in team manager positions appears to make a difference to the predominant management style and therefore gender composition impacts upon practice. Analysis of reality and perception of men's and women's management styles and the finding that men are managing in ways usually associated with women further develops the debates on gendered management styles and sameness/difference.

The Re-shaping of Career: Flatter Operating Structures and Spans of Control

The knowledge economy thesis argues that a 'new organisational logic' has emerged whereby organisations have moved away from their industrial organisational forms of vertical integration, to horizontal corporations where flatter management hierarchies prevail (Castells 2000; Osterman 1996). This has led to broader spans of control because a fewer number of managers have taken on increased people management and operational responsibilities and this has been facilitated by the information technology revolution.

This thesis tests these claims and considers the implications of flatter operating structures that prevail in call centres. Flatter structures operate with a broader span of control and in these circumstances, women lose out because where the spans of control are broader (e.g. Finco) there are far fewer women in management but where they are narrower, there are more women in management (e.g. Bankco). Empirical analysis reveals that although there are opportunities for women to move both vertically and horizontally within the call centres and the parent organisations, women lose out because the broader spans of control prevent them from progressing to senior management positions.

The thesis develops the concept of career in the knowledge economy by engaging with the ways in which career progression is gendered and the ways in which spans of control impact on gender. This research reveals that the broader the span of control (where managers have increased responsibility for a greater number of people under their control) the less opportunities there are for women in comparison with men

because where the spans of control are broader (Finco) women are not progressing into middle or senior managerial positions. Call centres are not 'careerless' environments with no opportunities for career progression, as in both organisations, vertical (an upward move into higher levels of management) and horizontal (a sideways move within the call centre or into the parent organisation) pathways exist. This emphasises the importance of tracing women's career paths through several years of employment.

Thus far, women's relationship with the knowledge economy reveals that women are 'worse off' in comparison with men. Women are excluded from important types and forms of knowledge; are employed in 'patriarchal institutions' where their skills and reasons for employment are stereotyped by male senior managers (which are challenged by the data analysis); and have fewer career opportunities due to flatter organisational structures and consequent spans of control. However, one area looks promising for women: the predominance of a management style that is usually associated with women that men appear to be adopting, implying that management styles are being re-gendered in the knowledge economy.

New Forms of Flexibility

The knowledge economy is built upon the information technology revolution which is shaping and driving a more flexible labour market. This has led to the emergence of what Castells (2000) has defined as a new type of flexible worker: the flexi-timer. The thesis contributes to the debates on numerical flexibility as new forms of flexibility are emerging in call centres amongst two predominantly female employee populations (advisers and team managers).

The first population, advisers, is employed on the basis of just over one hundred working 'parameters' with no traditional full-time/part-time split. Working parameters define the working times of employees, for example, the hours they are employed to work (thirty five, twenty five, sixteen hours per week, etc). and then working hour parameters are set within these, for example, 9-3, 10-5, etc. For the second population, team managers' working hours are more restricted, only 6% work part-time, the remaining 94% working full-time (flexible or full-time hours). Interestingly, it is the male team managers who are taking advantage of the full-time flexible hours.

The new organisational forms of the knowledge economy have led to new forms of flexibility because: firstly, a new discourse has replaced the traditional notion of shift working (working 'parameters') and the traditional full-time/part-time split; secondly, just over one hundred different flexible working parameters are available to the predominantly female adviser population; and thirdly, men in team manager positions are taking more advantage of flexible working hours than women. The women who do work these flexible hours do not do so due to the constraints of childcare responsibilities, as they tend to have older, independent children. This develops the notion of numerical flexibility, with male team managers becoming the numerically flexible group in management.

Information technologies have revolutionised the work process in call centres but women have had very little input in the design and setting up of call centres and their related technologies. Therefore, call centres are gendered by design and women are excluded from technological design networks in call centres.

Gendered by Design: Call Centre Design Networks

A new way of working (call centres) has been enabled by the information technology revolution which has important implications for the design and setting up of call centres that are built upon new technological paradigms. Call centres are designed and built around these information technologies and this research has considered what role, if any, women have had in this process, including the design and development of the technological framework itself. Actor network theory (human and non-human actants) and the social shaping of technology perspective (relevant social groups, the interpretive flexibility of technology, genderscript and I-methodology) are synthesised in order to present the complexities of technological design networks and the ways in which these are gendered.

The thesis argues that call centres are gendered by design, a finding that integrates actor network theory and the social shaping of technology. Haraway (1997) and Suchman (1994, 1999) have already considered the relationship between the two. Haraway points to the general absence of women in the 'experimental way of life' (where hybrids of humans and non-humans are constructed) and argues that feminists should contest this 'gendered' way of life. This thesis has developed this by mapping and analysing the 'construction' of design networks by exploring the relationship between the design and use of the call centre working environment and its related technologies. Suchman, on the other hand, attempts to reconfigure the boundaries between the (male) designer/(female) user of technologies by attributing machines with 'agency' and 'intelligence', arguing that computational artefacts are interactive in the same ways as

humans, an outcome that is achieved by encoding more human cognitive abilities into machines. However, as this thesis has shown, the designer/user dichotomy prevails in the call centre context, where (male) social actors determine the design network and female users are, generally, excluded from this. Machines are inert until (male) social actors attribute them with (male) agency which, along with other non-human actants (texts and technological artefacts) have to be considered as part of the design network.

The thesis therefore goes beyond the social shaping of design by adopting actor network theory because the latter accounts for the presence of both human and non-human actants in the design network. The empirical analysis introduces gender, power and hierarchies into the design network. It is evident that men are active and women passive in the design network because of women's absence from senior managerial positions as they do not enjoy the necessary access to power.

Women are absent from the decision making element of the design network and when they are included, this is merely in their capacity as 'users' of the working environment. The design network in call centres is gendered (male dominated) and hierarchal. The design network is based on 'male' knowledge (the I-methodology) a finding that should be considered an important element of the patriarchal structure of paid work in the knowledge economy. Actor network theory does not account for the exclusion of women from design networks due to its lack of focus on the presence of (gendered) organisational structures in the design network that are hierarchical and based on top-down power and male knowledge. Where women are included, it is not at a decision making level and they do not constitute a relevant social group.

It has been important to map out the evolution of the design network in call centres, as this enables the identification of who and what is involved. It is argued that design networks are defined by social actors but the first limitation to this is that we have to consider who these social actors are (e.g. men). Furthermore, by adopting actor network theory, it is possible to identify the non-human actants in the design network, such as artefacts, strategy papers, reports, money, benchmarking exercises, phased strategies, texts, government grants, information technologies, documents, furniture, carpets, décor, etc. It is argued that male social actors are those who actually define and put these non-human intermediaries into circulation. Consequently, the non-human elements present in the network are also gendered, created and put into circulation by male social actors and based on male knowledge (genderscript) male tacit knowledge becoming the collective knowledge in the design. The design network is therefore a hybrid of male social actors and their tacit knowledge, non-human actants (that could be defined as being male) and limited female tacit knowledge.

The data is not available to argue that women's presence at decision making levels would lead to a more favourable overall design outcome simply because there are no women in these positions in the case study organisations. However, as it is hypothesised that the presence of female knowledge at lower levels in the design network has led to a more favourable operational outcome, feasibly, this could also be the case if women were involved in decision making at the strategic level. The human/non-human actants are more prevalent at Finco, where not only did male social actors (designers and decision makers) create and put into circulation non-human actants and intermediaries, but also included female users who interacted with non-human artefacts, such as desks, décor, carpets, etc.

Actor network theory cannot incorporate gender into its analysis and the related power, hierarchies and male forms of knowledge in design networks. The findings take us beyond a merely 'social' shaping of design due to the non-human elements in the design network that are not accounted for in theories of the social shaping of design. However, the social shaping of technology perspective allows us to identify social actors who define, order and shape the design network through the use of intermediaries but subject to the regulation of technological artefacts (e.g. what's available in the market place) and availability of funding. Actor network theory, which does encompass the latter, fails to take account of gender, power and hierarchies.

Gendered by Design: Technological Design Networks

An analysis of women's relationship with technology in call centres reveals that the design of the technological framework is gendered. Chapters Six and Seven have analysed the design of technology from both a designer and user perspective and this has revealed the tensions that exist between the 'social' and the 'technical'. The technological design network is gendered, hierarchical, constructed on a 'top-down' form of power and male knowledge. Women are excluded from the design network as both designers and users: they are excluded as designers because they lack presence in senior management and as users because 75% have never been consulted about new technological designs.

Theoretical debates on the social shaping of technology help us to understand the role of social actors in the design network (e.g. male designers in call centres). However, it

is necessary to go beyond this and to also take account of both the human (e.g. male designers) and non-human actants in the design network. Male social actors define and put intermediaries into circulation in the design network and decide whether a human should be replaced by a non-human and vice versa (e.g. should more technology replace a human adviser or should the human adviser replace technology?) Technological designs in call centres are male dominated and this means that the non-human actants in the design network 'carry' a genderscript (e.g. male knowledge).

