

**A GENDER ANALYSIS OF THE
CAREER PROGRESSION OF IT
MANAGERS**

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A GENDER ANALYSIS OF THE CAREER PROGRESSION OF IT MANAGERS

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Abstract

This thesis presents a gender analysis of the IT managerial career progression process. The research includes case studies conducted within the IT division of four companies and survey results of IT managers carried out in the UK. The case studies include the collection of documentary evidence, observation and a total of fifty interviews conducted with IT managers and Personnel representatives. The case companies comprise the financial services, utility, retail and IT manufacturing sectors.

This study builds on and extends existing knowledge within three areas of literature - women in management, gender and IT and career progression. Despite arguments within and between these fields of literature this study demonstrates how, due to gaps and weaknesses within each of the areas, it is necessary for them to be brought together under a single theoretical framework. Additionally, on an organisational level, by seeking out and analysing both formal and informal factors that influence the career progression of IT managers, aspects of this process that may inhibit women's IT managerial career progression are identified.

This study concludes that there are aspects of both the IT management role and the associated career progression process that may be identified as gendered. Such aspects influence the career choices made by IT managers, leading to some identifiable differences in the approaches men and women adopt in progressing their careers. In addition, it is suggested that the gendered aspects have greater negative influence on the career progression opportunities and potential of women than men IT managers.

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Definition of Terms

- Career progression characteristics:** The skills or attributes an individual is expected to possess and demonstrate in order to progress their career.
- Career progression procedures:** The activities or steps an individual is understood to have to follow in order to progress their career.
- Career progression:** Within the context of this research, a career is understood as an *"individually perceived sequence of attitudes and behaviours associated with work-related experiences and activities over the span of a persons life."* (Gutek and Larwood, 1989, p4). The series of positions an individual holds over time represents the development of the career (Gutek and Larwood, 1989).
- Formal organisational factors:** Refers to written policies and procedures within organisations. These may relate to, for example, recruitment, career progression or equal opportunities and provide guidelines or dictate the way organisational activities should be undertaken.
- Gender:** The concept of gender is used to distinguish between differences between men and women which are biologically based and differences which are socially derived.
- Hybrid Manager:** A hybrid manager is one who can combine knowledge and practical experience of business with technical competence in order to strategically and competitively benefit the organisation.
- Informal organisational factors:** Refers to activities or processes within an organisation that are not defined by formal organisational policies or procedures. That is, the every day behaviours, attitudes and actions of employees as they interact with each other. In some cases, such behaviours, attitudes and actions may be contrary to those prescribed by formal policies and procedures.

- IT Managers:** Within the context of the definition of the field of IT, a guide to defining IT managers was taken from each of the companies involved in the study. That is, because each firm has a different hierarchical structure and job titles, the definition of IT manager within each of the sample companies was adopted. In most cases this included individuals who had responsibility for a team of people or who were expected to contribute information and decisions at a strategic level.
- IT Personnel:** Refers to the representative of the company's Personnel department that has responsibility for human resource issues within the IT function.
- Opportunity 2000:** Opportunity 2000 is a national campaign which encourages and supports organisations in their aims to increase the *“quality and quantity of women’s participation in the workforce”* by the year 2000. The campaign was launched by the independent British charity, Business in the Community, with the support of the British Government in 1991.
- The field of IT:** Information technology (IT) within the context of this research, refers to computerised information processing technology, concerned with the storage, retrieval, processing and communication of information. The field of IT refers to individuals involved in the development, implementation, support and maintenance of IT hardware and software.
- Tacit Knowledge:** Several interpretations and definitions of tacit knowledge exist (e.g. Fleck, 1988; Polanyi, 1967). The term is used within this thesis to describe knowledge that is rooted in practice and experience. It may be acquired through socialisation, mentoring or on the job learning.

Abbreviations

A' level	-	Advanced Level
ADP	-	Automated Data Processing
BCS	-	British Computer Society
CENTRIM	-	Centre for Research in Innovation Management
DP	-	Data Processing
EDP	-	Electronic Data Processing
ENIAC	-	Electronic Numerical Integrator and Calculator
F	-	Female
H/L	-	Hierarchical Level
HESA	-	Higher Education Statistics Agency
HNC	-	Higher National Certificate
HRM	-	Human Resource Management
ISM	-	Industry Structure Model
IT	-	Information Technology
ITHQ	-	IT Co Head Quarters
M	-	Male
MSc	-	Master of Science
O' level	-	Ordinary level
OND	-	Ordinary National Diploma
PE	-	Performance Evaluation
TEC	-	Training and Enterprise Council
WiT	-	Women into Information Technology Foundation

Chapter 1 - Introduction

1.1 Overview

Since the introduction of IT into organisations, women working within the field have been concentrated in lower level positions, for example as data inputters and more recently in customer/user support (Shirley, 1988; National Computing Centre, 1987; Virgo, 1994). Few women are represented in IT management roles (Hammond and Holton, 1992; Virgo, 1994).

To date, research concerned with the gender division of labour within the field of IT has tended to concentrate on two major issues:

- understanding the cause of women's exclusion from IT and their segregation into lower levels of the industry (Strober and Arnold, 1987; Kraft and Dubnoff, 1983; Cockburn, 1983);
- understanding why there is a disproportionately low representation of women in higher education computing courses and how their numbers can be increased (Dain, 1988; Lovegrove and Hall, 1987; Culley, 1986; Hoyles, 1988).

Whilst this work has contributed to understanding the relationship between gender and IT, little attention has been directed at understanding any gender aspects that may be associated with the IT management role in particular. Conversely, women in management and career progression studies have addressed issues facing the entry and progression of women in management roles. However, few have considered industry or profession specific factors or the influence of gender and IT relations at the IT management level. Consequently, it is proposed here that only by combining these three areas of literature, can a gender analysis of the IT managerial career progression process be undertaken. It is also argued that it is both timely and important to consider the gender aspects of the IT managerial career progression process due to the growing importance and changing nature of the role.

The use of IT within organisations has developed considerably since it was first introduced in the 1950s. Once viewed as limited to processing electronic data, by the mid 1980s IT was heralded as the new strategic resource for many firms (e.g. Jackson, 1989; Cash and Konsynski, 1985). As the use and potential of IT has developed over the decades so too has the role of IT managers. The ability of IT managers to facilitate the alignment of IT with a firm's core business, enabling the strategic potential of IT to be realised, is becoming increasingly important. In line with this, there has been a call for the skills looked for in IT managers to shift away from technical expertise, towards business and interpersonal skills (e.g. Ciborra, 1992).

The changes called for in the skills employed by IT managers are important in providing a rationale for this study for two major reasons.

Firstly, whilst the literature in the late 1980s and early 1990s called for the development of business and interpersonal skills amongst IT managers, there is a paucity of more recent data on the skills being employed in practice at this level. Indeed, it may be inferred from surveys showing the problems companies are experiencing in aligning IT with business strategy, that the newly called for skills have not yet been fully developed or perhaps are not yet being widely practised (Price Waterhouse, 1987; 1988; 1989; 1994; 1995).

Secondly, it is important to note that women in particular have been identified as possessing the recently called for IT management skills (Hammond and Holton, 1992; Virgo, 1994). Indeed, skills such as communication are frequently labelled as feminine skills (Hammond and Holton, 1992). In addition, whilst fewer women than men continue to undertake IT related degree courses, they are represented in more equal numbers on business and management degree courses (HESA, 1995). However, the possession of appropriate skills amongst women does not appear to have led to their increased representation at the IT management level. This may be influenced by the extent to which organisations are developing business and interpersonal skills amongst IT managers in practice. Also, studies within women in management, gender and IT and career progression literature suggest that, rather than the possession of appropriate skills, several other influences may continue to prevent women's progression to and within IT management (e.g. Henwood, 1993; Clegg, 1981). Other influences include, for example, socially constructed images of women's role and appropriate work (e.g. Rossi, 1974; Sekaran and Leong, 1992; Marshall, 1984; Alexander, 1987) and informal behaviours, attitudes and practices within organisations (e.g. Acker, 1992, Cassell and Walsh, 1993).

This study seeks to bridge the gaps described above by contributing to knowledge on both an academic and organisational level. That is, in terms of the development of a theoretical framework and knowledge of the practice and experience of individual IT managers. On the academic level, this study builds on and extends existing knowledge within three areas of literature — women in management, gender and IT and career progression — by identifying a number of factors influencing the career progression of women compared with men IT managers. In so doing, this study will also show how, within the context of this research, despite arguments within and between the areas of literature, they can and should be brought together under a single theoretical framework. Within the context of this research it shows how the framework is important both for guiding the research design, analysing and understanding the empirical results.

On an organisational level, this study will contribute to knowledge by providing empirical information on the actual skills being employed by men and women IT managers in their daily roles. In so doing, it will provide a basis for assessing the extent to which business and interpersonal skills are overtaking technical skills in importance in practice. By conducting a

gender analysis of the career progression of IT managers, aspects of this process that may inhibit women's IT managerial career progression will be identified.

Whilst the primary aim of this study is to conduct a gender analysis of the IT managerial career progression process, it is also concerned with achieving positive change, enabling more women to enter and progress within the IT management role. Consequently, throughout this thesis attention is given to the importance of relating theory to practice. This enables some practical suggestions to be made within the conclusion of this thesis as to how, where negative influences on women IT managers' career progression are identified, positive steps may be taken to help overcome some of the barriers.

1.2 Objectives

The objectives of this study are three-fold:

- to explore formal and informal organisational factors effecting the career progression of women compared with men IT managers;
- to begin to assess the extent to which different organisational settings impact the career progression experience of women compared with men IT managers;
- to develop a theoretical framework with which to analyse the research results by drawing together theories from three areas of literature: women in management, gender and IT and career progression.

In meeting the study's objectives, this thesis shows how qualitative and quantitative methods were employed in presenting the results and analysis of four case studies and a questionnaire. The case studies included interviews with a total of 46 IT managers¹ and 4 company Personnel representatives, observations and collection of documentary evidence in four companies from different sectors, namely:

- financial services;
- utility;
- retail;
- IT manufacturing.

The questionnaire includes results from IT managers in 71 organisations based in the south east of England.

Before providing a description of the structure of this thesis and presenting a guide to each of the chapters, the key terms used within the study will first be defined.

¹ Three of these interviews had to be conducted with individuals from below the management level (see Chapter 9).

1.3 Defining Key Terms

1.3.1 Gender²

The concept of gender was first adopted in the UK and Scandinavian countries to distinguish between differences between men and women which are biologically based and those which are socially derived. Social constructionists, for example, argue how the division of labour between men and women can only be understood by considering how 'maleness' and 'femaleness' is socially constructed. They have become concerned with how certain skills, abilities and behaviours become more closely associated with masculinity or femininity and subsequently with men or women.

The issue of power relations between men and women is central to the concept of gender, particularly in understanding how it is socially constructed. However, it should be noted that this thesis is primarily concerned with identifying where and how gender might impact the IT managerial career progression process. It does draw on existing theory and some data from the research to suggest how the gender aspects may have been constructed (see Chapter 10). However, a detailed analysis of the construction of gender in the IT managerial career progression process warrants further research.

It should also be noted how thinking and theorising on gender has and continues to develop. For example, the tendency for gender to be spoken of in terms of two fixed and polarised categories is now being questioned (Ormrod, 1995). Also, differences between men and women, such as age, race or class are increasingly recognised. In conducting the gender analysis this thesis is explicitly aware of the developing arguments around gender and seeks to contribute to them.

1.3.2 The Field of IT and IT Management

Defining what constitutes information technology is highly problematic. In its broadest sense, Miles (1990) states that IT could be defined as any technology that handles information³. However, he also notes a major problem associated with this definition is that it is arguable that all technologies deal with information, including such items as operating instructions and alarm signals. There is, therefore, a need to be more specific. An approach often adopted involves specifying that the IT yields an information product. However, Miles notes that this would include all types of information handling products from books to erasers. It would also exclude others which appear obvious as appropriate to include, such as production computers, on the grounds that the product itself is not informational.

² For further discussion on gender see, e.g. Gill and Grint, 1995; Ormrod, 1995; Hacker, 1989; Webster, 1995; 1996; Sundin, 1993. The concept of gender is also discussed in more detail within Chapter 3.

³ For a full discussion of the definition of IT, see Miles (1990).

Monk (1987), usefully defines IT as *"machine based technology which actively processes information rather than merely storing or transmitting it"* (p165). Monk's definition, however, also becomes somewhat complicated as he describes technology as including hardware, software, theoretical, blueprint and tacit knowledge.

Miles (1990) also points to the convergence of computing and communications (in particular, telecommunication technology) as further complicating the definition of IT. These are just a few examples of how difficult it is to precisely define IT.

In using the term, the field of IT, this research refers to computerised information processing technology. This fits closely with the Lamming and Bessant (1988), definition of IT, as:

"the convergent group of technologies concerned with the storage / retrieval, processing and communication of information. The main contributing branches are computing, microelectronics, office equipment technology, systems theory and artificial intelligence theory and practice"
(p107)

Specifically, this study is concerned with individuals involved in managing the research, development, implementation, support and maintenance of IT hardware and software. The use of IT in this way can be found in the information systems (IS) or IT departments of medium to large public and private sector service and manufacturing organisations, including firms that are both users and producers of computer hardware and software.

1.4 Thesis Structure

This thesis is divided into three sections which are labelled as:

- Background and Rationale;
- Empirical Results;
- Analysis and Conclusions.

The first section contains three chapters, beginning with the context of the research. Chapter (2) presents the organisational context in which the research is set by tracing the development of the use of IT in organisations, the associated role of IT managers and skills demanded of them since the introduction of computers to firms in the 1950s. It provides a rationale for the study and shows the way in which the research will contribute to knowledge on an organisational level.

The second chapter (3) in the Background section reviews literature relevant to the research question and objectives. In so doing, liberal and radical approaches to women in management, the gender and IT debate and career progression literature are drawn on. Each of these areas are

explored due to the scarcity of research and literature directly focusing on women in IT management.

Chapter 3 also identifies gaps and weaknesses in existing literature. These help to identify the issues to be concentrated on during the empirical phase of the research and the most appropriate research methods to employ. In drawing the three areas of literature together, the concluding section of Chapter 3 presents a theoretical framework with which to analyse the research results.

The Background section ends with the Methodology chapter (4) which presents details of the methods adopted to fulfil the research objectives and an in-depth description of how the data was collected and analysed. Alternative methodological approaches are assessed in terms of their validity, reliability and appropriateness for completing the research and justification is made for adopting a combination of case study and questionnaire methods.

The Empirical section includes five chapters presenting the results of the questionnaire and four company case studies. Each of these chapters (5-9) is minimal in its analysis and simply describes the results that occurred without seeking explanations for them.

Explanations, understanding and implications of the research data are the focus of the final Analysis section. This section begins with the Analysis chapter (10) which draws together the results of the questionnaire and four case studies. In highlighting the most pertinent aspects of the data, the chapter discusses the analysis under four major headings:

- the representation of men and women in IT management;
- the role and importance of IT technical training and experience;
- the theory and practice of IT managerial career progression;
- the role and importance of equal opportunities.

Four stages are worked through under each of the headings, namely:

- defining the heading and placing it in the context of existing literature and theory;
- reviewing the extent to which the evidence reflects, reinforces or negates assertions or adds new findings to existing literature and theory;
- suggesting possible explanations for the results;
- considering the implications of the results for the development of a theoretical framework and the career progression of women and men IT managers.

The Analysis section closes with the Conclusion chapter (11) of this thesis. The conclusions drawn from the research are presented here, together with proposals for change and further research.

Section 1: Background and Rationale

Chapter 2 - The Development of IT and IT Management

2.1 Introduction

This chapter presents a rationale for undertaking a gender analysis of the IT managerial career progression process and sets out the organisational context in which the research is set. It also outlines the way in which this study makes a contribution to knowledge on an organisational level⁴.

The chapter begins by presenting the historical development of the use of IT within organisations. It shows how IT moved from being used as a data processing tool to becoming a strategic resource within many firms. The way in which the role undertaken by IT managers and the skills demanded of them have also changed, as the strategic use of IT has grown, are traced. The key role of the IT manager today, in enabling firms to realise the strategic potential of IT, is highlighted.

The distribution of men and women employed within the IT field is also considered within this chapter. It shows how, since the introduction of IT into organisations, women have been concentrated in lower level positions, with very few being recruited into management.

Given the importance of the IT management role and the continued predominance of men in these posts, the chapter presents an argument highlighting the importance of analysing the gender aspects of the role, by comparing the career progression experience of women with that of men IT managers.

2.2 The Use of IT Within Organisations

The first electronic computer, ENIAC (Electronic Numerical Integrator and Calculator) was presented to the public in 1946. Eight years later, the first computer for business applications was installed (Van Oost, 1992). Yet, the technology itself, its use within organisations and the way in which it is managed has undergone several and rapid changes since that time. As this section illustrates, the different terminology used over the past 50 years to describe computing as it has developed, reflects these changes.

2.2.1 Movement Between Two Eras

During the 1950s and 1960s, computers appeared as expensive, complex mathematical machines found in large rooms, where entry was prohibited to most staff (Keen, 1993). Low reliability and capacity of hardware dominated the field (Friedman, 1990). During this period,

⁴ The way in which this research makes a contribution to knowledge on an academic level, by developing a theoretical framework, is presented in the following Chapter 3.

which has been described as the 'DP era' (Data Processing era) (Earl, 1989; Somogyi and Galliers, 1994), the word 'data' was used to describe the use of computers in organisations. The word data is defined in the Macmillian dictionary of microcomputing (Sipl, 1987) as:

"a general term that is used to denote any or all facts, numbers, letters, symbols etc., that can be processed or produced by a computer." (p69)

Hence, terms such as automated data processing (ADP), electronic data processing (EDP) or simply data processing (DP) were used, suggesting a very limited role of computers, confining them to technical areas (Wysocki and Young, 1990). The computing department, often consisting of a supervisor, a data entry clerk and perhaps an operator, was usually attached to the accounting or finance area. The applications were therefore accounting related such as accounts payable and receivable and salaries (Wysocki and Young, 1990). At this time computers performed a support role and consequently were largely regarded as a cost within organisations (Friedman, 1990).