Women are excluded from the technological design network and this means that important individual and tacit knowledge that is held by women remains an untapped resource. Male designers therefore define, create and implement new technologies in call centres and this reveals a tension in actor network theory between the social and the technical, for example, the team manager role is one of people management combined with managing through technology and it is argued that technology 'gets in the way' of the people management role. If female knowledge *had* been drawn upon, this tension may not exist. However, women are not consulted and it is therefore argued that technology should be regarded as an explicit element of the patriarchal structure of paid work in the knowledge economy.

Women's use of call centre technology should also be considered as women in call centres engage with and have a higher dependency rate on technology than their male counterparts. Furthermore, only 3% of all team managers said that technology allowed them more time for people management which, according to senior managers, should form the main element of their role. Therefore, as the use of and dependency on technology is high, this is leading to a tension between the 'social (people management)

and 'technical' (use of technology) in the team manager role. If a consultation process had been in place and women incorporated into the design network, this may not be the case.

Furthermore, women are not contesting their exclusion from technological design in call centres. Women's knowledge therefore remains an untapped resource that is accumulated and built upon in the adviser/team manager-technology-customer interaction. This constitutes an important example of knowledge built upon knowledge, *the* product of the knowledge economy. Technology in call centres is defined and developed by male designers and this reproduces patriarchal relations in the workplace. The social and technical are masculine and in conflict with one another and this is the paradox and tension in actor network theory. These tensions between the social and the technical only become apparent when the design of call centre technologies is analysed by using a gender lens to reveal that it is gendered, hierarchical and operates through a 'top-down' form of power and male knowledge. Actor network theory needs further development in the context of the knowledge economy.

There are several important limitations to actor network theory. The relationship between the social and the technical are unequal, technology being fundamentally defined by (male) social actors. These social actors hold the power in the design network and put intermediaries into circulation (texts, technical artefacts, humans and money). The non-human elements of these intermediaries therefore become masculine by design as they carry certain genderscripts. The exclusion of women from the design network means that a tension is present between the 'social' and the 'technical' in the ways described above. Women's relationship with technology in call centres means

that the technological framework is gendered because women are excluded from design networks, as both designers and users. The design of call centres is a result of a hybridisation of the social and the technical and these are gendered (male dominated). Actor network theory is a useful theoretical tool but with important caveats.

The empirical analysis demonstrates that hierarchies can and do exist within networks, with power operating in a 'top-down' rather than a 'bottom-up' way. This in itself does not prevent the formation of networks because by following the design network, the presence and absence of human and non-human actants becomes evident.

Reflections on the Limitations of the Scope of the Thesis

Inevitably, research projects have their limitations and this section considers those which have arisen during the course of this project and extend to the methodological approach adopted.

Actor network theory is based upon the emergence of the network as the human and non-human actants interact over time. It is by its very nature a qualitative rather than quantitative framework, lacking any pre-conceived structure and/or intent. This contrasts with my methodological approach which relies upon questionnaires administered through structured interviews with the focal cohort, the team manager population. This semi-structured approach allowed me to determine and codify the role of the non-human actants within the overall design and operational processes and to analyse the team managers' relationship with and experience of call centre technology. The 'open' style of questioning provided qualitative data which by its nature provided an insight into the overall network, its development, dynamic and direction. The lack

of any totally unstructured qualitative feedback may have inhibited my ability to fully explore the relationship between the 'technical' and the 'social'. Conversely, without structure, it would have been difficult to gather data about the non-human actants.

Non-participant observation was used throughout the period of fieldwork to gather contextual information about the structure of the organisation (e.g. managerial structures) its work processes, technological and non-technological artefacts and the interactions between managers, the workforce and customers. It is recognised that my very presence as an observer may have impacted upon the actions of the persons being observed and thereby affected the outcome of the processes being undertaken.

The main focus of the research, unlike many other academic studies, was the management group within the call centres and their parent organisations and excluded the adviser (operator) population, although several were interviewed and observed during the research process. It is acknowledged that as a consequence, a key group in the knowledge-technology-gender relationship was excluded. However, the majority of the team manager population were ex-advisers from within the same call centre, which enabled me to gain a perspective that spanned both populations. Inclusion of the adviser population may have expanded my understanding of the knowledge-technology-gender relation and allowed me to explore more fully the presence of 'embodied' knowledge and how this is shared informally. All of the call centres researched were within the financial services sector and the thesis may have benefited from the inclusion of a comparable call centre in a non-related sector. There were no women in senior management positions who held any decision making power and the thesis might have benefited from a female perspective.

A recurring theme from the literature review was the issue of whether or not men and women manage in the same or different ways. This was relevant to my research in that the debate was inconclusive and none of it centred upon the call centre environment, where women predominate and the so-called 'soft' skills constitute a vital part in the customer relationship management process. The key question was whether or not managers have to be transactional to manage. Providing respondents with the opportunity to identify with particular words to describe their style (excluding references to transactional and transformational) enabled me to establish that the overriding shared management practice and ethos was transformational, irrespective of gender. However, the self-assessment was referenced against an 'open' question to the team manager sample about whether or not they perceived that men and women in their group managed similarly or differently and why. This highlighted a key dichotomy, with most respondents referencing themselves as transformational (irrespective of gender) yet believing that within the population as a whole, men are transactional and women transformational in their management styles. This revealed the difference between each manager's personal reality of day-to-day management and pervasive perceptions about how men and women manage. The self-assessment by the managers was not referenced against the adviser population's experiences and extending the research in this manner would have provided a useful check of my findings, if time and scope had allowed.

Tracing women's 'horizontal' career progression from the call centre into the parent organisation would have been a useful addition to the thesis' contribution on career paths, as this would have enabled me to identify the destinations of those who 'choose'

an organisational rather than a call centre career. It may have also been useful to discuss, in the semi-structured interviews, the career paths of those women who had 'made it' into middle and senior managerial positions within the call centres and to establish their strategies (if any) for securing promotion.

The technological design process is key to call centre development, in that the technological infrastructure and the processes that it supports, make up the business operating platform (workflow) and as such, have a direct impact upon occupational activity. Whilst my research has established that this design process is, in effect, controlled by men and to a large extent either excludes or ignores the feedback from the predominantly female user population, my findings only demonstrate a slight difference between male and female team managers, in their use and application of the technology.

Male designers and decision makers openly state that they do not see the need to consult with users, based largely upon patriarchal perceptions of why women work in call centres (e.g. the hours, (low) pay, etc.) Given that with all the call centres that were researched this was the predominating approach/methodology, it was not possible to establish the optimum potential of the system if designers had engaged with the user population without any preconceived perspectives. The designed systems appeared to work because of the passive acceptance by the female users and their ability to use embodied knowledge to overcome the operational shortcomings they encountered.

Notwithstanding the apparent success of the designed system, women remain disadvantaged by virtue of their exclusion from the design process and the male designers' belief that they have nothing to contribute. This produces a sub-optimised

process from both the user's perspective and the quality of the outputs thereby produced.

Despite the limitations outlined above, this research has achieved its objectives and on reflection, it is believed that the methodology adopted has enabled the answering of the main research questions and objectives.

Conclusions

The objective of this thesis was to analyse and add to existing knowledge on the relationship between gender and the knowledge economy and it is concluded that the knowledge economy is gendered. In drawing these conclusions, the thesis has made an original contribution to several areas of sociological debate around knowledge, skills, management styles, career, flexible working and the design of the working environment and its related technologies. In so doing, the thesis makes an original contribution to the sociological debates on gender in four important ways.

Firstly, it has analysed a new wave of economic development (knowledge economies) and argued that this has not led to gender equality. Secondly, the thesis has unpacked four knowledge types and exposed these as differentially gendered which means that women are not sharing in the collective forms of knowledge that are important in knowledge-type organisations. Thirdly, the thesis has combined actor network theory and the social shaping of technology to demonstrate the complexities of call centre technological design and the ways in which this is gendered by analysing workplace design and the operating technologies therein. This has revealed that when a gender

lens is used with ANT, a tension emerges between the social and the technical because of women's exclusion from design networks and women's subjection to 'top-down' forms of male hierarchical power. Actor network theory fails to recognise the persistence of male dominated hierarchies within design networks but the social shaping of technology perspective aids the identification of relevant (and non-relevant) social groups. Fourthly, women's advancement (or lack of) in call centres has developed debates on the progression of women in management.

In conclusion, the knowledge economy produces, in Castell's (2000) words, 'winners' and 'losers'. This analysis has revealed that the knowledge economy is gendered and that women are 'losing out' because, yet again, men have consolidated their positions of power where they control knowledge, management structures and design networks.

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Appendix I

Definitions

Automatic Call Distributor (ACD)

The ACD routes and distributes incoming calls around the call centre to advisers' workstations. It is a telephone facility that manages incoming calls based on the telephone number called and links this to an associated database. Call centres offering sales and service facilities support the use of ACDs to validate callers, make outgoing calls, forward calls to the right party, gauge usage statistics, balance the use of telephone lines and provide other services.