The operational applications of computers began to be recognised in the 1970s and increasingly manual and clerical processes were replaced with automated ones. For example, airline reservation systems began to be automated and computer aided manufacturing and design were introduced into many production firms (Keen, 1993; Wysocki and Young, 1990). As organisations began to recognise the business opportunities offered by integrating and transferring information, managerial applications in areas such as spending control and market analysis began to emerge⁵ (Wysocki and Young, 1990; Cecil and Goldstein, 1990). Accordingly, the term 'information' rather than 'data' began to be applied to computing technology. Earl (1989) defines the IT era (Information Technology era), which began in the 1980s as "*the microelectronics based convergence of data processing, telecommunications and automation*" (p1).

With hindsight, the change in terminology from data to information technology was of key importance. Somogyi and Galliers (1994) describe the period between the 1950s and late 1970s as having left behind a legacy of disappointments with failed computer systems, anxieties related to the cost of computing, its impact on people, variable management involvement and commitment and experience of computing across the organisation. The description of this legacy suggests that, if the opportunities which IT offered an organisation were perceived to be expanding, it may have been critical to change its image from that of being problematic to beneficial, in order to generate greater acceptance of IT across the organisation. Indeed,

⁵ For example, Proctor & Gamble and General Electric led other major consumer companies in the early 1970s in developing integrated marketing decision support systems. These were mainframe systems that allowed users to follow and analyse market share and the effectiveness of promotions. They were also able to analyse demand, thereby combining internal and vendor supplied market research data (Cecil and Goldstein, 1990).

according to Davenport and Short (1990), for example, exploiting IT opportunities requires organisational change. Therefore, they argue, acceptance of IT by senior management in particular is important as they were needed to manage and lead the change.

2.2.2 The Strategic Application of IT⁶

The 1980s heralded the exploration of IT as a strategic resource within organisations. As Earl (1989) points out, although some companies did exploit computing and related technologies for competitive advantage in the 1970s, the strategic opportunities and threats in the 1980s and late 1980s in particular, are far more significant, not only because of the rapid advancement of IT, but also because of the accompanying economic and social changes. These changes contributed to the increased importance of IT within organisations to provide swift and high quality information, and to support innovation in products, production techniques and organisational designs (Niederman et al, 1991).

The development of the use of IT as a strategic resource led to the term, 'strategic information systems' being adopted in the mid 1980s (Rackoff et al, 1985; Diebold, 1986). This term signalled another stage in the development of IT. That is, IT might yield significant competitive advantage for one organisation over others, and could potentially transform a firm, and perhaps even the industry in which it competed. Indeed, it was soon being claimed by managers, researchers and consultants, that IT was a critical element of an organisation's competitive strategy (Zuboff, 1990; Jackson, 1989; Ward, 1987; Porter and Millar, 1985; Cash and Konsynski, 1985; McFarlan, 1984; Scott Morton, 1991).

The ability of IT systems to affect competitive performance through impact on management processes, personnel and organisational structure swiftly gained currency within firms (Rockart and Crescenzi, 1984). Examples of companies that had gained strategic advantage through IT became widely publicised⁷ (Bakos and Treacy, 1986; Philip et al, 1995).

⁶ It should be noted that since the advent of strategic IT, further developments have taken place than those noted within this section, including business process redesign (e.g. Davenport and Short, 1990; Short and Venkatraman, 1992), interorganisational systems (e.g. Rockart and Short, 1989; Caldeira and Dhillon, 1996) and outsourcing (e.g. Loh and Venkatraman, 1992). However, it is not within the scope of this thesis to go into each development in detail. Indeed, similar management issues, as described in the following section, appear to relate to each of the strategic IT developments.

⁷ A commonly cited example is the American Hospital Supply case (Diebold, 1986). The company is a distributor for a wide range of products to hospitals. By installing its own computer terminals in its client hospitals and by doing it ahead of the competition, the company was able to hold tightly onto their customers. The terminals in the hospitals were linked directly to computers at American Hospital Supply's head quarters. Not only did the terminals make it easy for the customers to order, but it became too costly and undesirable for the hospitals to change the system once the terminals were installed and personnel were trained to use them. As the company continually enhanced the service through periodic software upgrades, it became increasingly difficult for the hospitals to change to another vendor. This caused major problems for their competitors, Johnson & Johnson, who were forced to devise a retaliatory strategy.

However, despite examples of firms gaining competitive advantage through IT and the development of strategic IT frameworks⁸, it gradually became apparent that organisations were often disappointed in the ability of IT to significantly enhance their performance (Boynton et al, 1993; Philip et al, 1995; Coombs, 1992; Grindley, 1992; Galliers et al, 1994). The shortfall in expected results was largely attributed to poor management of technology and the under utilisation of IT resources, rather than to the technology itself (Boynton et al, 1993; Bakos and Treacy, 1986; Rockart and Crescenzi, 1984; Willcocks, 1990). The literature has suggested that technology based competitive opportunities were being overlooked because of:

- senior management's lack of understanding of IT and its potential uses;
- poor communications between the IT department/function and the rest of the business;
- resistance to change among both IT and business personnel;
- lack of focus on opportunities for competitive advantage;
- a lack of instruments to measure benefits.

(Drawn from: Diebold, 1986; Bakos & Treacy, 1986; Rockart and Crescenzi, 1984; Coombs, 1992).

In order to overcome the problems and barriers to achieving the competitive benefits strategic IT is supposed to offer, important changes in the fundamental nature of work and the structure of organisations have been recommended (Keen, 1980). Calls for the repositioning and expansion of the IT function and education of senior management in IT have been made and the importance of proper management for the successful deployment of IT stressed (McFarlan and McKenney, 1983; Benjamin et al, 1984; Zaneetos, 1983). Coombs (1992) adds that it is no longer appropriate to talk of 'aligning' IT strategy with business strategy, but that increasingly, how to 'integrate' the strategies is the key question for organisations.

Thus, despite the widespread and continuing interest in strategic IT, there is a growing realisation that its role in achieving competitive advantage may be more difficult than first thought (Vitale, 1986). In addition, an argument grew towards the end of the 1980s and has continued in the 1990s that, sustainable competitive advantage could not be achieved through IT alone (Philip et al, 1995), but that the skills employed in managing IT and integrating IT strategy are key (Ciborra, 1992). Proponents argue that the reproducibility of IT systems inevitably lead to any advantage being transient (Cecil & Goldstein, 1990; Warner, 1987). Cecil & Goldstein (1990) explain that, with the exception of applications systems, information technologies are almost universally supplied by vendors to user companies and are freely available to all competitors in an industry.

⁸ In order to help the strategists appreciate the new business opportunities argued to be inherent in IT, a number of strategic frameworks were developed. Typical examples include the theory of strategic thrusts (Rackoff et al, 1985) and the strategic grid of present and future IT (McFarlan, 1984). For details and a critical review of these see, Doyle, 1991, pp1-8.

They add that, whilst application systems may be custom developed by large user companies, they rarely confer advantage in themselves. Corporate success instead, it is argued, depends on a range of factors, such as innovation, reputation and the strategic assets of an organisation (Kay, 1993).

Indeed, Cecil and Goldstein (1990) conclude that, any sustainable competitive advantage will be gained not through technology advances, but through the management of IT. Similarly, Hackett (1990) accuses firms of over-relying on IT to achieve competitive advantage. He suggests that technology alone does not determine corporate performance and profitability, but that employee skills and capabilities, the structure of the day-to-day operations and the company's policies and procedures are all important. Ciborra (1992) also suggests that where all competitors have access to the same technology and data, the competitive advantage related to IT can only come from cognitive and organisational capabilities for converting such data into practical knowledge for action.

2.3 The Development of IT Management

As the literature documenting the development and use of IT within organisations has shown its increasingly important strategic role, so too has the body of literature relating to IT management grown. However, the literature of the late 1980s and early 1990s predominantly focuses on the role of senior or executive managers concerning the development of IT and IT's use and strategic position within the organisation (Galliers et al, 1994; Parker and Idundun, 1988; Niederman et al, 1991; Earl, 1992; Davenport and Short, 1990). Yet, as the previous section illustrated, the deployment of IT strategy and the way it is managed on a day-to-day basis has become recognised as being crucial in order to ensure IT can assume a strategic role in practice.

Influencing and managing change and collaboration between IT and non-IT specialists were examples of IT line management roles highlighted as being of particular importance. The following section focuses on the IT management literature that addresses the line management, as opposed to executive management issues associated with strategic IT. It details the evolution in the role of IT line managers and explains the type of managerial skills that are demanded of them⁹.

2.3.1 Evolution to Strategic IT Management

Rockart (1988) usefully provides an overview of the original role of the IT manager and how it initially developed. Traditionally, an IT manager in the DP era, or at the start of the IT era was

⁹ The references included in the following sections clearly show that interest amongst academic researchers and therefore perhaps also funding institutions on IT management skills was concentrated in the years 1989 - 1991. Little has been written on this subject since. This observation is confirmed by the late 1995 article included in the British Journal of Management calling for a new research agenda on IT management issues (Galliers, 1995).

largely responsible for technical design, programming and implementation, project management, operations and staff activities, such as planning and education. At this time, the system user was rarely involved in contributing to its design and development. As computers grew faster and more reliable, and more operational applications were made, it became clear that, without consulting users during the design stage, only simple systems would work well in practice. More complex systems such as manufacturing scheduling were often found to fail unless line managers helped to define their objectives and function. However, the extent to which line managers were involved in the design of systems often varied.

The relationship between the IT function and the rest of an organisation has been acknowledged as being problematic for some time (Wysocki and Young, 1990; Friedman, 1990). As the literature referred to earlier in this chapter described, senior managers in a firm commonly viewed IT as a costly resource and were unable to see its link with mainstream strategic issues (Lederer and Mendelow, 1988). In addition, the language that has evolved with IT, as within other disciplines, such as medicine or engineering, is specialised. The language is, therefore, often difficult for those outside IT to understand and can obstruct IT and other line managers working together in system planning and implementation (Keen, 1993). IT professionals have also not always been considerate of the needs of the system user, a point touched on by Rockart (1988) above.

The difficult relationship between IT and the rest of the organisation was mostly tolerated when the earliest users were clerical level employees performing repetitive tasks for high volume data transactions. However, as more powerful and influential users developed, such as line or senior managers, the attitude and approach of IT managers came under pressure to change (Friedman, 1990). This pressure increased considerably with the advent of IT as a strategic imperative (Wysocki and Young, 1990).

If organisations were to enjoy the potential benefits of strategic IT, then a closer and more harmonious relationship between other business functional managers and IT managers was essential. Such a relationship was regarded as the only way to avoid costly IT investment which results in no measurable impact — a legacy of the DP era (Curley and Henderson, 1989; Davenport and Short, 1990). Diebold (1986) also noted that a strong relationship was needed to demonstrate to senior managers the potential of strategic IT. In addition, only by aligning IT with the rest of the organisation, could IT plans be developed which were within the context of organisational strategies. Such positioning would ensure that organisational information needs were met by the IT plan (Fink, 1994; Grindley, 1993).

However, the experience of organisations since the 1980s has shown that achieving alignment in practice can be problematic. The annual UK Price Waterhouse survey, sent to IT managers since 1979, not only shows the growing importance of alignment, but also the problems experienced

by firms in achieving it. The survey asks the question: what is your main problem? In 1987, integrating IT with corporate plans, figured as an important issue for IT managers and by 1988, this had become the first management concern about the use of IT, overtaking technical concerns (Price Waterhouse, 1987, 1988, 1989). In the 1994/95 survey, meeting project deadlines and integrating IT with corporate objectives came joint first in the list of concerns. The key question currently being asked by IT managers is *"how can IT improve the way it meets, anticipates and even shapes the needs of the organisation?"* (Price Waterhouse, 1995, p9).

There is a growing view that achieving IT alignment is dependent on developing the right skills amongst IT managers (McFarlan and McKenney, 1983; Benjamin et al, 1985; Cecil and Goldstein, 1990; Hacket, 1990; Ciborra, 1992; Bower et al, 1991)¹⁰. Indeed, problems experienced in alignment have been attributed to a gap in IT managers' skills (Broadbent et al, 1992). Larsen et al (1991) state that technical expertise alone is no longer sufficient to manage the rapidity of change and the increasing interdependence between technology and other aspects of organisational functioning. Developing general business understanding, communication, interpersonal and networking skills amongst IT managers, rather than technical skills have been called for in order to close this gap (Couger, 1988; Wysocki and Young, 1990; Friedman, 1990; Knights and Murray, 1990; Hammond and Holton, 1991). This view was supported by the British Computer Society (BCS), who promoted the notion of the 'hybrid manager' at the beginning of the 1990s¹¹. BCS identified the desired characteristics of a hybrid manager as including technical competence, business confidence and organisational skills, including understanding of the organisation, social and political skills (BCS, 1990). Thurloway (1991) identified that the advantages of this type of manager are that they:

- improve internal communications;
- bridge cultural and communication gaps in the organisation;
- promote better understanding and use of systems to encourage companies to capitalise on emerging trends;
- overcome inhibitors to technical success;
- improve organisational vision;
- encourage a practical attitude to change.

BCS stated in 1990 that the UK needed to produce 10,000 hybrid managers by 1995. It highlighted part time MBA courses as a method of achieving this. The aim of the hybrid

¹⁰ Knights and Murray (1990) argue that achieving IT alignment is also highly dependant on executive management directly involving itself in transforming organisations' culture, so that communication and understanding between different specialist groups within the organisation, such as IT and marketing and finance are improved.

¹¹ A hybrid manager has been defined as one who can combine knowledge and practical experience of business with technical competence in order to strategically and competitively benefit the organisation (Thurloway, 1991).

management courses developed by BCS was to educate line managers in IT skills and develop greater business awareness amongst IT managers. In line with the recommendation to develop hybrid managers, some companies including Esso, British Airways and The Midland Group implemented hybrid policies. Whilst the use of the term hybrid manager has faded, the general principles of IT management skills required in the 1990s continues and include:

- understanding of the organisation and its business;
- have political, organisational and communication skills;
- need not be technically oriented, but must be able to manage specialists in hardware, software, networking and other technical functions;
- not only be able to manage line employees, but other managers as well;
- be a strategic planner, concerned with long range implications of new technology;
- sensitivity to the diverse needs of professionals in the organisation;
- patience in communicating with users and helping them develop realistic and clear expectations regarding the role of computers in their work.

(Drawn from: Nolan, 1983; Wysocki and Young, 1990).

Notably, whilst the IT management skills required have been identified, recent research suggests that some organisations continue to face problems in developing such skills amongst IT managers in practice. Results of a study, "*IT skills in the 1990s*" conducted in 1993 by West London Training and Enterprise Council (TEC), revealed an overall perception within organisations of IT professionals as being:

"...cold and remote, lacking in understanding of business realities and outmoded in their working practices" (p1).

Two key skill deficiencies in IT managers identified by the study, concerned business and interpersonal skills¹².

Echoing the earlier call of Friedman (1990), another recent IT skills survey (Virgo, 1994) recommended that, in order to ensure required IT management skills are implemented and effective in practice, employers need to diversify their recruitment. In the past, IT business analysts and managers have been recruited from the IT department or competitors' IT departments. Thus, individuals were being recruited who were originally selected for their ability to acquire technical skills rapidly, rather than for their personal aptitudes and business understanding (Virgo, 1994; Friedman, 1990). Both Virgo (1994) and Friedman (1990) have recommended that recruitment should include more arts and language students, economics and

¹² Results relating to skill deficiencies were based on a survey of 24 in-depth interviews held with directors and senior managers in a cross section of private sector organisations in West London, with a direct interest in IT skills. The interviews covered large, medium and small scale users of IT and key providers of IT skills.

finance, business and law graduates and vocationally oriented school leavers. Virgo (1994) adds that employers should consider mature staff with user and business experience who are looking to change or restart their careers.

The problems experienced by organisations in developing the skills identified as being required amongst IT managers may also be attributed to the economic and competitive challenges recently faced by many UK firms. Economic recession, combined with increased global competitive pressures have led many organisations to re-structure (Freeman, 1992). Re-organisation has in many cases led to redundancies, often at the management level, as companies have sought to flatten their hierarchical structures. Table 2.1 confirms that in the period 1988 - 1994, there has been an overall drop in the number of IT staff in post, with the number of IT managers in post falling by 4%. The environment of cutbacks, change and uncertainty caused by re-structuring perhaps does little to create an environment conducive to the development of new skills and training.

Table 2.1 IT Staff in Post Within IT Departments (Thousands) 1988-1994

Post	1988	1994	% Change
Managers	49	47	-4
Systems Analysts	30	35	+17
Analyst Programmers	48	54	+13
Programmers	43	20	-54
Systems Programmers	19	18	-5
Network Staff	11	10	-9
Operators	90	41	-54
User Support	n/a	20	+>200
Total	290	245	-16

Source: Virgo, 1994

However, statistics of the number of IT jobs advertised in the years June 1992 - 1994 contradict Table 2.1 by suggesting that the IT job environment may be improving. In particular, Table 2.2 shows that the largest increase in jobs advertised has been for IT managers. Therefore, the time may be right for employers to concentrate on developing the appropriate business and interpersonal skills amongst IT managers and the relevant new employees that have been identified as a pre-requisite to achieving effective strategic IT.

Thus, rapid and dramatic changes have occurred in the use of IT within organisations and the skills required of IT managers, to enable the effective implementation of strategic IT. However, there is evidence to suggest that firms are currently experiencing difficulty in developing the appropriate skills amongst IT managers in practice. Such difficulty may have adverse effects on an organisation's ability to enjoy the benefits espoused to be offered by strategic IT. It has been suggested that, in order to overcome the IT management skills gap, firms should diversify their

recruitment (Friedman, 1990; Virgo, 1994). Arts and business graduates, as well as those looking for a career change or employment after a career break, have been recommended as more suitable candidates for meeting current requirements of IT management. The recent surge in recruitment of IT managers offers employers an opportunity to diversify their recruitment.

Table 2.2 Number of IT Jobs Advertised Between 1992 and 1994 (Thousands)

Post	1994	% change on 1993	1993	1992
Management	5.0	+130	2.2	2.3
Systems Analyst	8.3	=	8.3	10.1
Programming	10.6	+15	9.2	8.9
Analyst Programming	28.6	+29	22.2	22.2
Technical Support	17.3	+68	10.3	10.3
Database	1.9	-6	2.0	1.6
Communications & Networks	5.3	+16	4.6	4.6
Operations	8.5	+41	6.0	7.1
Other	8.5	+41	6.0	7.1
Total	86.2	+31	65.8	70.0

Source: SSP Analyses Commissioned by Computer Weekly, in Virgo, 1994.