Interactive Voice Response (IVR)

A software application that accepts a combination of voice telephone input and touch-tone keypad selection and provides appropriate responses in the form of voice, fax, callback, email and other media. IVR is usually part of a larger application that includes database access and can also be used for call recording. An IVR application provides pre-recorded voice responses for appropriate situations, keypad signal logic, access to relevant data and the potential ability to record voiced input for later handling. The caller is presented with a list of options and asked to select one by either keying in or speaking the appropriate number. The caller is then routed to the appropriate adviser, depending on the nature of the call.

Computer-telephony Integration (CTI)

The objective of CTI is to bring together telephone and in-house computer systems, enabling the two to support each other, working in synergy to increase call efficiency and breadth of functionality. Integrating systems in this way removes many of the mutual tasks that an adviser would otherwise handle.

Management Information System (MIS)

MIS is for the use of senior managers in call centres and provides vital information on every aspect of adviser and team manager performance, as well as customer satisfaction indicators. Senior managers have full access to all forms of MIS information.

Text/Web Chat

Facilitates exchanges in text messages that take place in real time, the 'browser' initiating a text conversation with an agent by typing dialogue on a screen. An adviser can deal with more than one text chat at any one time.

Voice over Internet Protocol (VoIP)

This is a live person to person 'chat' as if by telephone and is the process by which a voice conversation with an adviser is maintained over the same line as the internet connection (this may involve the customer clicking the 'chat to adviser' icon on the screen).

Internet

A global system of computer networks where information is available on a computer and can be viewed by other computers throughout the world. Messages can be sent and received, programmes downloaded and transactions can take place electronically.

Appendix II

Questionnaire

Case Number:

Date of Interview: / /

Place of Interview:

Section 1: General

Please would you confirm your name?.....

I would like to begin by establishing your job title, reporting structure, areas of responsibility, etc.

1. What is your current job title?

- 2. Team Leader
- 3. Team Manager
- 4. Sales Manager
- 5. Manager

2. Would you please confirm in which area of the call centre/support services you work?

- 1. PhoneBank Blue
- 2. PhoneBank Green
- 3. Teleservices (Heritage)
- 4. Internet Banking
- 5. Direct (Service)
- 6. Direct (Inbound Sales)
- 7. Direct (Outbound Sales)
- 8. Support Services

3. To whom do you directly report?

1. Customer Relationship Manager
2. Senior Team Manager
3. Manager
4. Senior Operations Manager
5. Head of Call Centre/support services

4. What is your current managerial level?

1. Band 4
2. Band 5
3. Band 6
4. Level 1
5. Level 2
6. Level 3
7. Level 4
8. Level 5

5. Approximately how many people do you manage?

1. 1-10
2. 11-20
3. 21-30
4. 31-40
5. 41-50
6. 51-60
7. 61-70
8. 71-80
9. 81-90
10. 91-100
11. 101+

6. How long have you been in your current position?

1. Less than 1 year
2. 1-2 years
3. 3-5 years
4. 6-7 years
5. 8- 9 years
6. 10+ years

7. How did you get to your current position?

(prompt)

1. Recruited externally
2. Recruited internally within the organisation
3. Recruited internally within the call centre/support services

7. Did this involve promotion?

1. Yes
2. No

8. Was your previous job in a call centre?

1. Yes
2. No

9. If yes, at what level?

1. Agent/adviser
2. Team Leader/manager
3. Co-ordinator
4. Supervisor

Section 2: Management and Leadership

Management and Leadership

Introduction: The following statements (attached) represent management roles and responsibilities. Please consider each of these in turn, circling each category in terms of the frequency to which you undertake the role/responsibility listed within your immediate area of responsibility. If any of the statements do not apply to you (e.g. they do not form a part of your day-to-day role and responsibilities) please tick 'Never'. Please tick a category for every statement (1-15)

A = Always

F = Frequently

S = Sometimes

N = Never

Establishing Direction**(12) I develop a vision for the future**

Always

Frequently

Sometimes

Never

(13) I develop strategies for producing the changes needed to achieve that vision

Always

Frequently

Sometimes

Never

Aligning People**(14) I communicate direction to those whose co-operation may be needed to create coalitions and who both understand and are committed to the 'vision'**

Always

Frequently

Sometimes

Never

Motivating and Inspiring**(15) I aim to keep people moving in the right direction**

Always

Frequently

Sometimes

Never

Please circle the appropriate answer (A, B or C):**12. Which of these statements best describe your overall role?**

A. I deliver services and products in a consistent way using tried and tested processes

B. I regularly and actively develop new products and services for customers which involves considerable change

C. Neither

D. Both

Management Style

I would now like you to consider the following list of statements that refer to management style. By this I mean your own personal way of managing your team(s). Please circle the category that best represents your style of management, selecting one from each statement. If any of these statements do not apply to you, then please indicate by answering 'Never'. Please circle which applies to you according to the following criteria and circle a category for each statement.

A = Always

F = Frequently

S = Sometimes

N = Never

14. Management Style Influences. How important are the following in influencing your style of management? Please answer by giving me a response to each criteria listed on Prompt Sheet 1 (*hand to interviewee*)

- 1 = Extremely important
 2 = Important
 3 = Not very important
 4 = Not at all important
 5 = Don't know

	1	2	3	4	5
(1) You as a person (e.g. personality)					
(2) The culture of the organisation (e.g. the Chief Executive, Managing Director, Head of Call Centre/support services, rules and regulations, budgets, images, norms, office politics)					
(3) External influences (e.g. best practice, other people's ideas, market activity, ways to save money, unstable business environment)					
(4) Previous experience					
(5) Your relationship with your line manager					
(6) Your relationship with your team members					

15. How would you describe relations between you and your team(s) ?

(prompt)

1. V good
2. Good
3. Poor
4. V poor
5. Don't know

16. How would you describe relations between you and your line manager?

(prompt)

1. V good
2. Good
3. Poor
4. V poor
5. Don't know

17. In your experience, do men and women manage in similar or different ways?

1. Similar
2. Different
3. Don't know

18. Why?

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Section 3: Technology

Introduction: I am now going to ask you a series of questions in connection with the technology that you use to carry out your day-to-day job in this call centre. As explained in my introductory letter, I am interested in the relationship between call centre management and technology and these questions will help me to understand both the extent to which you use technology to carry out your day to day activities and your views on this way of managing.

19. Do you consider yourself to be a manager primarily of: (preferably select one only)

(prompt)

1. Technology
2. People
3. Processes
4. All of these
5. Don't know

20. In your experience, which is the most important skill required to do your job effectively? (select one only)

(Prompt)

1. Technology skills
2. People skills
3. Don't know

21. I am now going to read you a series of statements in relation to the technology with which you work. Please say whether you agree or disagree with each statement on a scale of 1-5: (Prompt Sheet 2 - pass to interviewee)

1 = Strongly agree, 2 = Agree, 3 = Disagree, 4 = Strongly disagree, 5 = Don't Know

The technology I work with:

- | | | | | | | |
|----|--|---|---|---|---|---|
| 1. | Enables me to meet my objectives/targets | 1 | 2 | 3 | 4 | 5 |
| 2. | Restricts personal contact with my team members | 1 | 2 | 3 | 4 | 5 |
| 3. | Restricts personal contact with other team leaders | 1 | 2 | 3 | 4 | 5 |
| 4. | Is inflexible | 1 | 2 | 3 | 4 | 5 |
| 5. | Controls the way in which I work | 1 | 2 | 3 | 4 | 5 |

6. Enables me to exercise control over the way in which my team members work
1 2 3 4 5
7. Inhibits personal expression and/or removes expression
1 2 3 4 5
8. Enables me to be more efficient
1 2 3 4 5
9. Enables me to be more effective
1 2 3 4 5
10. Allows me more time for 'people management'
1 2 3 4 5

22. How dependent are you upon technology to do your job?

(prompt)

1. Very dependent
2. Dependent
3. Not very dependent
4. Not at all dependent
5. Don't know

I would now like to ask you a series of questions to try to establish to what extent, if any, you are either consulted and/or informed about the introduction of new technologies in the call centre/support services. I have separated out 'consulted' from 'informed' because 'consulted' implies that you have been involved in the decision making process; whereas 'informed' implies that you have been informed once decisions have been made and the new technology/upgrade to existing technology has already been decided upon.

Consulted

23. Have you ever been consulted about changes in technology in the call centre,/support services? For example, a proposed introduction of a new system.

1. Yes
2. No (open question: why)?
3. Don't know

24. If yes, how were you consulted? Please state the way in which you are most often consulted: *(Prompt)*

1. Team meetings
2. One to one meetings
3. Briefing sessions
4. Email
5. Paper correspondence
6. The 'office grapevine'

7. Training sessions
8. Focus groups

25. And who most often consulted with you? (*prompt*)

1. A member of staff from the organisation
2. The head of the call centre/support services
3. Your line manager
4. Consultants/designers from outside the call centre/
Support services
5. Technology staff within the organisation
6. Technology staff within the call centre/support services
7. Colleagues
8. Project staff
9. Other staff

**26. And at what stage(s)?
(*prompt*)**

1. Design (including feasibility,
requirement definition, and analysis)
2. Implementation (testing, training, development)
3. Use (up and running - 'live')

Informed

27. Have you ever been informed about changes in technology in the call centre/support services? For example, the proposed introduction of a new system?

1. Yes
2. No (open question: why)?
3. Don't know

28. If yes, how were you informed? Please state the way in which you are most often informed: (*prompt*)

1. Team meetings
2. One to one meetings
3. Briefing sessions
4. Email
5. Paper correspondence
6. The 'office grapevine'
7. Training sessions
8. Focus groups

29. And who most often informed you? (prompt)

1. A member of staff from the organisation
2. The head of the call centre/support services
3. My line manager
4. Consultants/designers from outside the call centre
Support services
5. Technology staff within the organisation
6. Technology staff within the call centre/support services
7. Colleagues
8. Project staff
9. Other staff

**30. And at what stage(s)?
(prompt)**

1. Design (including feasibility, requirement definition, and analysis)
2. Implementation (testing, training, development)
3. Use (up and running - 'live')

31. What single thing, if anything, would you change about the technology you use in the call centre/support services?

32. Do you think that a suggestion made by you would be followed up?

1. Yes
2. No (why?)
3. Don't know

**33. How would you rate the training you have received to use the technology?
(prompt)**

1. Very good
2. Good
3. Poor
4. Very poor
5. Didn't receive any training
6. Don't know

34. In a typical week, how many hours, on average, do you spend managing through technology (by technology, I mean the Centre Management System; Comverse?)

1. 1-5
2. 6-10
3. 11-15
4. 16-20
5. 21-25

6. 26-30
7. 31-35
8. 36-40
9. 40+

I would now just like to ask you a few questions about your working environment.

35. How satisfied are you overall with your working environment (explain - by working environment, I mean your immediate (physical) surroundings: *(prompt)*

1. Very satisfied
2. Fairly satisfied
3. Fairly dissatisfied
4. Very dissatisfied
5. Don't know

36. I am now going to show you some typical workstation layouts. Please would you indicate which one you believe would best enable you to work with your teams:

1. Rows
2. Cross
3. L-shape
4. Square
5. Circle
6. Curved oblong

37. How satisfied are you with the following? (*hand interviewee Prompt Sheet 3*)

1 - Very satisfied, 2 = Fairly satisfied, 3 = Fairly dissatisfied, 4 = Very dissatisfied, 5 = Don't know

- | | | | | | | |
|-----|----------------------------------|---|---|---|---|---|
| (1) | Amount of space in which to work | 1 | 2 | 3 | 4 | 5 |
| (2) | Your workstation | 1 | 2 | 3 | 4 | 5 |
| (3) | Level of privacy | 1 | 2 | 3 | 4 | 5 |
| (4) | Noise levels | 1 | 2 | 3 | 4 | 5 |
| (5) | Temperature | 1 | 2 | 3 | 4 | 5 |
| (6) | Lighting levels | 1 | 2 | 3 | 4 | 5 |

(7) Air quality
1 2 3 4 5

(8) Aesthetic surroundings (décor)
1 2 3 4 5

38. Have you ever been asked about this?

1. Yes
2. No
3. Don't know

39. If yes, by whom/how?

1. Facilities department
2. Line manager
3. Head of call centre
4. Questionnaire

Section 4: Motivation

Introduction: What I would now like to do is to try to understand what motivates you as a manager and how you motivate others. I have attached a set of statements that may or may not be important motivating factors for you at work. For each statement, please would you indicate the degree of importance this has for you by circling a number, from 1-5. If you are not sure then please say 'don't know'. Please circle a number from 1-5 for every statement.

1 = Extremely important

2 = Important

3 = Not very important

4 = Not at all important

5 = Don't know

40. What motivates you as a manager? Please indicate on a scale of 1-5 the importance of each motivational factor. SELF COMPLETION

1 = Extremely important, 2 = Important, 3 = Not very important, 4 = Not at all important, 5 = Don't know

1. A good relationship with my peers	1	2	3	4	5
2. A good relationship with my team members	1	2	3	4	5
3. A good relationship with my line manager	1	2	3	4	5
4. A good relationship with senior managers	1	2	3	4	5
5. A good basic pay	1	2	3	4	5
6. Bonus payments	1	2	3	4	5
7. Incentive awards for good performance	1	2	3	4	5
8. Fringe benefits	1	2	3	4	5
9. Good working conditions	1	2	3	4	5
10. Job security	1	2	3	4	5
11. Learning new skills/training	1	2	3	4	5
12. Working in teams	1	2	3	4	5
13. Job interest	1	2	3	4	5
14. Targets that stretch me	1	2	3	4	5
15. Opportunities for promotion/career development	1	2	3	4	5
16. A challenging job	1	2	3	4	5
17. Job clarity	1	2	3	4	5
18. The opportunity to contribute ideas	1	2	3	4	5
19. Organisational status	1	2	3	4	5
20. A good working environment	1	2	3	4	5
21. Recognition from management generally	1	2	3	4	5
22. A friendly working environment	1	2	3	4	5

23. Working for a successful organisation 1 2 3 4 5

41. Of the list just presented to you, which is the single most motivating factor for you?

--

42. Have you ever been asked your views on the way in which your performance is assessed?

1. Yes
2. No

43. If yes, by whom?

1. Head of the call centre/support services
2. Your line manager
3. Other members of the organisation (please specify)
4. Designers/consultants

44. How is your performance assessment most often fed back to you?

1. One-to-one basis
2. In team meetings

45. Looking at performance issues overall, do you think there is a correct balance between the measurement of your hard (quantitative) and soft (qualitative/people) skills? (prompt - explain further)

1. Yes
2. No
3. Don't know

46. In your opinion, should the measurement of 'soft' skills become more or less important as call centres evolve into multi-media contact centres?

1. More
2. Less
3. Should be equal
4. Don't know

47. Do you believe that your performance is fully and properly rewarded, i.e. through your basic pay and fringe benefits?

1. Yes
2. No
3. Don't know

48. Do you believe that your performance is fully and properly recognised, i.e. by your line manager?

1. Yes
2. No
3. Don't know

49. Which of the following do you use to motivate your team members? Please circle (A) for all those categories that apply to you.

	Actual (A)
(1) How often do you have personal one-to-one's with your team members (not including coaching/training sessions)?	
1. Weekly one to one's	A
2. Fortnightly one to one's	A
3. Monthly one to one's	A
4. One to one's upon each team member's request	A
5. One to one's whenever the pressure of work allows	A
(2) How often do you have team meetings with all of your team members?	
6. Weekly team meetings	A
7. Fortnightly team meetings	A
8. Monthly team meetings	A
9. Quarterly team meetings	A
10. Team meetings upon the team member's request	A
11. Team meetings whenever the pressure of work allows	A
(3) How often do you have coaching/training sessions with your individual team members?	
12. Weekly coaching/training sessions	A
13. Fortnightly coaching/training sessions	A
14. Monthly coaching/training sessions	A
15. Coaching/training sessions as requested by team members	A
16. Coaching/training sessions whenever the pressure of work allows	A
(4) Generally, do you use any of the following to motivate your team members?	
17. Regularly telling team members how well they are doing	A
18. Keeping team members informed, especially about changes and developments throughout the day	A
19. Being available to help if needed	A
20. Recognising a job well done	A
21. Saying 'thank you' for a job well done	A
22. Presenting small rewards	A
23. Being open and honest	A
24. Leading by example (e.g. taking calls in busy periods)	A
25. Encouraging (verbally)	A
26. Working as a team/including yourself as a team member	A
27. Socialising within the workplace	A
28. Socialising outside of the workplace	A

50. Would you like more or less face-to-face contact with your team members, or is it about right?

1. More
2. Less
3. About right

51. How do you feed back individual performance assessment to your team members - which channel do you most often use?

1. Emails
2. Written correspondence
3. One-to-one's
4. Team meetings

52. Do team members frequently come to you with work-related problems?

1. Yes
2. No

53. Do team members frequently come to you with personal problems?

1. Yes
2. No

54. Do you spend more time coaching team members in service techniques, sales techniques, or both?

1. Service
2. Sales
3. Both
4. None

55. Do you believe that the targets set for your team(s) are achievable?

1. Yes
2. No
3. Don't know

56. Why?

57. Do you have any say in how your team members are assessed?

1. Yes
2. No
3. Don't know

Section 5: Career

I would now like to ask you some questions about your career and how this has progressed to date.