2.4 The Need to Address the Issue of Women in IT Management

Although major changes have occurred over the past 40 years in the use of IT, the role of IT managers and the recent call for diversification of the IT management recruitment strategy, women have remained poorly represented in IT management jobs throughout this period. This section will provide a picture of the distribution of women within IT. It will assess the extent to which women, compared with men, possess the relevant educational background and are available within the labour market to undertake IT management positions.

2.4.1 The Position of Women Within IT

The previous chapter outlined the difficulties in defining IT. Such difficulties have also had an impact on obtaining accurate IT employment data (Pearson et al, 1988). Despite the problems, a number of different surveys have been undertaken during the 1980s and 1990s, enabling a picture of the position of women in the IT field to be drawn (e.g. Pearson et al, 1988; Shirley, 1988; Virgo, 1994). Collectively the surveys show how, since the introduction of computing to organisations, the few women who have entered the field, have been concentrated in lower level programming, computer operator and data entry positions¹³.

In 1987 the field of IT was described as a "soggy pear" (Shirley, 1988) as women accounted for only 2% of managers, 18% of programmers and 95% of data inputters. A survey commissioned

¹³ Explanations for the gender division of labour within IT are reviewed within Chapter 3.

in 1987 by the then Secretary of State for Employment (National Computing Centre, 1987) showed 19% of IT professional and technical staff to be women. Of this 19%:

- 8% were classed as managers;
- 20% were classed as systems analysts;
- 28% were classed as systems programmers;
- 28% were classed as programmers;
- 6% were classed as communications staff;
- 6% were classed as technical support staff;
- 15% were classed as operations staff.

The 1987 survey shows that most of the women in the sample were programmers. Thus, towards the end of the 1980s the available data suggests that women were concentrated either in low level user positions as data inputters (Shirley, 1988), or in technical roles as programmers (National Computing Centre, 1987). Later figures (Virgo, 1994) show that women continue to be employed mainly in programming or customer service positions (Table 2.3).

Table 2.3 Percentage of Women IT Staff by Function

Job Function	1994	1993
IT Manager	4	4
Systems Analyst	20	20
Analyst Programmer	23	22
Programming	23	23
Technical Support	11	12
Customer Services	28	27
Operations	14	14
AVERAGE	22	21

Source: Computer Economics - May 1994 salary survey sample covering 34,000 individuals from nearly 600 computer installations.

The concentration of women in programming positions is important to note as there is evidence to suggest that the overall demand for programmers is likely to decrease over the next ten years (Yourdon, 1993). This is influenced by it becoming more cost effective for companies to export programming contracts to third world countries, such as India and Brazil and the development of code generation techniques (Gunter, 1994; Gaio, 1995)). As the following chapter will consider in more detail, such changes are also leading to the programming role becoming less valued by companies.

It perhaps remains to be seen whether women become concentrated and stuck in less valued programming positions or are able to move into more highly valued analyst and management

roles. Understanding the factors that may enable or prevent women developing IT management as opposed to programming careers is, therefore, becoming increasingly important.

More longitudinal data shows that, with the advent of the recession at the end of the 1980s, the number of women employed within the field of IT began to fall (Virgo, 1994). By 1994 the proportion of women in the IT industry had stopped falling and rose slightly from 20.7% in 1993 to 21.5% (Virgo, 1994). The recent rise in the proportion of women employed in IT has been partly attributed to the fall in recruitment of new entrants in 1994 being higher amongst men than women (Virgo, 1994). This, Virgo suggests, is partly because employers appear less likely to make older, less well paid women redundant¹⁴ and partly because of the rise in the number of women working in the main employment growth area of customer services (Table 2.3).

As Table 2.3 shows, despite the overall rise in the percentage of women employed in IT in the year 1993 - 1994, there was no increase in the number of women IT managers employed. The statistics have shown that, although between 1987 and 1994 the percentage of women IT managers has increased from 2% to 4%, this has remained the job category with the lowest proportion of women within it (Computer Economics, 1994).

It is interesting to note that the gender division of labour continues within IT despite the fact that some of the skills required in the application jobs, which include technical support and customer services, such as communication and understanding of the business, are similar to those currently called for in IT managers.

2.4.2 The Availability of IT Skills

Section 2.3.1 stressed the importance of the skills now required of IT managers. It showed how a shift had occurred away from the need for technical skills towards interpersonal and business skills. In addition, the difficulty organisations are experiencing in developing the latter skills was highlighted, leaving a skills gap within many firms. The section also stressed that developing IT managers with the necessary skills is crucial to firms effectively implementing strategic IT.

Although women have been identified as possessing the required skills (Hammond and Holton, 1991), it has been shown how few are represented in IT management roles.

Virgo (1994) recommended that applicants from arts and business education backgrounds were more likely than technically oriented applicants to be suited to the current demands of the IT management role. As Table 2.4 illustrates, few women are represented in the computer science subject area traditionally focused upon for IT recruitment. However, women are represented in more equal numbers and sometimes by a majority, in the arts based subjects identified by Virgo (1994) as appropriate sources for today's IT management candidates.

¹⁴ A computer economics salary survey of 34,000 individuals from 600 computer installations showed that in 1993 and 1994 women earned between 2% and 11% less than men in equivalent jobs.

Table 2.4 Undergraduate Female Students in Science and Arts Courses

Degree Subject	Full-time (%)	Part-time (%)
Mathematical Sciences	37	41
Computer Science	20	25
Engineering & Technology	15	9
Social, Economic & Political Studies	56	64
Law	54	47
Business & Administrative Studies	49	52
Languages	70	67
Humanities	53	63
Creative Arts and Design	58	66

Source: Higher Education Statistics Agency, **HESA Data Report: Students in Higher Education Institutions**, July 1995, p10.

2.4.3 The Availability of Labour¹⁵

Not only do women appear to have the skills and background arguably required by today's IT managers, but demographic and labour market participation rate changes indicate that higher proportions of women as compared to men are expected to be available on the labour market. Such changes are important to note given the projected rise in the number of IT management posts. Table 2.2 showed an increase of 130% in the number of IT management jobs advertised in the year 1993 - 1994. Indeed, growth in the number of managerial, professional and technical jobs overall is predicted to continue. Projections suggest 1.7 million extra jobs in these categories between 1991 and 2001. Of these, almost 1.1 million are expected to be taken by women.

In contrast to the anticipated increase in jobs, growth in the labour force is expected to slow down during the 1990s. Any increase in the size of the labour force will be due largely to increasing participation rates amongst women. Women are predicted to account for just over 80% of the growth and by 2001 are projected to comprise 52% of the labour force.

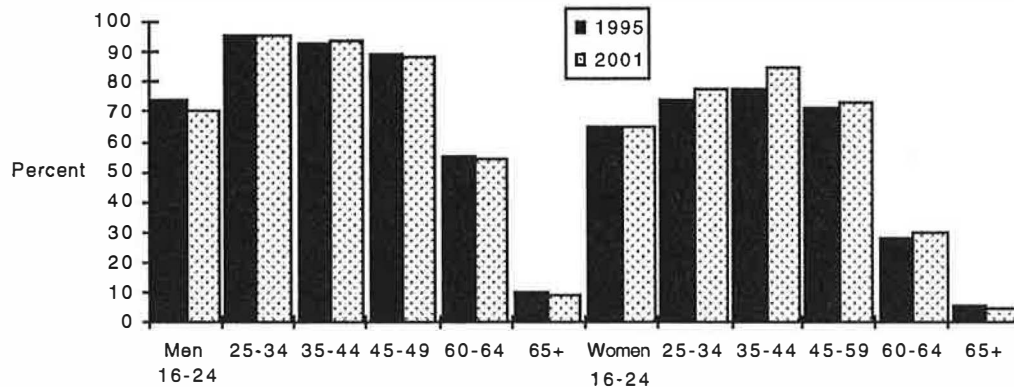
Changes in the composition of the labour force have already begun to take place. Women's employment has grown continuously since the 1960s, (excluding the early 1980s and 1990s recessions). Conversely, men's employment has fallen during most of this period, (excluding a brief period of growth during the late 1980s). In the decade 1983 - 1993, the female labour force increased by 1.7 million, compared to an increase of 0.3 million in the male labour force.

Men's activity rates are projected to continue to fall from 85% in 1993 to 84% in 2006. Whilst men aged 35-44 are expected to continue to have the highest activity rates, these will decline slightly through the 1990s. Conversely, the activity rates for working age women are expected to rise

¹⁵ Statistics and projection detailed within this section have been drawn from **Labour Market Skills and Trends 1994/95 and 1995/96**, Skills & Enterprise Network, Employment Department, 1993 and 1994.

gradually in the 1990s, from 71% in 1993 to 76% in 2006. For women aged 25-34, their activity rates are predicted to grow from 74% to 78% between 1995 and 2001. The rate for women aged 35-44 is projected to grow from 77% to 85% in the same time (Figure 2.1).

Figure 2.1 Projected Activity Rates for Men and Women, 1995 - 2001



Source: Central Statistical Office

The growth in women's activity rates and employment have generally been attributed to increases in traditional female employment areas and a greater willingness by women to enter the labour market. For example, the number of married women with children employed in part-time and full-time work has continued to rise since 1983 (Humphries and Rubery, 1991). The forecast in women's activity rates are likely to be influenced by stable demand conditions to the beginning of the next century. In addition, an extension of flexible working practices, subsidised child care facilities and other measures which make it easier for people to enter and re-enter the labour market are also likely to affect the projections.

It should be noted that, despite continued increase in their participation rates, women's employment remains concentrated in particular sectors such as services, health and education. Women also account for most part-time employment. In 1981, 42% of female employees worked part-time, compared to 6% of male employees. In 1992, the figures were 46% and 11% respectively, highlighting that male part-time working is becoming increasingly important. Indeed, whilst 16% of part-time workers were men in 1981, this figure rose to 20% in 1992.

Although women remain concentrated in certain sectors and part-time employment, overall their growing economic activity means they are playing an increasingly important part in employment in Britain. This, combined with their relevant educational background and skills, makes them a notable employment resource for IT employers.

2.5 Conclusion

This chapter has established the timeliness and importance of in-depth research on the skills and experience of women and men IT managers in order to establish the factors influencing their career progression.

At the level of the firm it has been shown how IT is playing an increasingly important strategic role. Yet, in order to achieve strategically successful IT, company experience has highlighted the necessity of aligning IT with overall business goals. Linked to this, it is being argued that technical skills amongst IT managers should be augmented by business, political and interpersonal skills in importance (Couger, 1988; Wysocki and Young, 1990; Hammond and Holton, 1992). However, it appears that some organisations are experiencing difficulty in developing the new skills being called for amongst existing IT managers (Broadbent et al, 1992). This potentially may effect the contribution IT is able to make to a firm's strategic success.

Although women have been identified as possessing the skills now required by IT managers, few are represented within these positions. Indeed, despite their increased participation within the labour market and possession of the appropriate management skills, women continue to be concentrated at lower levels of the IT hierarchy. This suggests that skills and labour participation may not provide the full explanation of why so few women reach and progress within IT management positions. Barriers existing within organisations and wider society are also likely to affect women's entrance into and progression within IT management. It is therefore important to conduct research on the experience of those women who have succeeded in gaining an IT management position, in order to ascertain their perception of the factors that influence their career progression. The following Chapter 3 reviews literature providing an indication of what the potential barriers may be.

Chapter 3 - Literature Review - Women and Men Developing IT Managerial Careers

3.1 Introduction

This research seeks to make a contribution to knowledge on an academic level by demonstrating how three areas of literature — women in management, gender and IT and career progression can and should be brought together under a single theoretical framework in order to conduct a gender analysis of the IT managerial career progression process.

This chapter highlights not only the contributions and strengths but also the gaps and weaknesses that exist within each individual literature area when relating them specifically to the research question. The proposition is that, only by combining the three areas can a holistic understanding of the formal and informal factors effecting the career progression of women compared with men IT managers, be established.

Drawing links between the literature areas is partly facilitated by the roots women in management and the gender and IT debate in particular have in feminist theory. Whilst it is not within the scope of this thesis to provide a comprehensive review of feminist theory, it is interesting to note a particular aspect of it. That is, the divisions in terms of where the sources of inequality between men and women are regarded as derived from¹⁶. Divided views of the sources of inequality within organisations continue within women in management and the gender and IT debate and are labelled within this thesis as 'liberal' and 'radical' approaches. This chapter considers the effects the divisions have on the development of an adequate theoretical explanation of the experience of women compared with men IT managers as they progress their careers.

The liberal and radical approaches identified within the literature notably also differ in their views of appropriate strategies for change in reducing inequality between men and women in the workplace. This research concentrates on identifying and understanding the sources and implications of factors effecting IT managers' career progression. However, it also recognises the importance of considering the potential options for change in light of knowledge of any potentially gendered aspects of the IT management career progression process. Consequently, this chapter also critically assesses the approaches to change offered by the different literature areas.

¹⁶ For a detailed account of different feminist theories of patriarchy and capitalist relations, refer to Walby, 1986(a).

3.2 Women in Management

The liberal approach to women in management can be positioned as having some roots in organisational and human capital theory and focuses on the organisation itself as a source of change. The degree to which the organisation is regarded as independent and autonomous from the wider environment varies in degrees. Towards one end of the continuum, Fenn (1978), for example, takes the view that the socialisation process cannot be changed from within an organisation, but that the organisation itself can be dealt with in order to change the balance of power between the sexes. Thus, although the explanation of inequality within this framework is assumed to be wider than the organisation, it is argued that changes such as child care provisions and flexible working to help women combine work with family life can be made within the organisation *despite* this wider context.

The radical approach to women in management has its roots in feminist theories of patriarchy and capitalism (e.g. Eisenstein, 1979; 1984; Hartmann, 1979; 1981). For example, patriarchal relations with its social, political and economic norms defined by men are cited by Rossi (1974) as having influenced not only the role of women in society, but also their self image. Such influence has led to gender role stereotypes within and outside the organisational setting based on inaccurate beliefs about women's inability to manage or lead (Howe and McRae 1991, Sekaran and Leong, 1992). Similarly, Marshall (1984) argues that the socialisation process, with its inherent stereotypes of the sexes, has also resulted in some women holding themselves back from decision-making positions as the anticipation of success poses a threat to their sense of femininity, which serves as a potential basis for becoming socially rejected. Due to the power exerted by society and the socialisation process, writers such as Marshall (1984) and Alexander (1987) argue that the imbalance of women to men in management positions in organisations cannot be improved until the balance of power overall in society is redressed.

The following sections critically review the liberal and radical approaches to women in management. They address the extent to which the approaches contribute understanding to the research question examined within this thesis¹⁷.

3.2.1 The Liberal Approach to Women in Management

Within the framework of the liberal approach to women in management focusing on the organisation as a source of both current inequalities and future change, studies have investigated the major barriers facing women's entry into management and their subsequent development (Metcalf and Leighton, 1989; Hirsch and Jackson, 1989). They conclude that amongst the predominant organisational barriers are:

¹⁷ In line with the women in management literature, which tends to refer to women in management as a whole, without distinguishing between different sub-groups, this section does not refer specifically to IT managers. Literature relating to IT managers is discussed in section 3.3, The Gender and IT Debate.

- discrimination on the grounds of gender, motherhood or potential motherhood in selection, promotion and training;
- low pay;
- lack of child care provision;
- insufficient flexible working arrangements and career break opportunities;
- sexual harassment in the workplace;
- job segregation on the basis of gender.

Each one of these barriers have themselves frequently been the focus of in-depth research to assess the influence they have on women's entry into management and how such barriers can be lowered (e.g. Davidson and Cooper, 1992; Blau and Kahn, 1991). Indeed, as a result of the identification of these barriers and in an attempt to improve and increase the progression of female staff, many organisations have improved their equal opportunity policies and initiatives in the last decade (McGwire 1992).

The liberal approach argues that through organisational rules, orders and procedures, despite the presence of gender role stereotyping in society, attitudes to women within the organisation will eventually change, enabling the entry and subsequent development of women in management (Fenn, 1978). Venables (1981), for example, proposes that flexible work hours and child care facilities are women's two principle demands and that given these they will sort out any difficulties for themselves.

This thesis does not dispute the presence and impact of organisational barriers identified by the liberal approach. However, it regards the view that such barriers are the sole cause and therefore solution to inequality between men and women in management as too simplistic. It is clear that the success of organisational equality policies and initiatives and the views of the above writers can be brought into question when (i) women in management statistics and (ii) studies of men and women manager's attitudes and perceptions are examined.

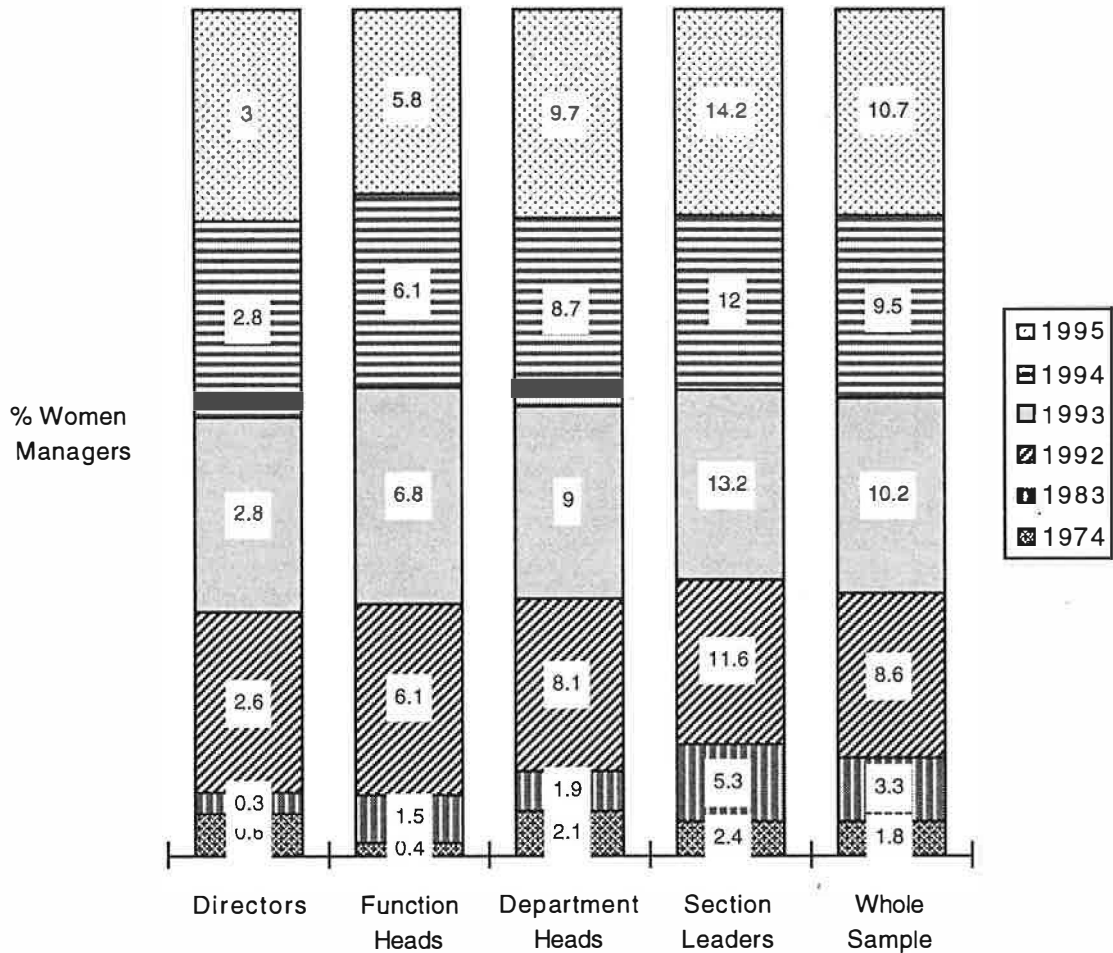
i) The Proportion of Women Managers in Organisations

Gaining an accurate picture of the number of women in management is problematic. Not only can the definition of manager vary between organisations, but also the law does not require monitoring of employee statistics by gender. Consequently many organisations do not possess the necessary data. Despite the lack of data, statistics published by the Institute of Management in 1995 (Figure 3.1) revealed how, despite increases in the number of women in management between 1974 and 1993, the figures dropped in 1994, before rising again in 1995¹⁸.

¹⁸ Explanations for the fall in numbers of women in management positions are discussed in section 3.4.2 (i).

The statistics also confirm that figures overall remained low¹⁹ (McCarrey, 1994). In addition, a feel for the low number of women in management can be gained from different independent studies carried out since the introduction of anti-discrimination legislation in the mid 1970s (Table 3.1).

Figure 3.1 The Proportion of Women Managers in Britain 1974 - 1995



Source: Institute of Management

Table 3.1 An Overview of the Proportion of Women in Management Positions

Hirsch and Jackson (1989)	22% of managers are women; 1-2% of senior executives are women.
Hansard Society Commission (1990)	1971: less than 5% of managers were women; 1988: 11% of managers were women; 1990: 1 in 5 of all middle managers were women.

¹⁹ This picture of the number of women in management positions across different functions is in line with the figures in Chapter 2 which showed the low numbers of women in IT management roles.

ii) The Perception of Women as Managers in Organisations

Fenn (1978) argues that whilst it is not possible to alter the attitudes of people within the wider social environment, it is possible to ensure discrimination does not occur within organisations through the use of anti-discrimination policies, procedures and rules. The effectiveness of this approach is questioned not only by the statistics showing the low number of women in management, but also by numerous attitude and perception studies:

- In 1975 a study by Hunt examining UK management attitudes to women at work showed that the majority of men responsible for recruitment and selection held the view that a woman is likely to be inferior to a man. Within this study, only 43.9% thought it was a good thing to have women in more senior positions.

In Schein's studies in the 1970s (Schein, 1975; 1978) of men and women's perceptions of what makes a good manager, she concluded that to "*think manager equals think male*". The first study showed that in general, both male and female managers ascribed the characteristics, attitudes and temperaments of successful middle managers more commonly to men than to women (Schein, 1975). The study was repeated in 1989 by Schein due to the increase in women managers in the US. The study showed that, in general, men and women far more strongly linked the characteristics of successful managers with characteristics of men. However, in fifteen years, the male perception of women in general and their suitability to management positions had not changed. A replicate study of younger managers in the US, UK and Germany provided similar results, with the perception of women managers by the men being similar to those of the older US managers (Schein et al, 1989).

- In the 1980s, despite legislation and widespread organisational equality initiatives, a study of male and female managers in Britain produced evidence of sex discrimination during selection interviews in a variety of professional appointments including law, computing, medicine, academia, engineering and management (Alban Metcalfe and Nicholson 1984).
- In 1992, an Institute of Directors survey of its female members showed that 87% of the women considered that they faced obstacles in career progression that their male counterparts did not face. These obstacles included male prejudice (23%) and not being taken seriously (21%) as well as lack of child care (16%), domestic responsibilities (16%) and the need for career breaks (29%).
- Also in 1992 an Institute of Management survey of 1,500 women and 800 men in industry found firm evidence of traditional prejudice and sexism. The results of the survey also showed that female managers are significantly less likely than their male counterparts to be married or have children and are more likely to be divorced.

Alimo-Metcalfe (1993) argues that given these poor perceptions by men of the suitability of women for management positions and that the majority of assessors for management positions are men, women remain significantly disadvantaged.

Thus, despite some progress that the equal opportunity policies and initiatives have made, women remain represented in low numbers in managerial positions. These statistics and indications of continued inequality in the recruitment and career progression of women managers, as indicated in the studies referred to above has led to a criticism of the organisational equal opportunities policy approach adopted by some of the women in management literature.

3.2.2 Criticisms of the Liberal Tradition

Marshall (1984) states that men are currently dominant in organisations and therefore provide the model for being managers. Women are forced to accommodate themselves and fit into existing norms and systems, preserving what flexibility they can. Marshall calls this "*surviving in a man's world*". She states that women are required to fit into the existing system whilst men do not make any substantial accommodations in their role such as in their responsibilities in the home²⁰.

Marshall argues that, whilst new systems initiated by equal opportunity policies may be developed outwardly showing new appearances, unless the underlying process by which worth is assessed is also addressed, essentially they perpetuate old values. Legislation and equality policies, she argues, have achieved only surface impacts whilst the prejudice has gone underground. She states:

"Women are offered equal opportunities to be like men, joining them on their terms in their world of employment." (Marshall, 1984, p 209)

Marshall heavily criticises both equal opportunity legislation and policy:

"The basic devaluing of femaleness relative to maleness is not disturbed, therefore this has limited viability. Unequal power relationships have their own self re-enforcing cycle which is temporarily stable and so carry with them the seeds of their own eventual destruction - as equal opportunity legislation demonstrates." (Marshall, 1984, p 209)

Liff (1989) also criticised the widespread adoption of the policy approach for its focus on process rather than outcome:

"There is a danger that once a certain approach to a problem becomes established, the success of policies is evaluated in terms of the scale and integrity of their adoption rather than in terms of their ability to achieve a particular outcome." (Liff, 1989, p 27)

Liff criticises equal opportunity policies for being too prescriptive, not being relevant to current practice and not showing how the policies can be translated into practice. She also argues that the formal rules of the policies may in practice be counter productive. At best they may merely be treated as a formality or at worst as something that actively has to be subverted. For example, a Swedish case study (Teknik, 1992) focusing on home-work as a way to create equality, showed not only that it was hard to convince the companies of the advantages of homework in times of recession and high unemployment, but also that the women home-workers felt they had no opportunities for career progression due to their distance.

²⁰ In 1968 Hunt concluded from studies that women overall were responsible for the running of their homes and help from husbands was usually limited to washing up. Over a decade later Oakley (1981) and Gowler and Legge (1982) reached similar conclusions.

The tendency for the liberal approach to regard women as a homogenous group in seeking explanations and solutions to their under-representation within management has also been criticised (Alvesson and Due Billing 1992). The universalist and essentialist nature of many company equality initiatives, assuming without consultation that all women have certain needs, that once met will enable them to progress, have led in some cases to their failure. For example, Zanussi in Italy, having invested in structures allowing and encouraging women employees to organise their own working time within an overall framework assuming that the 9-5 work culture did not suit them, found that in practice women wished to continue their normal working patterns (Shapiro et al, 1995).

Davidson and Cooper (1992) also argue that the liberal approach ignores the fact that the continued existence of some men's attitudes, that women are inferior, leads to additional pressure on women to prove themselves at work. In order to gain visibility and prove their ability many women managers will take on work that is more demanding and that will draw attention to themselves. The picture created by Davidson and Cooper is one of women trying, often with difficulty, to mould themselves into the male structure and culture of the organisation.

A further flaw and therefore limitation of the liberal approach is offered by this thesis. It is argued that the liberal approach, in fostering policy, procedures and legislation as sufficient change agents is wrong in assuming that the organisation is an independent entity, autonomous within the overall environment, that can be influenced and changed. It is acknowledged here that such an approach is in line with the assumption conveyed by many organisations, that work is separate from the rest of life and has first claim on the worker (Acker, 1992). However, organisation theory has for decades stressed the role and influence of the wider environment to the running and overall performance of the organisation, as well as the behaviour of its members (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Mintzberg, 1979; Peters and Waterman, 1982 and Kanter, 1983). Whilst largely ignoring the gender aspects of the organisation and its environment (Burrell and Hearn, 1989; Cassell and Walsh, 1993), such theories clearly establish the difficulty in manipulating or changing an organisation with a disregard for environmental influences. Women in management approaches which do not take account of the organisation's wider social, political and economic environment are therefore unable to take account of the stereotyped gender roles existing in society, which are reflected within an organisation, which in turn contributes to the maintenance of the gender structure. Thus, by concerning themselves only with tangible factors which are more easily manipulated, such as procedures and provisions, the policy approach leaves much of the informal underlying discriminatory factors untouched and intact. As Ashburner (1994) notes:

"Established organisational cultures and traditional management attitudes, plus the predominance of a male value system, can undermine the intentions of equal opportunities policies." (p194)

In contrast to the liberal approach, the influence of gender structures within wider society, and the way in which they are re-produced within organisations, in both formal and informal ways, is the focus of much of the literature within the radical approach to women in management.

3.2.3 The Radical Approach to Women in Management

The development of the concept of gender and gender processes within feminist thought (Hacker, 1989; Acker, 1992; Gerhardt, 1995; Webster, 1995; 1996) have led to writers within the radical approach to focus on the concept of gender within organisations (Ferguson, 1984; Calás and Smircich, 1989; Hearn and Parkin, 1983, 1987; Burrell, 1984; Mills, 1988; Hearn et al, 1989; Acker, 1990; Martin, 1990). Organisational theories are being re-worked to account for the persistence of male advantage and lay a base for new gendered theories of organisations (Acker, 1992).

The development of new theories, together with criticisms of the liberal approach have stimulated challenging thought and action to the issue of developing women in management within the radical approach. These concern both i) the analysis of gendered organisations and ii) the effect of gendered organisations on women.

i) The Analysis of Gendered Organisations

Acker (1992) describes gendered organisations in terms of four sets of processes that, she argues, are each components of the same reality:

- a) The production of gender divisions:** Acker (1992) points out how ordinary organisational practices produce the 'gender patterning' of jobs, wages, hierarchies, power and subordination (Kanter, 1977). Managers make conscious decisions that re-create and sometimes alter these patterns and unions, whether intentionally or not, often collude (Cohn, 1985). Perceptions of women as more suited than men for certain types of work help to shape the decisions made (Schein 1989; Schein et al, 1989).

- b) The creation of symbols, images and forms of consciousness that explicate, justify or oppose gender divisions:** Acker (1992) notes that organisations as well as television, films and advertising form a major site for the production of such images and consciousness in society. For example, Cockburn's studies (1983; 1985) showed that images of masculinity linked gender with men's technical skills. The possibility of women obtaining those skills presented a threat to men's masculinity.

- c) The interaction of individuals - between men and women, women and women, men and men - in a variety of forms that enact dominance and subordination and create alliances and exclusions:** Acker (1992) argues that it is in these interactions, at various hierarchical levels, that policies which create divisions are formed and images of gender are created and affirmed. For example, Case (1994) uses

linguistic theory to illustrate the gendered cultures that exist within the workplace. She notes that although much managerial behaviour occurs through linguistic activity (Kanter, 1977), organisational analysis of behaviour has paid almost no attention to how people actually speak (Mintzberg, 1973; Gronn, 1983; Levine et al, 1984). Case (1994) notes that there are many variations in the way women and the way men communicate but equally that some gender patterns can be drawn (Maltz and Borker, 1982). Organisations typically foster interaction patterns that are more compatible with men's established interaction patterns than with women's. Patterns of interaction for mixed sex conversations make no allowances for such differences. While organisations may claim that they offer equal opportunities, the language of their culture, Bates (1988) argues, may in fact say to women "*You're welcome to come in for a while, if you'll play the game our way*" (p166).

- d) The internal mental work of individuals as they consciously construct their understanding of the organisation's gendered structure of work and opportunity:** It is within this process, Acker (1992) proposes, that gender-appropriate behaviours and attitudes are formed, for example in an individual's choice of appropriate work, language and self presentation (Reskin and Ross, 1987).

The processes described by Acker (1992) indicate how gender is manifest in both formal and informal organisational processes. It also suggests how formal policies can lead to the production of informal gendered processes. However, Acker (1992) notes that many managers, executives and theorists continue to view organisations as gender neutral. For example, an organisation that has an equality policy may describe itself as gender neutral in the belief that its policies ensure equal opportunities are available. Acker (1992) and Smith (1990) argue that gender neutrality, or what they regard as the suppression of knowledge about gender, is embedded in organisational control processes. Acker (1992) adds that this presents an opportunity to 'deconstruct' these processes and investigate the activities that produce them. This thesis takes advantage of such an opportunity by deconstructing the career progression process IT managers follow. In so doing it develops knowledge of how the process may be gendered.

ii) The Impact of Gendered Organisations on Women

Marshall (1984) in referring to women managers as "*travellers in a male world*" began to explore the way in which women had to modify their behaviour, attitudes and perhaps appearance in order to fit within the gendered cultures and power structures of organisations and meet organisational expectations. Other studies have also indicated how women employ "*gender management strategies*" (Cassell and Walsh, 1993) to reach senior positions. Franklin (1985) suggested that gender management strategies enabled women to cope in male dominated cultures. Indeed, the liberal approach to women in management more commonly advises how women can and should change themselves in order to fit in (e.g. Breakwell, 1985; Cameron, 1988). However, as Gerhardi (1995) notes:

"If an organisational culture expresses a gender regime which systematically devalues everything connected with the female, the organisation can never become democratic, whatever affirmative action it may introduce and whatever opportunity legislation may be promulgated." (p9)

Understanding the construction and impact of gendered processes within organisations has led to a number of different theories being employed within the field of women in management. For example, Ely (1995) drew on social identity theory (Taijfel, 1978; 1982) and theories of organisational demography and power (Acker, 1987; Acker and Van Houten, 1974; Flax, 1990; Ridgeway, 1988) to explore the ongoing social construction of gender, its meaning, significance and consequences for individuals across a variety of organisational settings. Ely's (1995) study examined how women's presence in positions of power within US law firms effects the social construction of gender and the processes that create and sustain women's identity at work. The results showed that male rather than female attributes were regarded as important for career success in organisations dominated by men in positions of power. Conversely, in organisations where either women dominated or were represented in more equal numbers to men in positions of power, rather than seeing women as needing to change in order to fit in, participants were more likely to see the legal profession as changing to fit women.

Thus, the results of studies referred to above and other writers within the radical approach suggest that until formal and informal organisational processes are deconstructed to illuminate and subsequently understand their gendered nature, change cannot be addressed and women will continue to face barriers in progressing managerial careers. In relating this specifically to the career progression of IT managers, as section 3.4 will show, studies have produced evidence indicating the gendered nature of the managerial career progression process. However, this process has yet to be examined in-depth, taking into consideration the experience of men and women IT managers.

3.2.4 Women in Management: Strategies for Change

i) The Liberal Approach to Change

The liberal approach supports the view that there is much change that can take place inside organisations in order to improve women's entry into and progression within management positions. Changes include ensuring that recruitment, training and promotion policies and procedures are free from bias. Also, that women are encouraged to return to work after maternity leave, in some cases supported by the option to work part-time and child care facilities. This approach also recommends that women are offered training courses where appropriate to help them develop skills viewed as essential to progress within organisations, such as assertive or networking skills, but that women may be lacking.

The criticism directed at this approach to change is that it tends to focus on adding special arrangements to existing organisational and managerial structures (Thomas, 1992). Women are

viewed as lacking in some way which can be overcome through additional training and development. In taking this approach, women are expected to assimilate into the prevailing organisational culture (Mandell and Kohler-Gray, 1990).

The liberal approach has more recently called for organisations to ensure their cultures and employee behaviours support equality objectives (e.g. Opportunity 2000, 1994²¹). However, there is little evidence to suggest that this includes the fundamental questioning or devaluing of male dominated cultures and structures.

Suggestions for organisational change to try and increase the number of women in management by Hirsch and Jackson (1989) try to overcome the former criticism directed at the liberal approach. They draw a distinction between two approaches to management: a 'work plus life' approach and a 'life plus work' approach. The former approach accepts the current reality that women wishing to reach management have to pursue their careers in essentially the same way as men do. That is, they have to acknowledge that *"most employers do not consider their employees concerns as family members to be an organisational concern."* (Burke and Greenglass 1987). Women managers, like men work continuously and full time and fit domestic responsibilities around their jobs. Some women might choose to avoid some problems by remaining single and childless. Under this regime, Hirsch and Jackson suggest changes which may help women to include: encouraging more women into male occupations and encouraging them to take professional qualifications and postgraduate management degrees; and to extend child care provision.

The life plus work approach starts with a fundamentally different value system that people's lives are more important than their jobs. The managerial career they argue, will be accommodated around the reality of women's working lives. This, Hirsch and Jackson argue, has radical consequences, including the acceptance that managerial careers have made unacceptable demands on men as well as women. The changes which are suggested under this regime include implications for: redesigning managerial jobs to make part-time and job sharing realistic options; building in flexible and long career breaks with returner programmes into many occupations; changing assumptions about managerial careers including the need for continuous employment and geographic mobility and the encouragement of mature students and late starters with changing attitudes to ages of promotion to management.