58. How satisfied are you with your career progression to date?
(prompt)

1. Very satisfied
2. Fairly satisfied
3. Fairly dissatisfied
4. Very dissatisfied
5. Don't know

59. Do you have any skills that you believe are not being utilised in your current role?

1. Yes
2. No
3. Don't know

60. If yes, what are these skills?

1. Formal qualifications
2. Previous experience
3. Previous training courses attended
4. Skills acquired in the home (planning, budgeting, managing)
5. Other skills

61. Have you encountered any of the following barriers to your career to date?
(prompt)

1. Lack of support from your line manager
2. Lack of promotion
3. Lack of training
4. Lack of career guidance
5. Family commitments
6. Other (please specify)
7. None

62. How would you describe your level of morale generally?
(prompt)

1. High
2. Medium
3. Low
4. Very low
5. Don't know/no opinion

63. Are any of the following an issue for you at the moment?

1. **Self-motivation**
2. **Motivating your team(s)**
3. **Pace of work**
4. **Pay and incentives**

64. Are you a member of a trade union?

1. Yes
2. No

65. If yes, have you ever addressed a work-related grievance with your union representative?

1. Yes
2. No

66. How would you rate Lloyds TSB as a place to work?

1. One of the best
2. Above average
3. Average
4. Below average
5. One of the worst
6. Don't know/no opinion

Why?

67. Do you think that Lloyds TSB cares about its employees?

1. Yes
2. No
3. Don't know

68. In your view, what single issue will have the most significant impact on call centre operations in the next five years?

1. New technology
2. Types of service
3. Level of service
4. Customer satisfaction
5. Competition
6. Recognition of call centre employees' needs

69. What attracted you to work in a call centre?

1. Pay
2. New industry
3. Locality
4. Hours of work
5. Nature of work
6. New challenge
7. Problem-solving
8. Customer focus
9. Team working
10. Chance to use communication skills
11. Chance to acquire transferable skills
12. Chance to work with new technology
13. Chance to work with people
14. The opportunity arose
15. Promotion
16. Management role
17. Job security
18. The company brand name

Section 7: Personal Details

Introduction: to help me to classify your answers and to make my statistical comparisons, would you mind completing the following questions? You are under no obligation to answer the following questions but your co-operation would be very much appreciated. May I at this stage reiterate that your answers will be treated in confidence.

Section 7: Personal Details**SELF COMPLETION****(Please tick the appropriate box and answer ALL questions)****70. Are you:**

1. Male
2. Female

71. How old are you?

1. Under 21 Years
2. 21-24 Years
3. 25-30 Years
4. 31-35 Years
5. 36-40 Years
6. 41-50 Years
7. 51-60 Years
8. 61+ Years

72. What is your ethnic origin?

1. White
2. Black Caribbean
3. Black African
4. Black (other) (please specify)
5. Indian
6. Pakistani
7. Bangladeshi
8. Chinese
9. Any other ethnic group (please specify)

73. Are you disabled?

1. Yes
2. No

74. If yes, what is the nature of your disability?

1. Physical
2. Intellectual

75. What is your marital status?

1. Single
2. Married
3. Living with Partner
4. Divorced/separated
5. Widowed

76. Do you have children?

1. Yes
2. No (Go to Question 82)

77. If yes, how many?

1. 1
2. 2
3. 3
4. 4
5. 5+

78. What is the age of your youngest child?

1. 0-5 years (go to next question)
2. 6-10 years (go to next question)
3. 11-15 years (go to question 81)
4. 16+ (go to question 82)

79. Have you ever taken:

1. Maternity leave
2. Paternity leave
3. Parental leave
4. None (go to Question 81)

80. If you have taken Maternity leave, Paternity leave, or parental leave, for how long in total?

1. 1-10 weeks
2. 11-20 weeks
3. 21-30 weeks
4. 30+ weeks

81. Who takes primary responsibility for your children?

1. You
2. Your partner
3. You and your partner jointly
4. A child minder
5. Nursery
6. Friends/relatives
7. Ex-partner

82. What is your highest level of qualification?

1. GCSE/'O' Level
2. 'A'Level/Scottish Higher
3. NVQ
4. HNC/HND
5. Degree
6. Diploma
7. Postgraduate Degree
8. No formal qualifications

83. What type of secondary school did you attend?

1. State
2. Public

84. Have you or are you currently undertaking any management training courses?

1. Yes
2. No

85. Do you hold any management qualifications?

1. Yes
2. No

86. Have you or are you currently undertaking any call centre/support services management training courses?

1. Yes
2. No

87. Do you hold any call centre management qualifications?

1. Yes
2. No

88. How satisfied are you with the training and development that you have received since joining the organisation?

1. Very satisfied
2. Fairly satisfied
3. Fairly dissatisfied
4. Very dissatisfied
5. Don't know

89. How many hours do you work, on average, per week?

1. 15-20
2. 21-30
3. 31-40
4. 41-50
5. 51-60
6. 60+

90. How many hours are you employed to work per week?

1. 15-20
2. 21-30
3. 31-40
4. 41-50
5. 51-60
6. 60+

91. If you work more than the hours you are employed to work, are you paid for this?

1. Yes
2. No

92. Do you work shifts?

1. Yes (what are your hours of work?)
2. No

93. Do you take work home?

1. Yes
2. No

94. If yes, how often, on average, per week?

1. Once a week
2. Twice a week
3. Three time a week
4. Every day

95. On what basis are your employed?

1. Full-time
2. Part-time
3. Flexible Hours
4. Reduced Hours
5. Job Share
6. Working in Partnership
7. Annualised hours

96. What is your reason for working anything other than full-time hours?

1. Family commitments
2. Student
3. Personal choice

**97. Please would state your annual basic pay, not including any benefits?
£.....**

If you would prefer not to give your exact basic pay, please would you indicate the approximate basic pay band into which you fall:

1. £15-20,000
2. £21-25,000
3. £26-30,000
4. £31-35,000
5. £36-40,000
6. £41-45,000
7. £46-50,000
8. £51-55,000
9. £56-60,000
10. £60,000 +

98. Do you receive any of the following benefits?

1. Company car
2. Company pension
3. Private health care
4. Subsidised finance
5. Subsidises mortgage
6. Discretionary bonus
7. Annual bonus
8. Profit sharing
9. Save as you earn shares
10. Subsidised childcare
11. Other

Appendix III

Interview Schedules: Senior Managers (Call Centres and Parent Organisations)

General:

Could you please describe your role and your place in the reporting structure?
 How long have you been in your current role?
 Where does your brief come from?
 How do you keep yourself up-to-date with what's happening in the call centre industry?
 How often do you visit the call centres?

Design and setting up of call centres:

Who made the decision to set up the call centres?
 What were the requirements, e.g. location, available workforce, etc?
 Does the organisation have a set methodology that it applies to the setting up of its call centres?
 What involvement did you have at the design and setting up stage?
 What is your role now?
 What was the range of designs available at the time of setting up?
 Why was one particular design chosen over another?
 Who is responsible for the design and updating of the working environment?
 Do you think it important to consult with 'users' of the working environment?

Technology:

To what extent are users of technology considered when deciding upon the introduction of new technologies?
 Do you have a consultation process that involves user groups? If so, how are these set up and who is involved?
 Do you see the workforce as a homogeneous or diverse group of people?
 Was the impact of new technologies on workplace relations and career structures a consideration?
 Did you consult with trade union representatives about the design and setting up of technology and the working environment?
 Do you consult with trade union representatives about technological changes?
 Who decides upon measurement criteria in the call centres, e.g. grade of service or talk time?
 Why did you choose the particular measurement criteria in operation at present?
 What role does technology play in your call centres?
 Do you see call centres as driven by technology or people?
 What do the roles of people management and technology management mean to you?
 How are decisions made about the introduction of new technologies?
 Who makes these decisions?

The Labour Process:

What, in your view, is the role of a team manager in the call centres?
 How core are these team managers in your call centres?

Do you see team managers as ‘managers’ or supervisors?

Do you see team managers as managers of technology, people or both?

Do you see the call centres as technology driven, people driven or both?

To what extent do you believe team managers use technology to carry out their day-to-day jobs?

In your view, what role does technology play and what role do people play in the call centres?

Why was flexible working introduced?

Will you move to greater flexibility, e.g. home working?

Or will you retain flexible working in a static environment?

Why do you think your call centres are predominantly staffed by women?

Do you see your call centres as a place for upward mobility?

How far, realistically, do you think a call centre team manager could go, either within the call centre or the parent organisation generally?

Do you believe that call centres provide a springboard for women’s career advancement, given that call centre working is relatively new?

Do you think that call centres are a place where women can ‘get on’?

What skills, in your view, are required to work in your call centres?

Do you see the adviser and team manager roles becoming more complex as technology advances and takes over the more routine tasks?

Sickness and attrition rates vary between call centres generally. Why do you think this is?

The Future:

Do you think that the call centre operation has become more important to the business?

How do you see the future for the call centres?

What is the future for technology in the call centres?

Would you ever consider wireless technology?