Nevertheless, the life plus work approach appears still to be set within a framework asserting that organisational inequality can be removed without making changes in the wider social and political environment. Therefore, it does not take account of powerful gender structures which are

²¹ Opportunity 2000 is a national campaign which encourages and supports organisations in their aims to increase the *"quality and quantity of women's participation in the workforce"* by the year 2000. The campaign was launched by the independent British charity, Business in the Community, with the support of the British Government in 1991.

argued here as being inherent within organisations and is therefore subject to the criticisms already made of the liberal approach.

ii) The Radical Approach to Change

Increasing the number of women managers is viewed by the radical approach as demanding more widespread and fundamental change than that proposed within the liberal approach. For example, Mills (1988) argues that the social phenomenon of gender is constructed by the cultures of societies and mirrored within organisations. Thus, for Mills (1988) change lies in the gender structures of wider society.

Acker (1992) views organisations as being gendered and views the roots of change in the challenge to deconstruct gendered organisations. Marshall (1984) focuses on women themselves in the process of change and stresses their influence and position (even if marginalised and powerless). She emphasises the importance of the current context of change and therefore takes into account developments in society. These include: economic recession; changing values about work as many employees demand increased work satisfaction (Kerr and Rosow 1979); quality of working life movement as some individuals and organisations decide that stress is no longer an acceptable price to pay for employment and productivity; questioning the career ethic; ecological concern; self help characterised by concern for personal and individual growth; a move towards the creation of new lifestyles; the search for community and paradigm shifts. The changes and developments on-going in society in part, Marshall argues, represent a search for new strategies. Women have an important role in this search, Marshall states, both in terms of their own development and for what they can offer society as a whole. She states:

"their (women's) suppression mirrors its (society's) suppression"

(Marshall, 1989, p219)

Indeed, writers have recently argued society's and organisations need for traditionally female characteristics as attributes of the future and to help men re-integrate their masculine and feminine aspects (Rosener 1990). Marshall argues that women too need to rediscover what Marshall terms as the *"muted tradition"* for themselves if they are to become whole and valuable. However, she adds that it is too simplistic to state that women's development will benefit society as this underestimates the negative aspects of femaleness and disregards the hostile environment in which women's initiatives take place. She therefore argues that women must first free themselves from this hostile context in order to gain the necessary space for their own development:

"Both theoretically and practically, I believe that women's way forward is to develop and respect their own themes within their own culture before attempting to engage in dialogue with men. Women must become potentially self sufficient, particularly in terms of assigning worth. Only when they have a solid base of their own can they escape from oppression without seeking to oppress in their turn." (Marshall, 1989, p 220)

This is not a new concept, women's separation from men has occurred frequently in the activities of the women's movement. Marshall, however, predicts a second stage where women engage in joint dialogue with men. She asserts that joint dialogue must emerge out of female strength and centredness, a process which is likely to be painful and fraught with difficulties within the male based organisational setting. One problem, Marshall suggests, will be the location of an appropriate language of exchange. Traditionally, women's dialogue has focused on experience and feelings whilst men have centred more on analysis and logic. The challenge, Marshall states is to find a means of bridging the differences without forcing either party to speak in a wholly different tongue.

The criticism made in this thesis of the radical approach to change concerns its lack of strategies for change in practice. The theory of the sources of gender inequality embedded within society and the fabric of organisations is supported. In addition, Acker (1992) is helpful in beginning to develop gendered theories of organisations in illustrating and exposing the embedded gender structures. However, exposing these structures, it is argued here, does not necessarily lead to their change. Therefore, developing practical strategies for change, dealing with gendered structures within organisations and achieving change without wholly alienating women managers, appears to remain an area that requires further attention.

3.3 The Gender and IT Debate

In contrast to women in management literature, analysis of the relationship between gender and information technology, born out of feminist critiques of science (Gill and Grint, 1995), has largely developed only since the 1980s (e.g. Faulkner & Arnold, 1985; Kramarae, 1988; Hynes, 1989; Wajcman, 1991). Early research which informed the gender and IT debate, whilst concentrating on manual work rather than computer technologies, provided some insight into how women's work is organised and controlled and their relationship with technology (Webster, 1994). Research which has concentrated on gender and technology and IT in particular has largely focused on women's exclusion from IT, their segregation into the lower levels of the industry (e.g. Strober & Arnold, 1987; Kraft and Dubnoff, 1983; Cockburn, 1983) and the effect of IT on women's office work (e.g. Webster, 1986; 1990; 1993; Softley, 1985; Machung, 1988). Research in the UK has also illustrated the small proportion of women in higher education computing courses (Dain, 1988; Lovegrove & Hall, 1987) and the reasons behind this poor representation (Culley, 1986; Hoyles, 1988). Recently, international research has begun to analyse the impact of IT on the working lives of women in third world countries (Mitter and Rowbotham, 1995). Little has been written to date specifically relating to women managers of IT. Understanding the factors effecting the career progression of men and women IT managers has been identified as a gap within the gender and IT literature which is being addressed through this research. Consequently, this section critically reviews the theoretical explanations of gender and IT relations and seeks to apply these to the career progression of women and men IT managers.

Whilst a relatively young field of research, a number of traditions have emerged from the gender and IT debate, each of which adopt a different perspective of gender and IT relations. The traditions are strongly rooted in more general theories of gender and technology relations²² which have focused on the effect of technology on women's working lives. Despite some variances, the traditions are united in their view that technology and masculinity go together. Argument centres on whether the origins of this relation is social or biological.

Eco-feminists, for example, view the relationship between masculinity and technology as exemplifying the way men try to dominate and control nature and women. The eco-feminist position has perhaps been most powerfully expressed in relation to military technology which is viewed as the logical outcome of masculine technological determination (Faulkner and Arnold, 1985). Conversely, women are seen as being close to and in tune with nature. This view of women is rooted in biology, particularly in women's capacity to give birth. It is argued from this perspective that women's biology has led to a specific way of 'knowing' and experiencing the world based on emotions, intuition and spirituality. As eco-feminists assume that the patriarchal nature of society and technology are inextricably linked, the patriarchal nature of technology is assumed. Consequently, there is no scope for negotiation, resistance or change strategies for eco-feminists. Change essentially involves the absolute rejection of technology and society, forming a female culture, producing feminine technologies and associated feminine intellectual work (Van Zoonen, 1992).

The eco-feminist perspective is rejected within this thesis because of its biologist position and lack of scope for change. Although the position views femininity in a positive light, it nevertheless works against decades of feminist argument that has challenged the view that biology is destiny. The perspective is also a static one, which it has been argued, is flawed in its assumptions that nature can only be associated with creativity, tranquillity and harmony, rather than, for example, destruction and danger (Gill and Grint, 1995). In addition, as the following perspectives argue, no behaviour or meaning has yet been identified which can be universally associated with femininity or masculinity, rather that they are socially constructed and changing categories.

In seeking an explanation for gender segregation within the field of IT and potential change strategies, Henwood (1993) identifies two differing strands. Henwood terms these the 'women in technology' approach and the 'women and technology' approach. She defines the former liberal feminist view as having its focus in the exclusion of women from technological work. Within this approach, change is understood as deriving from increased access for women and extended equal opportunity policies. The women and technology approach, Henwood (1993) argues has a broader focus:

"examining the nature of technological work, its development over time and its articulation with changing gender relations." (p31)

²² For a review of theories of gender and technology relations, see, e.g. Gill and Grint, 1995; Wacjman, 1991; Hacker, 1987.

3.3.1 Women in Technology Approach

The women in technology approach adopts the view that technology is gender neutral. The approach turns to the position of men and women in relation to technology as explanations for inequalities between the sexes within the field of IT. Although women and men are viewed as equal, the approach sees women as having fallen behind men in their understanding and use of technology. This, the approach argues, has resulted from the roles many women have been forced to take on in a sexist society, that of housewife, for example, which has served to hide women's true abilities.

The women in technology approach thus places importance on the socialisation process for creating gender stereotypes which effect both women's perception of who they are and what they can expect, as well as men's perceptions of women's capabilities and roles (Swords and Isherwood, 1985). The approach is characterised by the Women into IT (WiT) campaign²³ which argued that the solution to women's inequality within IT and more specifically their progression to IT managerial positions, derives from increased access into IT for women. This approach bares great similarity to the wider organisational or liberal approach to equal opportunities described earlier in section 3.2.

Henwood (1993), however, criticises this approach and the WiT campaign for being too closely tied to the needs of employers. Their key objective of WiT is:

"To help employers to overcome current and prospective shortages of IT skilled staff by raising the number and proportion of girls and women entering and sustaining IT related careers at all levels." (WiT, 1989, p1)

This is not, Henwood argues in the traditional spirit of equal opportunities. In addition, history has already shown within other industries that such an argument for women's equality is shaky, short term and highly dependent on economic and employment conditions (Summerfield, 1984; Braybon, 1981; Walby 1986(b)). Therefore, it is argued here that it is a simplistic view of the influence of socialisation and how this can be overcome.

The liberal gender and IT approach may, however, be appealing to an organisation as it argues that all individuals be treated fairly within a company whilst essentially leaving the company as it is. Its argument is based on logic, efficiency, law, productivity, reason and simple fairness. Yet, the appeal of such an approach to organisations encapsulates the very essence of the criticism made of it within this thesis. Such a liberal approach does not change the structure of an organisation and does not effect the process of decision making about technical change or the technical displacement of workers. As Hacker (1989) found, the results of their endeavours to improve the

²³ The Women into Information Technology Foundation was created in 1989. It was organised by a consortium of IT manufacturers and users and supported by the Department of Trade and Industry. The WiT foundation disbanded in 1995.

position of women within AT&T meant that *"more women were going to be moved out than up"* (Hacker 1989, p20).

Hacker's (1989) work illustrates clearly perhaps the biggest disadvantage of the liberal gender and IT approach, or what Henwood terms the women in technology approach. Such a perspective focuses on the skills required by any given technology. It recommends the increased access of women to these skills and assumes that with skill acquisition will come the natural entry of women to IT and IT management positions. As well as criticised as being essentialist (Henwood 1993), this approach does not take account of Clegg's (1981) argument for the distinction between skills and regulative rules within companies. Skill refers to commitments, morale and motivations. To enter, prosper and survive within an organisation, Clegg argues, can depend upon how a person is viewed by decision makers, whether someone is viewed as a full organisation member and as 'fitting in'. Clegg states that this can be difficult for women as they continued to be viewed as having primary commitment to life outside of the organisation.

Yet the liberal or women in technology approach continues to have a firm following from some women working within IT, employers and some feminists, despite evidence indicating the inadequacies and drawbacks of it²⁴. Fox-Keller (1986) examines why this is the case and seeks to understand in particular why those striving for equality for women see it as resulting from establishing the same opportunities for women as men already have. She argues that this tendency may have arisen due to the experience suffered by those who support the equality approach of the argument that asserts differences between men and women. This dichotomy approach that divides men and women has, the equality supporters argue, often served to exclude women from or at least segregate them within scientific/technological work. This result has led some women to claim *"we are not different"* (Fox-Keller, 1986, p168).

A further criticism that has been directed at the liberal approach is that technology itself is not subjected to critical analysis (Karpf, 1987), but is viewed as:

"an independent factor effecting social relations without being effected by them" (Van Zoonen, 1992, p14).

In addition, the liberal approach view, that women themselves are both the source of the gender division of labour problem and the agent of change, it is argued, leaves men and masculinity, as well as technology, unchallenged.

²⁴ It should be noted that the same support was shown within women in management literature for the liberal approach, even though the outcomes of the strategy for women in some cases remained poor.

Many of the criticisms directed at the liberal approach to gender and IT have been made by those adopting a more radical position within the area. The views of these writers are discussed in the following section.

3.3.2 Women and Technology Approach

Dissatisfaction with the women in technology approach led to a focus on broader issues in the search for an explanation of women's exclusion from or segregation within IT. Griffiths (1988); Shurkin (1985); Perry and Greber (1990) and Van Oost (1992) each examined the history of computing in order to facilitate a better understanding of the relationship between gender and computers. Each showed how women were centrally involved in the design of the first electronic computer, ENIAC in 1946. Van Oost (1992) argues that at that time the computer was associated with:

"persons, men and women with training in mathematics who did the tedious work of solving and calculating complicated equations" (p236).

However, as Kraft (1979) and Strober and Arnold (1987) point out, in the early stages of the computers' development, programming was defined as clerical work and not considered a high status occupation. Thus, even at this early stage in the development of the computer, there is evidence to suggest that division of labour between men and women was emerging.

To illustrate the role of gender in the field of IT, Table 3.2 presents the changes that occurred within the IT programming field.

Table 3.2 Gender Segregation within Computer Programming

Date	Job Role	Skills Employed in Job Role	Skill Perception of Job Role	Perceived Job Status	Predominant Gender Employed in Job Role
1940s	Programming	maths, logic	clerical	low	women
1950s	Programming	maths, logic	skilled	high	men
1960s & 1970s	Programming, Design & specifications	technical, analysis	professional	high	men
1960s & 1970s	Programming	Dexterity, technical understanding	non-professional	low	women

Drawn from Kraft, 1979; Strober and Arnold, 1987; Van Oost, 1992

Table 3.2 shows how as computing developed it became clear that programming involved knowledge of electronic circuits, maths and logic. With this, the occupation shed its clerical image and developed a high-level, challenging and creative image. As hardware and programming techniques improved in the late 1950s and 1960s, programming grew a reputation as being a

skilled occupation, or as Kraft (1979) labelled it, a 'craft' occupation. Whilst women continued to be employed as programmers throughout this period, during the 1970s and beyond, increasingly men entered the occupation.

During the 1970s a technical division of labour became established within programming. The overall design elements such as specifications became separated from more routine tasks such as writing the programmes. Strober and Arnold (1987) noted how US Census classifications of occupations reflected these changes within computing. In the 1960 and 1970 Census, programmers and specialists were classified as professionals. This changed in the 1980 Census when computer scientists and systems analysts were classified as professionals and programmers as technical. With the development of the technical division of labour also came the division of labour between the sexes, with as we see within the field of IT now, women dominating the lower levels of the computer hierarchy and men dominating the upper levels (Shirley, 1988; National Computing Centre, 1987; Virgo, 1994; Computer Economics, 1994). As Table 3.2 shows, gender segregation even occurred *within* the role of programming. As the role split, women became predominant in the non-professional positions.

The link between gender and technology has been explored further by examining the source and nature of the relationship between gender and technical skill and expertise. As the following examples illustrate, the enactment of and action taken to perpetuate the *stereotype* that men do, but women do not, should not and cannot do technical work (McNeil, 1987(a); Phillips and Taylor, 1980) has been demonstrated repeatedly in case studies amassed in the 1980s and 1990s.

For example, Cockburn (1983), in her study of technological change within firms demonstrated the technology-masculine link. Cockburn (1983) argued that, through the humorous and competitive culture which the male engineers created, which placed importance on the mutual exchange of knowledge, they created a "*highly masculine-gendered social environment*" (p77). By male engineers continually defining women as not technological, the environment also became one in which it was difficult for women to enter. In addition, the rapidly changing technological environment demanded career commitment. Not only did the male engineers interviewed by Cockburn fail to define women as career people, but the companies themselves seldom provided the support to enable women to combine family and career responsibilities. Thus, both formal and informal organisational aspects are identified as key by Cockburn (1983) in influencing the entrance and maintenance of women in technological roles.

Later in 1985 Cockburn conducted research within the pattern making and cutting processes of the clothing industry; in goods handling in mail order firm's warehouses; in the radiology departments of hospitals and in computer engineering firms. The research demonstrated how the introduction of new technology resulted in the de-skilling and feminisation of areas of work

dominated by men. It showed how the men were subsequently replaced by women who were then kept in low skilled, marginalised jobs.

Within a more recent study Sundin (1995) traced the introduction of computer aided design (CAD) technology to the production of maps. She showed how the perception that women are less able and suited than men to work with technology was used by male engineers to displace women cartographers and take over the use of the CAD machine.

Even in situations where women work alongside men in technical roles, case studies have illustrated how divisions often arise in perceptions of the lower technical ability of women compared to men. For example, in a study of a software design R&D unit in the UK, Woodfield (1994) highlighted how women's technical skills were less recognised and rewarded than men's.

Whilst further case study examples which demonstrate the marginalisation or exclusion of women's technical skills could be mentioned, it is perhaps more useful to focus on the explanations offered for this phenomenon. What each of these studies clearly shows is that the concept of skill should not be regarded only as a technical category. Consequently, explanations for this phenomenon come largely from a social constructionist viewpoint. Cockburn (1985), was one of the first writers to present an explanation in a comprehensive way. As the following paragraphs show, her explanations have in many ways formed the basis from which further thought and criticism has emanated from. Cockburn (1985) argues the link between technological know-how and power and describes technology as a medium of power that can be used to further the dominance of those at the top. She asserts the importance of considering technology from the perspective of two power systems — that of class and sex.

Cockburn's (1985) explanation is demonstrated in her analysis of the different relations men and women have had with technology throughout history. She reviews how as far back as the bronze age, as a shift toward male domination occurred, women were actively excluded from many crafts and trades. That is, technological skills became a further source of power for men in male dominated societies. Cockburn illustrated how this power has been exercised throughout history, before and after the industrial revolution and notably after the two world wars. She argues how Government, employers, trade unions and individual men have each played an important role in restricting women's access to technological work and, where access is gained, in segregating them into lower level semi-skilled or unskilled positions. The result, Cockburn (1985) suggests is that:

"men as a sex continue to be in a position to dominate and manipulate women's instruments of labour and their labour processes, while women as a sex barely influence those of men." (p226)

Whilst taking a different approach to the study of the relationship between gender and technology, like Cockburn, Van Oost (1992) also demonstrates how gender relations are embedded in technical work and the gender relations of technical expertise.