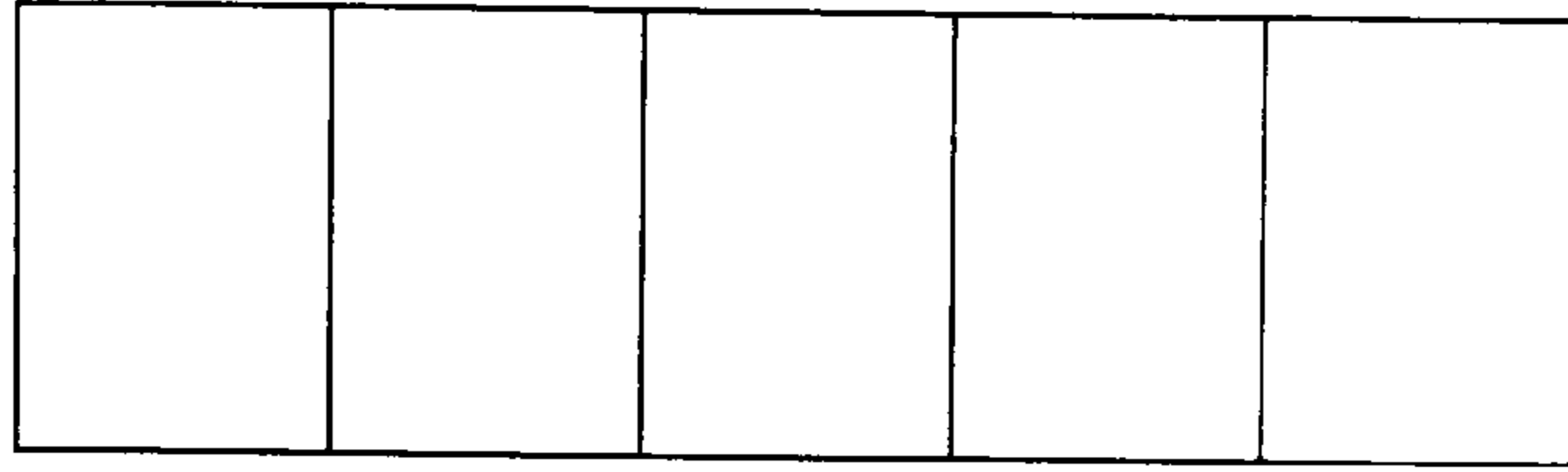
What is the next planned change in terms of technology?

In retrospect, would you have done anything differently at the design and set-up stage of the call centres?

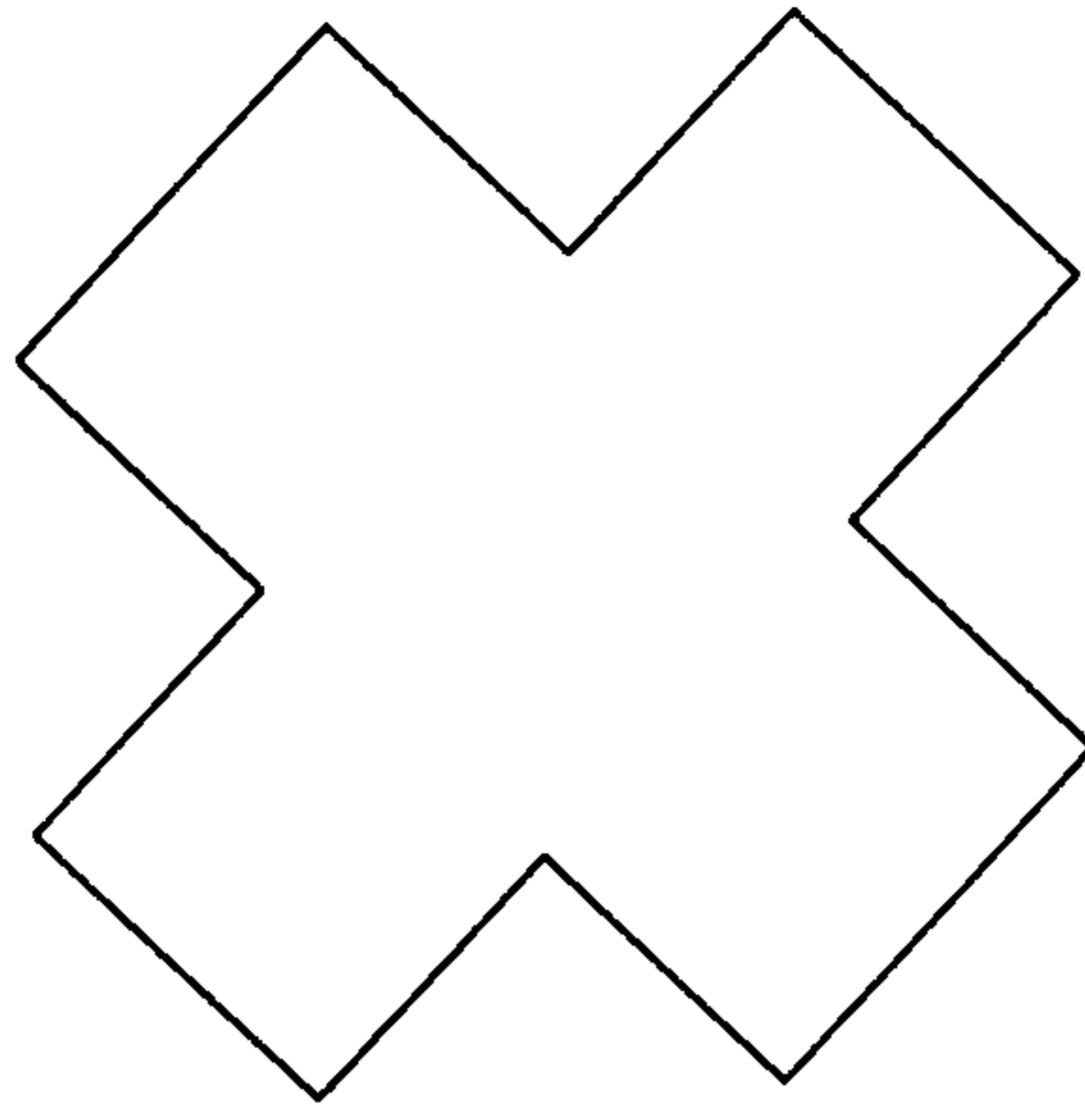
Are you planning to open any further call centres?