Van Oost (1992), in analysing the swift establishment of the sexual division of labour in the IT field adopts theory developed by Kelly (1985) on how gender is translated from one situation to another. She uses this dynamic theory in showing how, when a new artefact such as the computer is introduced into society, in order to achieve successful integration, it has to adopt the prevailing cultural frames. Thus, Van Oost argues that:

"hence the gender aspect as a part of all cultural frames is 'translated' to the new coming artefact." (p237)

Van Oost (1992) states that metaphors can help as a vehicle for transporting gender and are used to link the new artefacts or ideas to existing ones. In her examination of Dutch newspaper articles tracing the development of the computer in the 1950s and 1960s, Van Oost (1992) showed how the computer became closely linked with the brain metaphor²⁵. This metaphor began to strongly effect the image of the computer worker in the 1950s and 1960s. It caused, Van Oost suggests, the image of the computer worker to be linked to the masculine identity. In addition, the brain metaphor, as shown in newspaper articles in the 1950s was depicted as showing the computer to be a mysterious and potentially dangerous machine. Thus, controlling computers was often depicted as an important and difficult task. In this way, Van Oost (1992) argued that the computer began to give high status to the *"men in white coats"* (p239).

Thus, Van Oost (1992) and others, (e.g. Game and Pringle, 1984; Cockburn, 1983; Wacjman, 1991) assert that women's alienation from technology derives historical and cultural construction of technology as masculine. Technology, they state should be understood as a result of:

"social processes....designed in the interest of particular social groups, and against the interests of others" (Game and Pringle, 1984, p17).

It has been suggested that this occurs because in a society dominated by men, the exclusion of women from technology secures men as a sex tangible forms of authority and power (Cockburn, 1985; Spender, 1981).

Cockburn's early and dominant view of the inevitable and constant link between technology and masculinity within the context of a male dominated society and the need for women to develop more 'masculine' skills and work was later challenged by other writers in the gender and technology field. For example, McNeil (1987b) questions what she perceives is Cockburn's

²⁵ Heinama (1990) showed how the brain metaphor has always been situated in the male domain.

belief in technological progress and her acceptance of the assumption that women lack both technical knowledge and related skills. McNeil argues that this obscures the alternative perspectives which focus on technology as a social process and represents a view that too readily accepts ideological representations of women's lack of technical knowledge.

Similarly, Webster (1995) proposes that gender relations can influence the development, perception and use of technology and explains that:

"...neither 'technology' nor 'gender relations' are static phenomena. Both have been subjected to profound changes as they are negotiated and re-negotiated with each other, and within the rest of the social world" (p317).

Indeed, despite Cockburn's (1985) view that technology is not gender neutral, but in fact influenced by social processes, a degree of contradiction appears in her argument as she emphasises the need to facilitate women's access to technological skills (Henwood, 1993). Henwood (1993) states that this contradiction is a trap many gender and technology writers fall into. She states:

"Technology is often taken at face value, as "given", and the assumption that women lack technological skills is all too often accepted uncritically."
(Henwood, 1993, p 41)

This researcher, however, disagrees with Henwood's argument that Cockburn (1985) is contradicting herself. Rather it is argued here that Cockburn may be commenting on both theoretical and more pragmatic issues. As the conclusion chapter of this thesis expresses, even when a radical theoretical position is held by an individual researcher, it is often difficult to translate this position into practical strategies for change. Given the difficult relationship that this researcher views as existing between radical theory and change strategies, Cockburn's views may be interpreted in the following way. Social constructionism asserts how women may be deterred from undertaking technological training, not because of a lack of aptitude but due to social images of their roles and abilities and active processes, practices and cultures within organisations that either exclude women from technical work and training or influence women's decision to opt out of technical work. Yet, if the view that gender and technology relations are changing is also accepted, this thesis suggests that it is important that women are both further enabled and forthcoming in gaining technical training which may work to influence the socially constructed images of them. The alternative view, that the power of patriarchy and capitalism is so strong that women gaining technical skills will have no effect on gender and technology relations, leaves little option for change, other than women withdrawing completely from technical fields. As stated earlier, in reviewing the eco-feminist approach, this researcher finds such a solution unacceptable. Instead it favours the prospect of continued negotiation between *different groups of men and women* in seeking change.

The emphasis placed above on 'different groups of men and women' is deliberate. That is, this thesis suggests that Cockburn's (1985) tendency to regard men and women as two homogeneous groups should be criticised. West (1990), for example, notes that not all men's jobs are skilled. Wacjman (1991) also points out that technology is also used by some men to dominate others. She adds that class differences as well as ethnic and generation differences give rise to different versions of masculinity, such that it may be more useful to think in terms of 'masculinities' (Wacjman, 1991, p40). As the results from the case studies will show (Chapters 6-9) the concept of 'masculinities' and perhaps also 'femininities' is useful in helping to interpret the different career progression choices being made within the group of men IT managers and within the group of women IT managers.

McNeil (1987b) has also challenged Cockburn (1985) on the relationship asserted between technology and male power and suggests that while technology may offer the promise of power, it may not be realised in practice. That is, she asserts the importance of recognising social and organisational stratification within men as a group. McNeil refers to the 'obsessional knowledge' of some 'working class lads' with cars, mechanics or computers and labels it as being 'symbolic' of power due to a sense of lack of power in other areas of life. She contrasts this with 'material' significance of technology in deriving power for other white collar males. Whilst Henwood (1993) acknowledges the importance of this distinction, she points out that there may well be a positive relationship between 'obsessional knowledge' and actual material power and asks:

"After all, is it not men's dominance of these informal leisure-based technological activities which gives them the confidence and experience to apply for technical training and employment?" (p41)

Thus, it appears that the debate around explanations for women's marginalisation within IT and the relations between gender and technical skills continues. Indeed, it is a debate which this research aims to contribute to and further. In so doing, however, it should be noted that, as explained in Chapter 2, the role of IT manager is apparently shifting in terms of skill requirement away from technical skills towards a demand for greater interpersonal and business skills. Interpersonal skills are often associated with women (Hammond and Holton, 1991) and it has been suggested may therefore offer an opportunity for change in the position of women in the field of IT (Deakin, 1984; Hammond and Holton, 1991). Given this change in demand for skills, it appears important to also consider the interpersonal element within the gender and skills relation alongside the technical element.

Research in this area has developed largely in the late 1980s and 1990s, with Poynton (1993) making an important contribution to the discussion. She argues that women's interpersonal skills in the workplace are often invisible because they are treated as aspects of personality, as personal attributes and as an extension of their identity as women. Language skills are, Poynton argues, widely misunderstood as a 'thing' individuals acquire and as being consistent with

psychological notions of personality. Conversely, post structuralists view language skills as a resource and that individuals may demonstrate a wider or narrower repertoire of language or communication skills. The post structuralist view, Poynton suggests *"offers women in the workplace a powerful tool, first, for understanding what it is they have learned to do, and second, for representing their case for recognition of what they do"* (p89). According to Poynton, in formulating an agenda for change, not only women as individuals, but also employers and employing bodies need to recognise interpersonal skills as important.

However, recognising the existence and importance of language, communication and interpersonal skills may in themselves be insufficient to overcome gender bias in assigning worth within the workplace. Woodfield's study (1994) of men and women in a software R&D unit showed not only how the majority of women had difficulty in establishing their status as skilled technical workers, despite having qualifications which equalled male colleagues, but also how social skills were defined differently for men and women in the unit. Woodfield shows how social skills were seen as a natural attribute of female staff, but as *"productive, power qualities"* (p108) within men. The social skills were interpreted as an enabling and facilitating attribute in women, enabling and facilitating *"the more productive capabilities of their male co-workers"* (p109). Moreover, women who did not possess social skills were judged as lacking, showing that whilst these skills were not necessarily recognised or rewarded as valuable skills, they were expected. Conversely, social skills were not seen as natural to men, but recognised as *"discreet elements which were independent of their 'natures' and could be assessed accordingly"* (p110).

Woodfield's work clearly demonstrates how women can and do possess both strong technical and interpersonal skills, but how skill assessment - whether technical or interpersonal, is not necessarily a neutral process within the workplace. The importance of the context in which technological work takes place is also highlighted by Sundin (1995) who demonstrated two different outcomes for women in two case studies introducing new CAD technology. Whilst in one company the majority of female cartographers were displaced by male engineers who adopted the new technology, in the other, the CAD machine became the domain of women. Sundin (1995) argues that the results show how technology's shaping and applications are dependent on the gender order already existing within the organisation. That is, the gender divisions of labour in terms of occupation and hierarchy where the new technology is being introduced and the attitudes, behaviours, assumptions and power structures that accompany the divisions.

It is clear from the discussion and case studies referred to in this section how the gender and IT debate is continuing, influenced most recently by post structuralist feminist thought on concepts such as femininity, masculinity, gender and skills. In addition, the case studies referred to above in particular support the argument that the gender and technology - or in this case - IT relation, needs to be examined not only within the context of the social cultural and ideological

environment, but also in the context which sees technology as a culture in itself (Linn, 1987; McNeil, 1987(b); Henwood, 1993). As Henwood (1993) notes:

“technology takes on meaning only when experienced subjectively and those meanings will vary in different contexts” (p43).

Further research contributed by this thesis seeks to add to the gender and IT debate, to understanding of the different concepts and to understanding of the influence the different cultures and contexts of IT have on the career progression of men and women IT managers.

In undertaking this research and interpreting the results, the gender and IT debate has been found to be useful in highlighting how gender differences may arise in assigning value to technical and non-technical skill and expertise within organisations (Poynton, 1993; Woodfield, 1994). This is particularly relevant to the IT management role which has recently begun to be associated with interpersonal rather than technical skills. In addition, given this study's aim to assess the influence of different organisational contexts on the career progression of men and women IT managers', Cockburn's (1983; 1985) and Sundin's (1995) work is helpful in illustrating the role of the existing gender order in understanding the relationship between gender and technology in a particular organisational setting. As stated in the Introduction Chapter, this thesis is also concerned with strategies for change in increasing the number of women IT managers. Thus, the criticisms directed at Cockburn's (1985) views of the need to facilitate women's access to technological skills by other writers from the radical approach has been thought provoking for this researcher as she considers how to translate theory into practical change strategies. Indeed, the following sections present some views on change strategies from both the liberal and radical approaches within the gender and IT debate.

3.3.3 The Gender and IT Debate: Strategies for Change

i) The Women in Technology Approach to Change

The women in technology approach regards both skills and mass of women in IT as two important sources of change in developing more women IT managers. Whilst this thesis supports the women in technology view that the acquisition of necessary skills by women is an important aspect of change, it also notes that this argument *alone* has several problems associated with it. For example, it assumes that more women in IT will result in better IT. This is the approach adopted by the WiT campaign and other women into IT studies and is evident in many recent articles and studies aimed at getting more women into IT²⁶. It adopts the argument that the changing requirements of IT management, with its new emphasis on business and

²⁶ The selected papers in Lovegrove and Segal (1991) provide a good example of this approach.

communication skills not only offer women more opportunities in the field (as it is assumed women have these skills), but argues that IT needs more women (Bruce and Adam, 1989).

This thesis supports the criticism Henwood (1993) directs at the women in technology approach for being both deterministic and essentialist in that it refers to technology as *"requiring certain specific skills which women are deemed to possess"* (p42). Henwood also argues that such an approach to change which defines *"femininity as both synonymous with 'woman' and as unproblematic for women"* (p43) is reinforcing gender divisions.

In contrast, the women and technology approach proposes that sources of gender-technology problems and therefore the solutions go beyond numbers of women in IT and are embedded in the concept of male ideology (Gill and Grint, 1995).

ii) The Women and Technology Approach to Change

Whilst criticisms of essentialism and dilemma's and contradictions have been directed at the women and technology literature, this perspective has succeeded in moving beyond a view of gender and IT relations as one of women's exclusion from the innovation process and technical skills (Webster, 1994). Indeed, women and technology studies and social constructionist approaches, in exploring the impact of male ideology on the experience of women in IT, are viewed as particularly relevant to this research. The studies are helpful in addressing the influence of informal organisational factors on men and women IT managers' careers. However, the approach is less useful in suggesting concrete strategies for change and in some cases, relating causal explanations to actual human subjects. It is here that this research seeks to make a contribution as it identifies the gendered aspects of factors effecting IT managers' career progression by focusing on the experience of women as compared with men.

This overview of the gender and IT debate has shown that it concentrates overwhelmingly on either women's exclusion from IT positions or their concentration in lower level or less technical IT jobs. Although today women continue to be concentrated in the lower levels of the IT hierarchy, some women are progressing into managerial positions (Virgo, 1994). Current theory which relates to the relationship between gender and technology does not appear to adequately account for these women. It does not sufficiently explain how they progressed to their present levels, the factors that effect their continued progression or the relationship between these women and IT. It is these gaps that this research seeks to bridge. In part this is enabled by referring to career progression literature in the following section.

3.4 Factors Influencing Managerial Career Progression

Within both women in management and gender and IT literature, the prevalence and potential impact of informal organisational factors on the career progression of women and men IT

managers has been highlighted. The extent to which literature specific to career progression has explored informal organisational factors is now addressed.

This section begins by briefly reviewing career progression theory. It then concentrates on the results of individual studies to provide an indication of the degree of focus career progression studies place on investigating the existence and influence of informal organisational factors on men and women managers' career progression. Any gaps relating to identifying and understanding the effects of informal factors on IT managerial career progression are highlighted.

3.4.1 A History of Theories of Career Progression

The study of careers has changed significantly over the past twenty years, influenced by a number of social and economic factors as well as by changes in psychology, often used to study careers. In the early stages of career progression theory (Ginzberg et al, 1943; 1951) a man was expected to choose a career once he had progressed through adolescence and to stay with that career. No account was taken of any adulthood changes or developments²⁷. Women were expected to be heavily influenced by marriage and children in choosing their careers, perhaps only working until they had children. Women did not anticipate advancing in their work and similarly employers expected them to leave (Gutek and Larwood, 1989).

In the late 1960s and early 1970s women, although in a minority, began to enter non-traditional occupations and the notion of adult career development for men was recognised (Gutek and Larwood, 1989). Two factors influenced the change in view taken of men and women's career development that occurred around this time. Firstly, researchers in the 1960s and 1970s helped to explode the myth that women choosing non-traditional career options were deviant, frustrated or dissatisfied (Angrist and Almquist, 1975; Lewis, 1968). Secondly, influenced by the psychologist's changed view that adulthood was not the static period they had earlier envisioned, the notion of developing one's career during adulthood progressed (Hall, 1976).

Today, a career is more understood as an:

"individually perceived sequence of attitudes and behaviours associated with work-related experiences and activities over the span of a person's life"
(Gutek and Larwood, 1989, p4).

Within this definition, a career can include a series of related jobs within an organisation or different jobs within companies. This series of positions represents the progression of the career (Gutek and Larwood, 1989).

²⁷ For detailed information on the early career development theories, see Ginzberg et al, 1951.

The notion of career progression implies that the series of jobs represents some progress, for example, up the hierarchy, an increasingly large salary, increasing recognition and respect from one's colleagues or more freedom to pursue one's own interests or select one's projects (Gutek and Larwood, 1989). The more one's career progresses in these ways, the more it is judged successful and within this definition, men rather than women generally serve as standards by which others are compared (Gutek and Larwood, 1989; Marshall, 1989). The definitions of career progression are largely concerned with outward indicators of visible achievement, with job moves as an index to development and status at retirement as a measure of success (Goffee and Nicholson, 1994). Factors which are stressed include career planning and strategy, the drive to achieve personal goals and the desire for orderly progression. Such an approach, labelled by Larwood and Gattiker (1989) as 'the classic mode', has tried to marginalise and misinterpret the perspectives of many women managers whose experiences cannot easily be mapped in this way (Goffee and Nicholson, 1994; Marshall, 1984) and led to calls for redefining the career concept (Ashburner, 1994).

The debate on whether a single theory of career progression can be applied to men and women continues today. For example, rapid organisational changes, Goffee and Nicholson (1994) argue, have led to less orderly career routes for men. They describe how men's careers may, like women's be interrupted by unemployment, for example, and how today it may be more difficult for men to compare actual with expected career progress. It has also been suggested how, due to less certain careers, men's psychological contracts with organisations may also be changing, leading to shifts in their priorities in balancing professional and personal lives (Goffee and Nicholson, 1994; Evans and Bartolomé, 1980; Handy, 1989). Goffee and Nicholson (1994) suggest that given career convergences between men and women, it may now be appropriate to develop a single theory of career progression.

Whilst this literature is interesting in pointing out how men and women's careers may be becoming more alike, it does not provide any evidence to suggest that barriers to women's career progression and gendered influences on career progression have been removed. It fails to adequately consider evidence showing that the demands of home and family life are greater for women than for men and that women often face barriers and/or discrimination in developing their careers within organisations (Brooks, 1984; Souerwine, 1978; Stewart and Gudykunst, 1982). Whilst career progression theory has noted similarities and differences between men and women's career experiences, it has not addressed why these occur, other than referring to biology. Individual studies in the career progression field have now begun to seek explanations for differences in men and women managers' career progression experiences by drawing on the influence of formal and informal factors within organisations.

3.4.2 Studies and Explanations of Women and Men Managers' Career Progression

A number of studies, mainly each addressing a single influence on men and/or women's career progression have been conducted since the beginning of the 1980s. Many of these address the influence of specific informal organisational factors, such as mentoring (Dreher and Ash, 1990; Davidson and Cooper, 1992) and networking (Graddick, 1984). Still others focus on the influence of personal and situational variables (Gattiker and Larwood, 1990). Before addressing these studies, details of research are provided below which provide a more general indication of the informal nature of the career progression process.

The subjectivity of the career progression process was shown clearly in the results of the Alban-Metcalf and Nicholson study in 1984 of British Managers' career progression. The sample of 14,790 male and 412 female managers were questioned as to which elements, job performance, organisational politics, luck, corporate planning or prejudice were most influential in the career progression process. Overall, the results showed that politics and luck were seen as influential by the managers, corporate planning as moderately influential and prejudice of little influence. However, the results differed according to the size of the organisation, the sector and the sex of the respondent. Notably, women were more likely to see prejudices as influential in the career progression process than men. This was true across all sectors and sizes of organisations. The study found very few examples of organisations that had formal appraisal and feedback on performance to managers. Alban-Metcalf and Nicholson attributed the influence and reliance on company politics to this lack of appraisal. They also concluded that women were very like men managers in their general outlook and needs. The main differences were to be found in the life circumstances of men and women. Women more often had to contend with dual careers. They concluded that many women in management coped by remaining single or restricting their family size. The results showed women overcoming the odds against them (described by some respondents as discrimination) by being better qualified, more ambitious and more mobile.

This study is useful in highlighting the importance of informal factors on career progression. However, it is argued here that Alban-Metcalf and Nicholson, in attributing the strong influence of highly subjective factors in the career progression process to a lack of appraisal systems within organisations, were oversimplifying the problem. The complex nature of the forming and influence of informal factors will be illustrated through the description of other studies referred to in this section

i) Studies Addressing a Single Influence on Career Progression

Tierney (1992) provides a good illustration of the complexity of informal factors effecting the career progression process in her description of a software installation company. Here, career progression was achieved through negotiation with the boss over performance bonus and appraisals. The career route Tierney described was silent and employees did not know what progress they were making. However, this process was more problematic for the women than the

men employees. The men, or "lads" formed a grapevine through which crucial pieces of work related information were traded. Although the women were not explicitly excluded from this process, they described that they felt uncomfortable joining in. Tierney concluded on the basis of this study that the unambiguous career ladder offers more opportunities to workers and in particular women. However, the results of the Alban-Metcalf and Nicholson(1984) research and the case studies presented in this thesis in Chapters 6-9 suggest that even when more formal procedures are in place, informal procedures such as networking remain prevalent.

The concept of how women and men's performance is viewed and how women and men view their own performance has become the focus of recent studies employing attribution theory (Alimo-Metcalf, 1993; Ibarra, 1993; Strober and Jackman, 1994). Ibarra (1993), similar to Strober and Jackman (1994) describe women and men as proactive agents at work, seeking out information and interpreting events in their environments as a means of progressing their careers. Ibarra (1993) states:

"The impact of this process on women's careers is likely to be influenced by how they construe the opportunity structure and how they explain their own performance and that of others" (p1)

Other researchers have also suggested that bias within the performance evaluation process may contribute to fewer women than men advancing within organisations (Alimo-Metcalf, 1993; Parasuraman and Greenhaus, 1993; Stumpf and London, 1981). They suggest that bias may occur when the performance level of women is evaluated more negatively than their actual performance warrants (Alimo-Metcalf, 1993; Greenhaus et al, 1990). In addition, the reasons attributed for successful performance, for example, ability as oppose to luck, may influence an individual's prospects for future career progression (Parasuraman and Greenhaus, 1993; Heilman and Guzzo, 1978).

An attribution theory of achievement motivation has been developed by Weiner and colleagues who proposed that perceived causes of success and failure can be placed on a set of dimensions (Weiner et al, 1971; Weiner, 1985). The dimensions include:

- the extent to which a cause is something internal to the person or part of the environment (locus);
- the extent to which the cause remains stable or fluctuates over time (stability);
- the degree to which the cause is subject to control (controllability).

The theory outlines a process by which an individual's beliefs about why they have performed well or badly effect factors such as self esteem and expectations about future performance.

Rosenthal et al (1993), have proposed that there are two major ways in which the process of causal attribution could adversely effect women's career progression. Firstly, women, as

compared to men may derogate their own performance by attributing its cause in ways less likely to sustain confidence in ability and likelihood of future success. Rosenthal et al suggest that weaker confidence may obstruct self promoting behaviour that is conducive to career progression in management. Secondly, gender may influence managers perceptions of the reasons subordinates and colleagues have performed well or badly. Perceptions may be more positive, that is, more strongly linked to ability when the performer is male rather than female. Rosenthal et al (1993) propose that these perceptions may influence decisions about the individual's suitability for career progression.

Laboratory evidence exists which suggests gender does effect causal attribution in both the ways suggested above (Feather, 1969; Feather and Simon, 1973; Nichols, 1975). However, the consistency, size and generalisability of these results have been questioned due to their reliance on laboratory settings and student samples (Sohn, 1982; Frieze et al, 1982) and for treating women as a homogeneous group (Crombie, 1983). In an attempt to overcome some of these criticisms, Rosenthal et al (1993) undertook organisational based research to investigate whether the gender differences in attribution for personal performance found in laboratory settings would be replicated²⁸. The results of Rosenthal et al's study (1993) showed that, on average, male managers think their success results more strongly from their own ability than women do. Conversely, women rely more on hard work and effort as an explanation of their success than men do. The results regarding subordinates performance indicate that women managers tend to give significantly more "generous" ability ratings. That is, women more than men managers believed the subordinates ability to be a stronger cause of successful outcome. Women managers' tendency to give more generous ability ratings did not, however, favour either male or female staff. On average, women managers were less prepared than men to take credit for their subordinates success when the member of staff was male. The credit was claimed by women managers when the subordinate was female. There was a tendency for women managers to give a higher rating to the importance of ability as a cause of success when discussing their subordinates' success than when they were discussing their own. Such results were not found amongst male managers.

The results of this study offer support for the hypothesis that men and women managers differ in their interpretation of their own successful performance. Women managers thought their success had significantly less to do with their ability than did their male counterparts. Effort appeared as the most important explanation for success amongst women.

²⁸ Rosenthal et al (1993) based their study within three organisations where 66 women and 114 men managers were asked to rate their own performance and that of subordinates according to the Weiner model.

Rosenthal et al (1993) argue that the stronger a belief that one's success derives personal ability, the stronger the basis for the development and maintenance of self confidence and expectations of future success. Rosenthal et al (1993) state:

"If women are systematically more hesitant than men to diagnose their successes as reflecting high ability, they may be erecting and maintaining obstacles to their own career progression. These obstacles can be internal, in the sense of constraining self confidence. Or they may be external, in the sense of influencing colleagues' perceptions toward the view that one's success has less to do with ability than hard work or special treatment. Either way, they serve to reduce rather than extend the opportunity structure."
(p16)

Attribution theory has been applied most recently to the field of IT to investigate the effect of gender on IT job performance evaluations and attributions (Igbaria and Baroudi, 1995). In a US utility company, questionnaire results from IT employees and their supervisors showed that gender was significantly correlated with job performance ratings, attributions and career progression prospects.

The study's results showed that internal attributions for good performance were more commonly applied to men than women. Notably, high job performance evaluations were associated with extensive use of internal attributions. Consequently, men were in general perceived to have more favourable career progression chances than women.

Igbaria and Baroudi (1995) confirmed from their study that women experience more restricted career progression opportunities within IT than men and rarely progress beyond first line supervisors positions. The study suggests that the effect of job performance evaluations on career progression varies by gender. Female IT employees were seen as having relatively restricted progression opportunities because their progression was less effected by performance than were their male counterparts.

Thus, studies employing attribution theory illustrate how formal performance appraisal policies and procedures in practice may carry with them significant informal influences on career progression. Moreover, the informal influence has been found to differ in its effect on men and women's progression prospects. Whilst not explored within the attribution studies referred to here, social constructionist theory on the gendered nature of technology and management may provide useful explanations for the results found.

It is also suggested within this thesis that care should be taken in not placing blame on women for the view taken of their own performance, as was suggested by Rosenthal et al (1993):

"...they (women) may be erecting and maintaining obstacles to their own career progression." (p16)

Indeed, Rosenthal et al's (1993) statement also perhaps implies that women are unaware of informal influences on their career progression and that if aware, they are perhaps helpless to do anything about it. However, Tierney's (1992) study showed clearly that women were aware of the presence and influence of informal factors. In addition, emerging evidence indicating that some women are choosing to leave their management careers in organisations (Gutek et al, 1985; Gutek and Larwood, 1989; Strober and Jackman, 1994) may be an indication of the action some women are taking to combat informal influences.

In the past, the major reasons proposed as to why women chose to leave management careers concerned family commitments (Taylor, 1986; Schwartz, 1989) and systematic discrimination within the firm (Davidson and Cooper, 1988; Gutek et al, 1990; Rosen and Korabik, 1990). As more senior managerial positions demand greater commitment in terms of hours and companies continue to be inflexible to family needs, it has been suggested that competing demands for women's time and energy from the family and home have led many to leave corporate organisations (Rosen and Korabik, 1991; Bolger et al, 1989). Davidson and Cooper (1988) suggest that structural and systematic discrimination embedded within organisation policies and practices may cause higher stress levels and ultimately higher turnover levels for female than male managers. Gutek et al (1990) estimated that 10% of women leave their jobs because of sexual harassment. Rosen and Korabik (1990) attributed high turnover amongst women managers to office politics and being in a male dominated organisation.

However, the results of a more recent study by Strober and Jackman (1994) have suggested a third reason for women managers choosing to leave a company. The study took place in several large profit and not for profit organisation that were concerned they were losing women managers and that existing managers were not progressing to senior positions. The study found that the reasons stated by women for leaving at the time of their departure from the company were not the same as reasons given by women to the researchers once they had left.

Whilst the women who had left confirmed that their work had been demanding, they added that they had enjoyed this aspect of the job. They asserted that the company culture had been 'macho' and that they had sometimes felt excluded from it. However, such a culture was not cited by the women as a reason for leaving. In addition, those that had balanced work and family, whilst admitting they had found this difficult, felt they had been succeeding. The explanations given by the women for leaving had little connection with stereotypical male work culture, male occupations or work/family balance. Indeed, many of the women interviewed had started their own business since leaving, working longer hours and often dealing with organisations that had 'macho' cultures. The reason stated for leaving was that the women could not see a future for themselves within the organisation. They had had no role models at senior levels, no mentoring or assistance in career path planning. The women felt that they had received no indication that if they had been successful in meeting new challenges and responsibilities, that their talents would

continue to be enhanced and utilised. Furthermore, the results of the study showed that although men in the organisations also did not receive mentoring or assistance in developing their careers, they got help informally, whilst women rarely received such informal help.

Strober and Jackman (1994) identified the major problem with the male work culture not being that women felt excluded from it, but that it excluded women from getting the mentoring and career path help that they needed to progress. This situation was worsened by the scarcity of female role models at the top of the organisation. Thus, Strober and Jackman (1994) have revealed another important way in which informal factors effect men and women managers career progression.

Strober and Jackman (1994) referred in particular to the importance of networking and mentoring in the career progression process. Davidson and Cooper (1992), also highlight the importance of these activities, as well as the difficulty women often experience in forming networking and mentoring relationships in the same way as men do. Davidson and Cooper, having shown the importance of mentoring and networking in the career progression process then cite the Larwood and Kaplan 1980 study showing the failure of women to recognise their importance. This can be contrasted with other studies showing that women do recognise the importance of mentoring and networking (Graddick, 1984; Hennig and Jardim, 1976; Keown and Keown, 1982; Collins, 1983; Larwood et al, 1981). However, such recognition, Ragins (1989) argues may be related to their career progression. Ragins also suggests that even if women recognise the importance of mentoring relationships that they may be less skilled than their male counterparts in obtaining a mentor. Other difficulties for women establishing the mentor relationship include an approach to or by a male mentor being misinterpreted as a sexual approach (Clawson and Kram, 1984), men feeling more comfortable mentoring men (Green and Sandos, 1983) and women not being viewed by more senior women as being strategic for them as protégés (Zey, 1984).

The range of career progression studies reviewed here so far begin to highlight the number and complexity of informal influences found to be occurring within organisations. The gendered nature of these influences and their different effects and consequences for men and women have been clearly described by the studies. However, whilst each individual study has contributed knowledge on a specific influence, more comprehensive research comparing the relative influence of a number of informal and/or formal factors is scarce.

ii) Studies Addressing a Range of Influences on Career Progression

Two recent studies (Tharenou et al, 1994 and Hammond and Holton, 1991), of which the latter is based within the field of IT both adopt a more comprehensive approach to investigating factors effecting men and women's career progression than the research referred to so far within this

section. Tharenou et al (1994), tested the impact of a number of different formal and informal factors on men and women managers' career progression²⁹. These included:

- **the impact of a predominately male hierarchy:** Managerial hierarchies largely composed of men are posed to reduce encouragement women receive from peers and supervisors to undertake training (Kanter, 1977; Marini, 1989) and advance their careers (South et al, 1987). Tharenou et al (1994) add that male hierarchies may also lower women's self confidence and foster covert forms of discrimination and exclusion that diminish women's work experience.
- **the impact of training and development:** Training and development in the form of off-the-job courses aimed to broaden employees and provide them with state-of-the-art knowledge and skills are believed to help individuals gain the preparation for progression to higher management levels.
- **the impact of career encouragement:** Women have been shown to need more encouragement than men to reach executive levels (Morrison et al, 1987).
- **the impact of home status:** The presence of a spouse and dependants is proposed to reduce women's work experience which in turn reduces progression (Ragins and Sundstrom, 1989).
- **the impact of work experience:** Work experience has been found to enhance managerial career progression (Cox and Harquail, 1991; Gattiker and Larwood, 1990; Jasolka et al, 1985).
- **the impact of educational encouragement and self confidence:** Parental encouragement to achieve goals, including educational attainment is thought to be important in the early socialisation of women who gain gender atypical jobs (Betz and Fitzgerald, 1987; Lemkau, 1979) and in that of high achieving men (London and Greller, 1991).
- **the impact of age and education:** Both these variables have been shown to have consistent associations with managerial hierarchical levels and salary (Gattiker and Larwood, 1990; Jasolka et al, 1985).

In general, men's patterns of relationships were found to be similar to women's although some differences were found. Work experience and education were found to influence men's training more positively, whereas women's education was not found to influence women's training.

Training had a more positive effect on men's career progression than on women's. Overall, skills (training, education and work experience) appeared as the most powerful influences on men's managerial career progression and were better rewarded for men than for women.

Tharenou et al's (1994) study is helpful in that it begins to identify some links between different factors influencing career progression, some of which are informal, such as the impact of a male hierarchy and career encouragement. However, in-depth information enabling an understanding of why the patterns identified emerged was not provided by the study. Certainly, the survey approach adopted by the study did not allow for investigation of the effect of many of the informal influences focused upon in some of the more in-depth studies already reviewed here (e.g. Strober and Jackman, 1994; Rosenthal et al, 1993). Neither did it provide an indication of the organisational contexts in which such patterns occurred. Thus, it is difficult to glean from

²⁹ Tharenou et al's (1994) study was designed by drawing on three separate models of career progression developed by Fagenson (1990); Ragins and Sundstrom (1989) and Tharenou (1990). Its sample included 513 women and 501 men managers occupying six managerial levels in public (58.5%) and private (41.5%) sector Australian organisations.

Tharenou et al's study whether certain formal organisational policies, for example, produce different career progression patterns and experiences in practice. Research conducted within the field of IT, reviewed below, makes some contribution in overcoming this latter limitation of the Tharenou research.

The Hammond and Holton study (1991), conducted within 43 UK organisations, evaluated how individuals working within IT experienced their careers. They investigated the types of career progression processes that were in operation and the impact these had on women as compared to men.

The study was useful in highlighting areas where gaps between policy and practice occurred. For example, in 80% of the sample companies, IT staff were stated to be integrated into the overall organisational career progression process. However, in the majority of organisations studied (89%), individuals stated they had to plan their own career progression. Within this context it was notable that women, more than men, said they felt they did not have all the necessary information to plan their careers.

Potential for progression and advice on how to progress was claimed by companies to be established within appraisals held with an individual's immediate manager. However, in practice this process appeared to take place more informally, outside the appraisal system. More men (53%) than women (42%) stated they received feedback in this way. In addition, the feedback was described as being 'very useful' by more men (45%) than women (37%). Women's potential appeared more likely to be recognised after taking on projects that were difficult to handle or were high risk in some other way.

Although job opportunities and their associated application process were found to be standardised and easy to access at more junior levels, less structure was found in the process at more senior levels. Far greater difference in where, if at all, IT management posts were advertised was found, or whether individuals were selected by managers or a panel. Overall, only 65% of IT staff interviewed said it was easy to find out about job moves and career progression. Hammond and Holton (1991) stated this suggested that between a third and a quarter of IT staff who were at a stage in their career where such information would be particularly valuable to them, did not have appropriate access to this information. Moreover, Hammond and Holton (1991) found that although formal methods for gaining information on job opportunities existed within the sample companies, informal methods prevailed. The following comments made by interviewees during the study illustrated this:

"middle manager appointments and above are advertised largely by mouth."

"grapevine is very important"

"only the tip of the iceberg is advertised" (p32)

The Hammond and Holton (1991) study showed that a third of respondents did not know how decisions on progression and job moves were made. Overall, gaining nomination by one's immediate manager and gaining visibility within the organisation were perceived as important in the career progression process. However, a difference appeared in the perceived importance of these between men and women. Women were more likely to indicate immediate manager nomination as important (23%) than men (15%). Slightly more men (31%) regarded visibility as important than women (30%).

Overall, the Hammond and Holton (1991) study revealed differences in the experiences, opportunities, knowledge and perception of career progression between men and women working within IT. Thus, the Hammond and Holton research is particularly important as one of the few studies that bridges the three areas of IT, management and career progression focused on within this thesis. It is also useful in providing indications of the presence of both formal and informal influences on men and women IT managers career progression. However, the study is largely descriptive. The effect of influences on the career progression of men and women IT managers and explanations for how they derived are missing within the study. It is both these areas that this research seeks specifically to contribute knowledge and understanding.

3.5 Summary and Conclusions

Although several strengths in the women in management, gender and IT and career progression literature have been identified, this chapter has also highlighted a number of gaps and weaknesses within each of the areas. These are summarised below:

i) Gaps

- The liberal approach to women in management literature does not fully address the influence informal factors within organisations may have on women compared to men progressing to and within management. Also, it does not consider the ways in which organisation and management theories, may themselves be gendered;
- In contrast to the liberal approach, the radical approach to women in management literature does acknowledge the need to deconstruct and understand both formal and informal aspects of management and organisations and the way in which gender bias may exist within them. Whilst recent studies have begun to address these issues, for example by exploring the social construction of gender within organisations (Ely, 1995) or gender bias within organisational cultures (Case, 1994), less have specifically addressed how the career progression process may be gendered.
- Overall, the gender and IT literature concentrates on barriers to women's access to IT or their predominance in lower hierarchical levels within the field. Little research work has addressed the experience of women in IT management positions.
- Career progression theory has begun to expose the impact of informal factors within organisations on employees' career progression. However, research of this nature within the field of IT management to date is very limited and largely descriptive. Little work has been undertaken in this field to understand how informal factors develop, the degree to which they may contain gender bias and the impact they have on women's compared to men's IT managerial career progression.

ii) Weaknesses

The literature review has identified an overall weakness which can be directed at both the women in management and gender and IT literature. That is, the lack of sympathy the radical and liberal approaches in each of the these areas have for each other.