APPENDIX IV : CALL CENTRE SEATING LAYOUTS

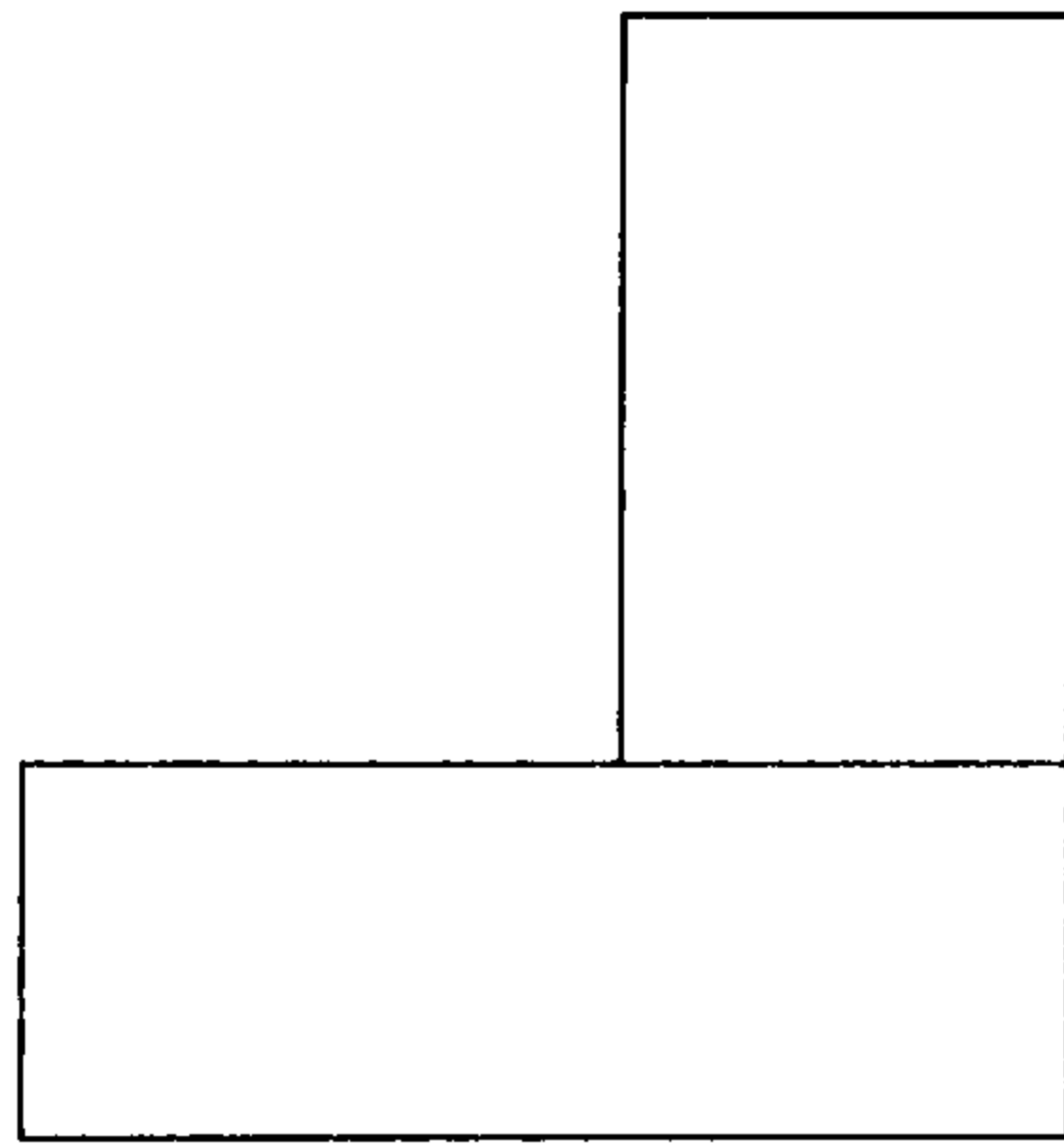
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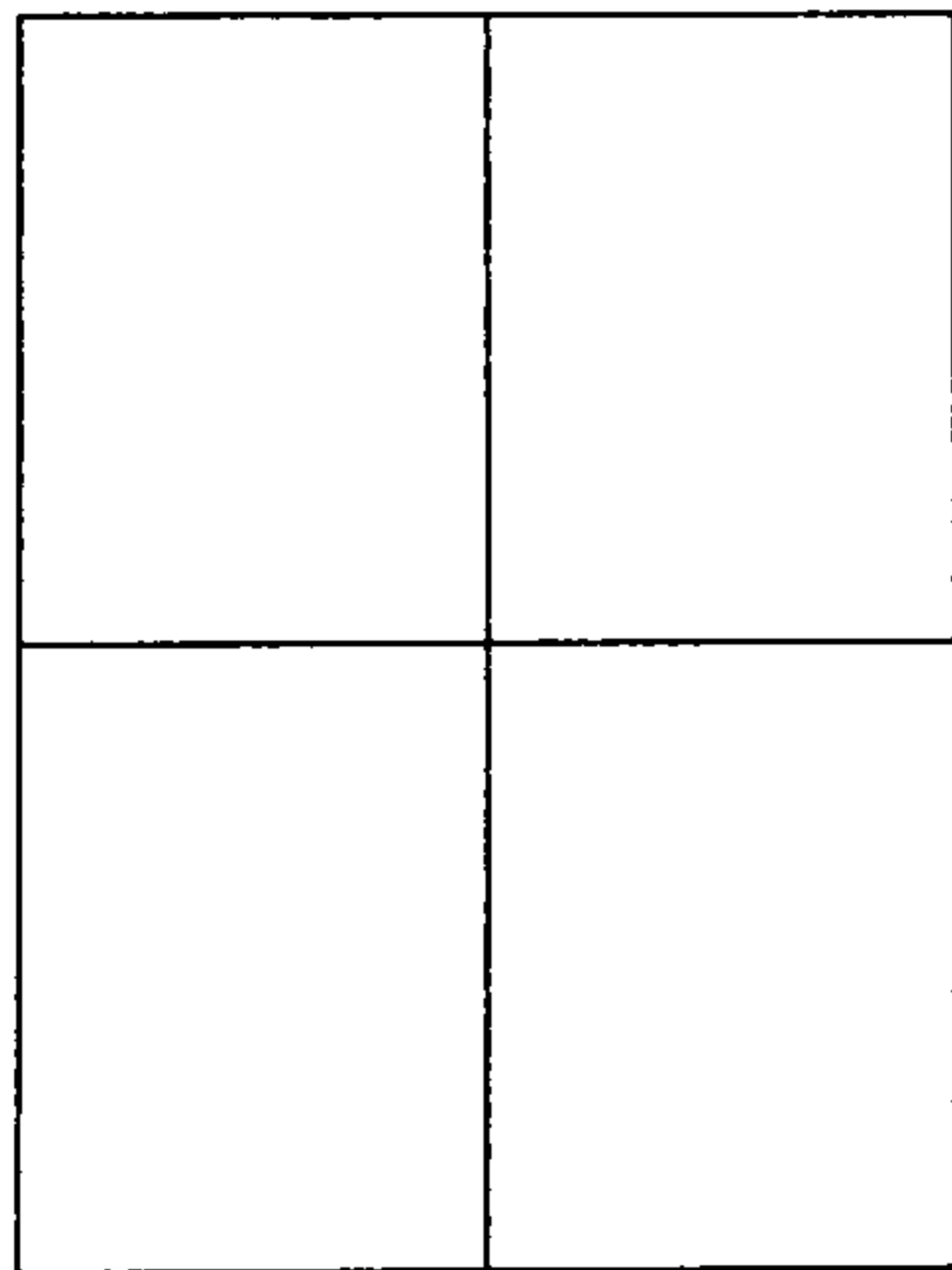
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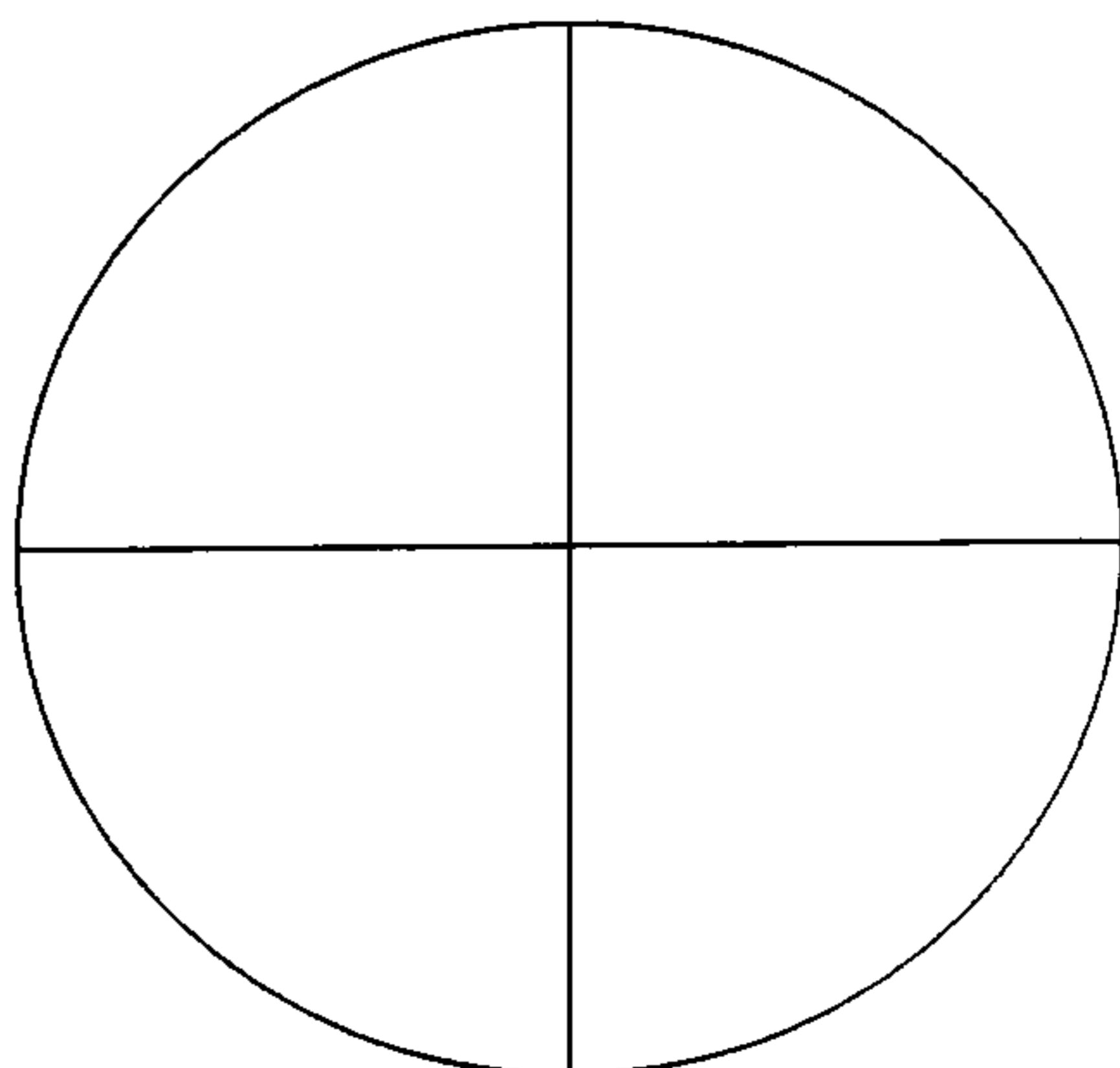
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4



5



APPENDIX V : THE TECHNOLOGICAL DESIGN NETWORK (FINCO)

**HIGH LEVEL OF
DECISION MAKING/
INVOLVEMENT**

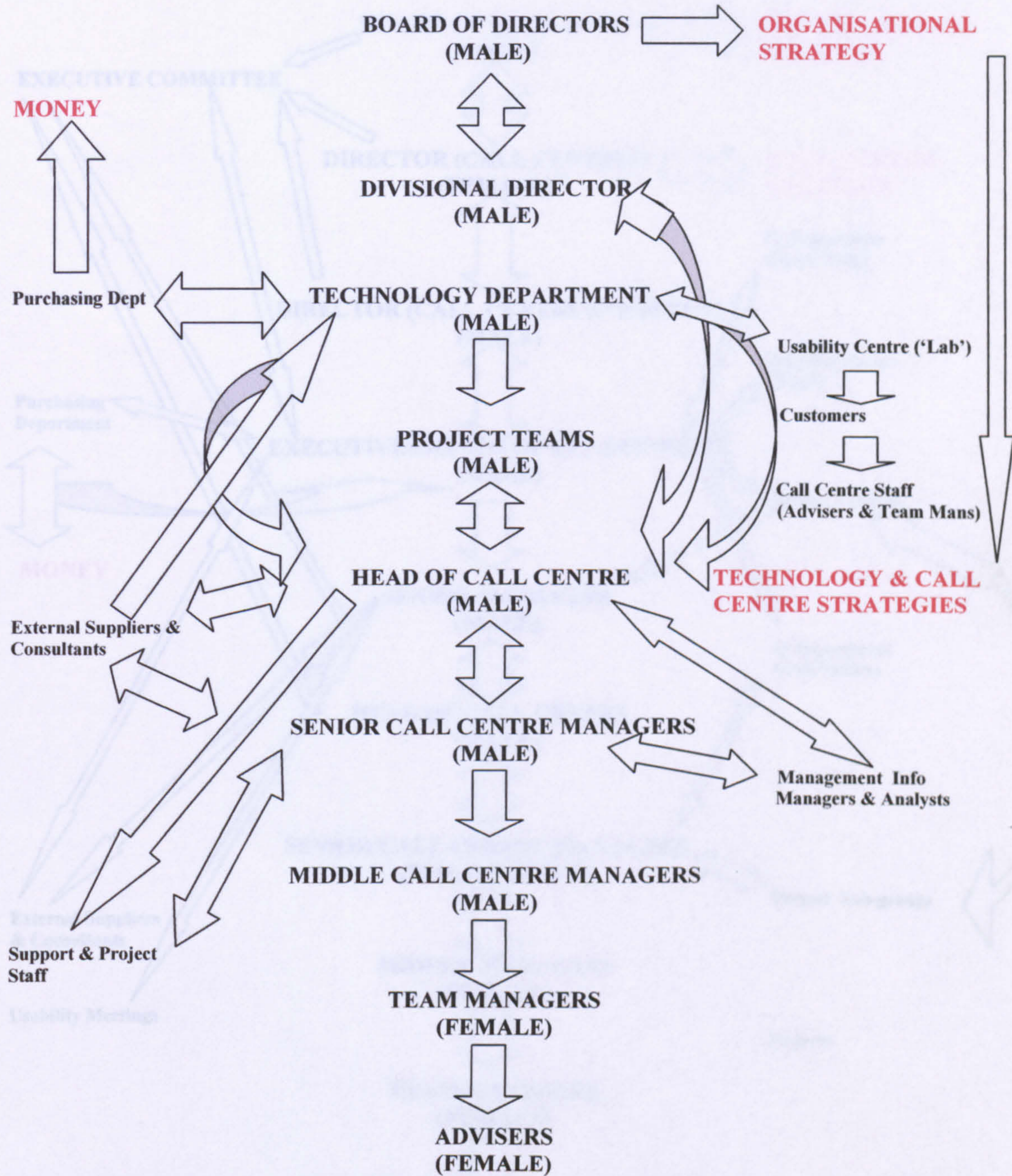
**TECHNOLOGY
DESIGN**

**EMBEDDED
KNOWLEDGE**

DESIGNERS

TECHNOLOGY

TEXTS, BRIEFING PAPERS, STRATEGY PAPERS, COSTINGS, PROCESS MAPS ETC.



**LOW LEVEL OF
DECISION
MAKING
INVOLVEMENT**

**TECHNOLOGY
IMPLEMENTATION**

**EMBODIED
KNOWLEDGE**

USERS

KEY

BLACK – DESIGNERS & USERS (SOCIAL ACTORS)

BLUE – HIGH/LOW LEVEL OF INVOLVEMENT

RED – INTERMEDIARIES (NON-HUMAN ACTANTS)

APPENDIX VI : THE TECHNOLOGICAL DESIGN NETWORK (BANCO)

**HIGH LEVEL OF
DECISION MAKING/
INVOLVEMENT**

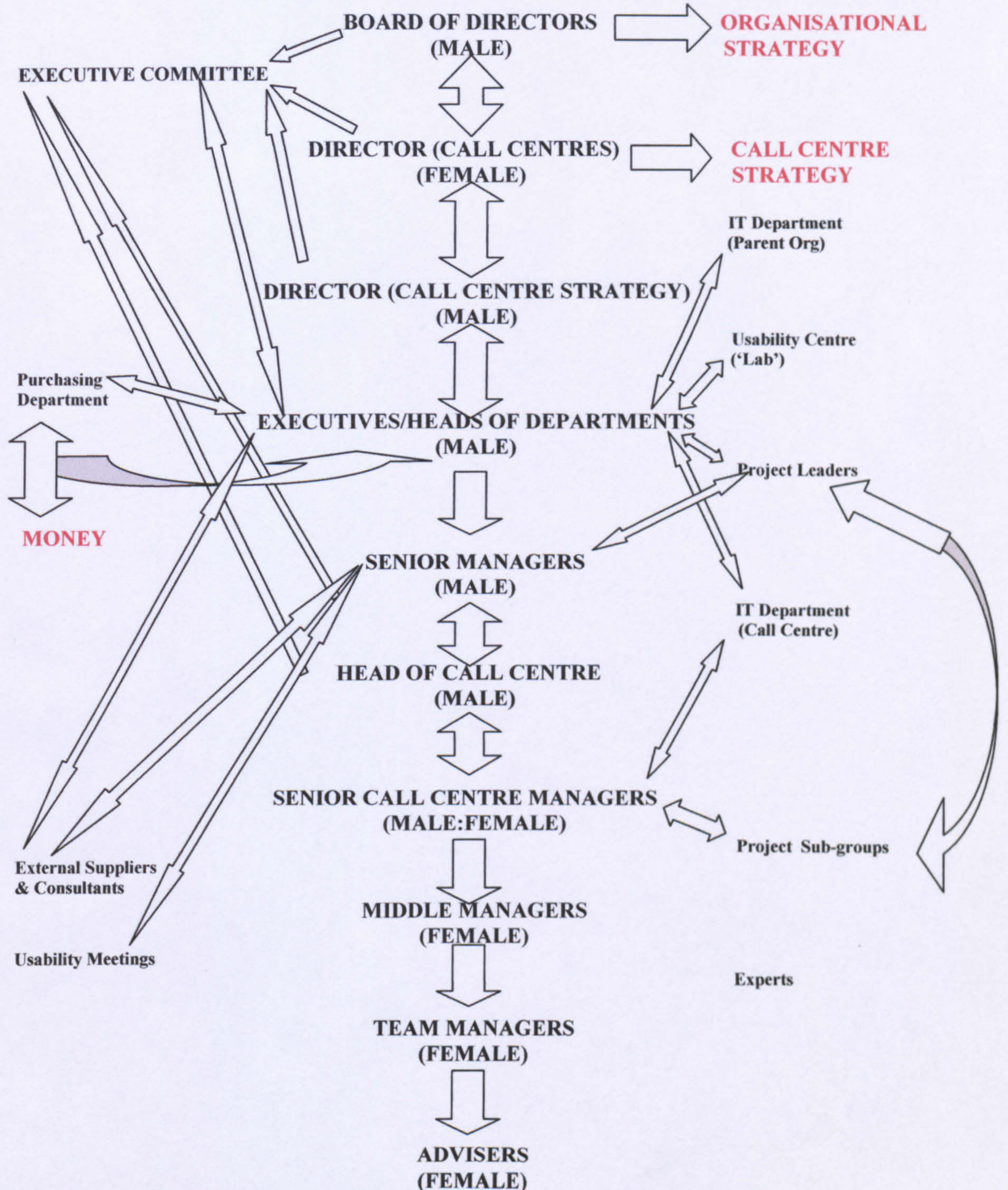
**TECHNOLOGY
DESIGN**

**EMBEDDED
KNOWLEDGE**

DESIGNERS

TECHNOLOGY

TEXTS, BRIEFING PAPERS, STRATEGY PAPERS, COSTINGS, PROCESS MAPS ETC.



**LOW LEVEL OF
DECISION
MAKING
INVOLVEMENT**

**TECHNOLOGY
IMPLEMENTATION**

**EMBODIED
KNOWLEDGE**

USERS

KEY

BLACK - DESIGNERS & USERS (SOCIAL ACTORS)

BLUE - HIGH/LOW LEVEL OF INVOLVEMENT

RED - INTERMEDIARIES (NON-HUMAN ACTANTS)