The liberal approach to women in management does not fully consider the implications or impact of the social, political or macro-economic environment in which an organisation rests in analysing the barriers women face on their journey into and within management positions. Consequently, in attempting to improve the progression of women managers, the changes achieved are criticised by the radical approach for not addressing the root causes of inequality and achieving only surface impact (Liff, 1988; Marshall, 1984).

Conversely, it is argued here that the radical approach to women in management, in taking explicit account of such wider environmental influences, is far more likely to achieve deep rooted and long lasting change. However, the ability of the radical approach to achieve change in practice has been questioned within this review. Historical analysis of the radical approach has shown the problems it faces in achieving its change objectives and alienating the women it is trying to help (Hacker, 1989). Whilst the liberal approach changes may be criticised for not being far reaching enough, they have in many cases been achieved. It is noted, however, that radical change by definition is perhaps always difficult to achieve.

It is suggested here that greater sympathy and collaboration between the two approaches may help to overcome some of the limitations faced by both. That is, the more comprehensive framework adopted by the radical approach may help to develop the changes being considered within the liberal approach and deepen their impact. Similarly, the relations and language developed within the liberal approach may be of some help to those working within the radical framework to achieve concrete progress along the agenda for change.

In contrast to the liberal women in management approach, the liberal approach to gender and IT does acknowledge social and political influences external to the organisation as posing barriers to women developing their careers within the field of IT. However, this review has shown how the liberal women in technology approach in considering these influences does not thoroughly explore the gender bias within and created by them. In addition, it is suggested here that the liberal approach is limited in asserting that increased access to technical training represents the answer to most of the barriers facing women in IT.

The radical women and technology approach accuses the liberal of being essentialistic, deterministic and reinforcing gender divisions (Henwood, 1993). As such, the radical approach tends to reject all suggestions for improvement and change made by the liberal approach. For example, even when Cockburn (1985), a writer from the radical approach, supported the call for

increased technical training for women, she was heavily criticised by her radical colleagues for falling into the limited liberal trap.

Despite the wide differences between the liberal and radical approaches, an assumption is made here that few writers within the radical approach would in fact dispute the need for greater access for women to technical skills. It is necessary to make this assumption, however, as the view that the need for increased access for women to technical training is not always clear within the radical approach literature.

Whilst this thesis agreed with the radical view that the liberal approach is, in many ways limited in its view of the causes and sources of change to increasing women in IT and IT management positions, the importance of addressing women's access to technical skills and training and the influence this has on women progressing IT managerial careers should not be lost.

The weakness of a lack of sympathy between the liberal and radical approaches perhaps brings into question the appropriateness of dividing the literature in this way. Whilst the labels are often useful in identifying differing views, they may also work to prevent the development of theory and understanding in the field of gender and IT managers' career progression. The following section, which details the theoretical framework developed from the literature for this study, illustrates the links between liberal and radical approaches and how they may be brought together.

3.5.1 Creating a Single Theoretical Framework

In providing a theoretical base and structure for this research, it is important to show how the differing areas of literature reviewed within this chapter can be brought together under a single framework. This has been achieved by identifying three major themes that run throughout the different areas and to which each makes an important contribution. The three themes have been identified as:

- i) the predominance of men in social, economic and political positions of power;
- ii) informal organisational factors;
- iii) formal organisational factors.

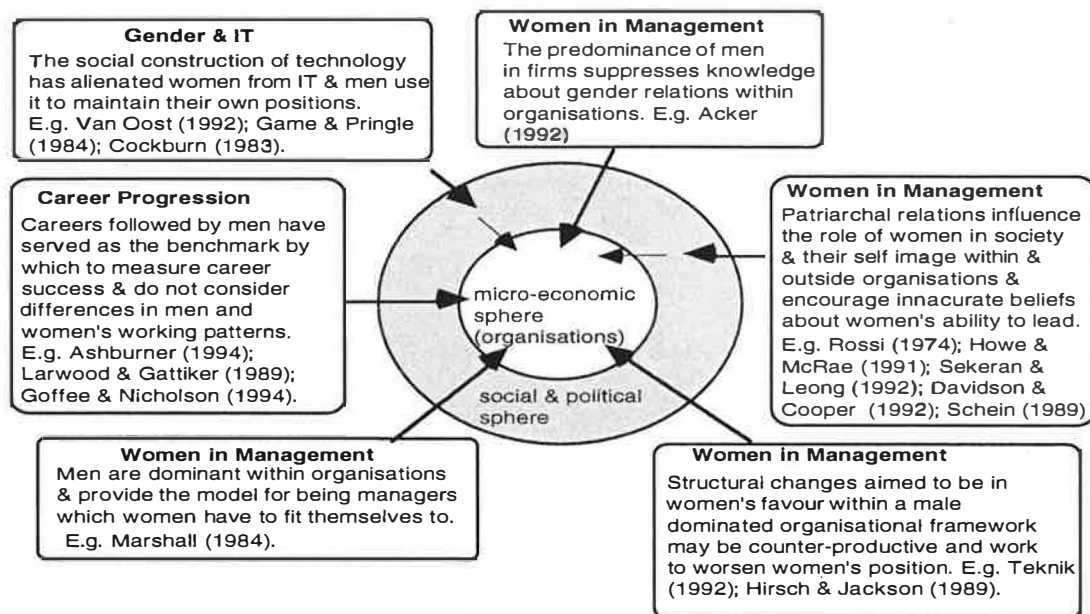
The importance, content and structure of each theme is described on the following page.

i) The Predominance of Men in Social, Economic and Political Positions of Power

Since it first developed, feminist theory has concerned itself with exploring the impact men holding the majority of social, political and economic decision making positions has on women's working lives. This concern was first articulated in feminist theories of patriarchal and capitalist relations (e.g. Eisenstein, 1979; 1984). Feminist theories of patriarchal relations argued that the different forms of inequality suffered by women are sufficiently related to each other to constitute

a system in which women as a group are oppressed by men. Whilst several divisions soon developed amongst the theorists, the theme of the predominance of men in social, political and economic positions of power continues throughout gender and IT, women in management and career progression literature. The strength of this theme and the contributions made to it by each area of literature are such that it should not be ignored in forming a theoretical framework for this research. Indeed, Figure 3.2 shows how by drawing on contributions to this theme made by women in management, gender and IT and career progression literature, theories about the influence of men in social, economic and political positions of power on women's working lives can be brought together.

Figure 3.2 The Impact Predominance of Men in Social, Political and Economic Positions of Power has on Women's Working Lives*



* Figure 3.3 shows two spheres. The outer sphere represents the social and political context in which organisations (the inner micro-economic sphere) rest.

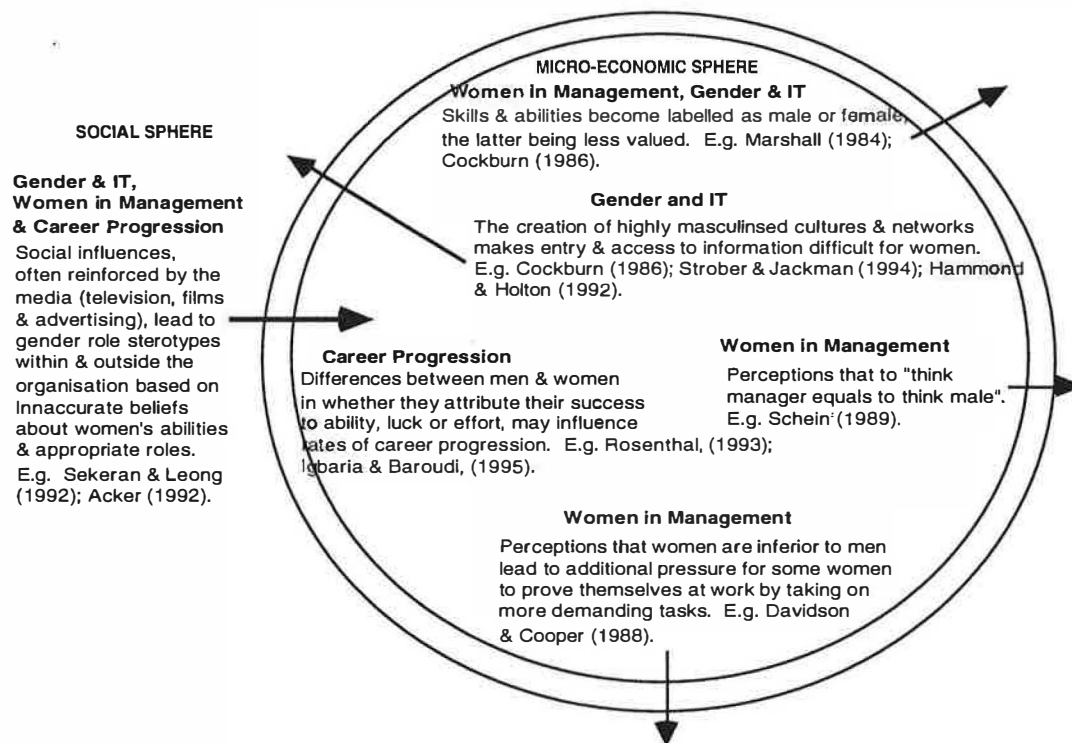
ii) Informal Organisational Factors

Studies within the field of women in management, gender and IT and career progression have highlighted the actual and potential influence of a number of informal organisational factors effecting women's career progression (Acker, 1992; Tierney, 1992; Alban-Metcalf and Nicholson, 1984). Informal organisational factors within this thesis refers to activities or processes within a firm that are not defined by formal organisational policies and procedures. That is, the every day behaviours, attitudes and actions of employees as they interact with each other. In some cases, such behaviours, attitudes and actions may be contrary to those prescribed by formal policies and procedures. In many ways, informal factors can be identified with actual practices within an organisation as distinct from prescribed policy.

Informal factors may include, for example, perceptions of women as more suited than men to certain types of work (Schein, 1989; Schein et al, 1989), which shape recruitment and career progression decisions. Clegg (1981), for example, also refers to the importance of regulative rules or social regulation within a company. That is, how a person may be expected to relate to other persons within an organisation. To enter, prosper and survive within an organisation, Clegg (1981) argues, can depend upon how a person is viewed by decision makers and whether they are viewed as 'fitting in'.

It is also important to note that this theme contains within it the social constructionist argument that the development of informal factors within organisations are influenced by and in turn influence external social structures and cultures (Figure 3.3). That is, within this framework, the organisation is not viewed as an independent element that can be manipulated and changed, but as part of a wider social and political context.

Figure 3.3 The Relationship Between Society and Informal Organisational Factors



iii) Formal Organisational Factors

Much debate exists within the three areas of literature reviewed within this chapter as to the role and importance of formal organisational factors, that is, policies, procedures and structures, in achieving equal opportunities for men and women in the workplace. It has been shown how the liberal approach to women in management and gender and IT, together with writers from the career progression literature view formal organisational factors as constituting both the sources of inequality (Davidson and Cooper, 1992; Hirsch and Jackson, 1989; Tierney, 1992; Alban-Metcalf and Nicholson, 1984) and potential change (Fenn, 1978; Venables, 1981).

For example, Cockburn (1983) notes how the failure of companies to provide structures to support women in combining family and career, makes it difficult for them to keep pace with rapidly changing technology. Strober and Jackman (1994), for example, argue that lack of role models, formal career path planning and mentoring lead women managers to leave companies as they see no future for themselves.

Although there is general agreement within the literature that formal organisational factors often erect barriers to equality, different views exist over the extent to which changing formal factors will lead to real and sustainable equality improvements. Such differences in many ways encapsulates the divisions between the liberal and radical approaches to women in management and gender and IT. Liberal approaches tend to argue that attention to formal factors are sufficient to achieve change (Fenn, 1978; Venables, 1981). Radical approaches reject this argument, criticising it as too simplistic.

Formal organisational factors, radical approaches argue, are rooted in organisation and management theories which themselves contain gender bias (Ferguson, 1984; Calás and Smircich, 1989; Mills, 1988). The extent to which gender bias exists within these theories and the practices that follow them are only just beginning to be explored (Acker, 1992). Until these theories and practices have been thoroughly unpacked and re-constructed, exposing any gender bias, radical approaches argue, it is unlikely changes to formal factors will have a deep rooted or lasting effect (Hearn and Parkin, 1983; 1987; Marshall, 1984).

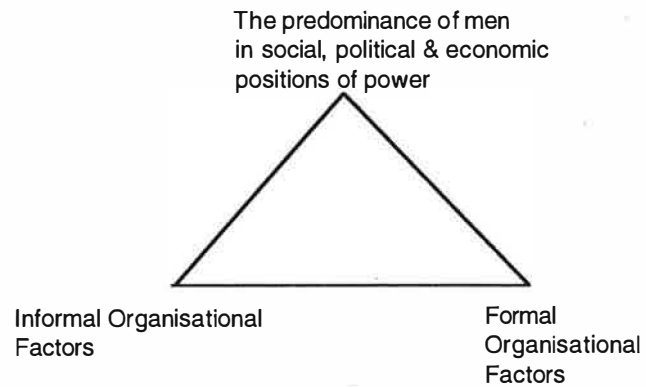
Strong evidence is also emerging from research within the radical camps to show how many formal organisation processes lead to informal practices and can perhaps seldom be completely free from subjective informal influences (Rosenthal et al, 1993; Igbaria and Baroudi, 1995; Davidson and Cooper, 1992).

Thus, the relationship between formal and informal organisational factors presented within the literature appears very blurred. What is apparent though is the importance of including formal factors within the theoretical framework in order to analyse the presence of gender bias within them, and how they may lead to informal practices, which may also be gendered.

The above explanations and pictorial representation of the themes within the theoretical framework highlights the overlap that exists between them. For example, the lack of distinction between formal and informal organisational factors as articulated in the section above and the strong link both these themes have with the predominance of men in social, economic and political positions of power. Therefore, the theoretical framework is perhaps most usefully viewed as a set of three inter-linking themes as presented in Figure 3.4. At the centre of the inter-linking themes is the research question, addressing the gendered nature of the IT managerial career progression process.

Both the theoretical framework and the objective to overcome the gaps and weaknesses identified in the literature reviewed help to identify the most appropriate methods to employ in the empirical stage. These methods and the way in which the theoretical framework and literature review were used to shape the focus of questions and analysis within the research are detailed in the following chapter.

Figure 3.4 An Overview of the Research Theoretical Framework



Chapter 4 - Methodology

4.1 Introduction

Chapter 3 highlighted gaps and weaknesses in relevant previous research. This helped to identify where effort should be directed during the empirical phase of this study in order to try and overcome the gaps and weaknesses. Specifically, the literature review highlighted four key questions to be addressed through the research and offered theories and concepts with which to locate and understand the answers. The questions and their related theories and concepts are summarised below:

- i) What impact do formal organisational policies and procedures relevant to IT managerial career progression and working towards equal opportunities between men and women employees have on women's compared to men's experience of the IT managerial career progression process?

Two opposing theories are put forward by the liberal and radical approaches within the literature regarding the role of formal organisational policies and procedures in achieving gender equality. Liberal approaches regard policies and procedures as playing a major role in achieving gender equality. The radical approach argues that such formal factors are rooted in organisation and management theories which themselves contain gender bias (Ferguson, 1984; Calás and Smircich, 1989; Acker, 1992) and therefore are incapable of achieving deep rooted and sustainable change. As Smith (1987) points out, organisational theory originates, or is at least closely related with the groups that manage, organise and control society, with practice influencing theory and theory influencing practice. The validity of the two opposing theories are compared in applying them within this research which seeks to identify both formal and informal factors effecting the career progression of women compared with men IT managers.

- ii) What impact do informal organisational factors - the attitudes, perceptions, behaviours and actions manifested as employees interact together - have on women's compared with men's experience of the IT managerial career progression process?

The radical theories in both women in management and the gender and IT debate are applied in locating and understanding informal factors effecting the IT managerial career progression process. That is, the research draws on theories of how gender is socially constructed, for example, to create stereotypes of masculine and feminine behaviour and masculine and feminine skills which are perpetuated through social and organisational structures, processes and cultures (e.g. Calás and Smircich, 1989; Acker, 1992; Van Oost, 1992). It refers to research on the relationship between gender and the management role which shows how the role and managerial career success factors are based on male rather than female attributes (e.g. Ely, 1995; Acker, 1992). The relationship between gender and information technology is also referred to in showing how, for example, men can actively work to exclude women from technical roles

and the impact of technical skills being strongly associated with masculine attributes (e.g. Cockburn, 1985; Webster, 1996; Henwood, 1993).

- iii) What role do IT technical skills and qualifications play in influencing women's compared to men's experience of the IT managerial career progression process?

The gender and IT debate takes two different approaches in assessing the issue of gender and skill. The liberal approach theorises that women require increased access to IT training and skill development and that once armed with qualifications and experience, they will be able to enter and progress within the IT management field. The starting point for the radical approach lies further back in the skill development process. It is more concerned with the social construction of the relationship between gender and technical skills and how this relationship may influence both men and women's perceptions of women's technical abilities and suitability to the IT management field (e.g. McNeil, 1987; Cockburn, 1985; Poynton, 1993). It is the radical concepts that are largely applied in conducting this research in locating and understanding issues pertaining to the influence of technical skills on women's compared with men's experience of the IT managerial career progression process.

- iv) What impact does the predominance of men in social, economic and political positions of power have on women's as compared with men's experience of the IT managerial career progression process?

At one level this question is concerned with contributing to establishing the numbers of men and women managers in the field of IT. At another level, the question encapsulates a key difference between the liberal and radical approaches within the gender and IT debate and women in management literature. The liberal viewpoint argues that more women in IT management will help to change the role and field, enabling further women to enter and progress within it. Conversely, the radical approaches argue how a predominance of men in positions of power within the social, economic and political spheres lead to the conscious or subconscious subversion of moves to increase gender equality. Both viewpoints will be applied and tested in the research analysis stage.

This chapter details how, in light of the focus of the research, multiple case studies, together with a survey questionnaire, were evaluated as the most appropriate principal research strategies to employ in meeting the objectives of this study. It emphasises the importance of highlighting women's own experiences of IT managerial career progression, comparing and contrasting them with men's experiences, in order to conduct a gender analysis of the IT managerial career progression process. The chapter describes how the study was undertaken and the process of analysis followed. In addition, the strengths and limitations of the research methods used and the impact of these on the study's final results and conclusions are discussed.

4.2 The Quantitative - Qualitative Debate

In assessing the most appropriate methods to employ in conducting any study, an initial decision faced by many researchers concerns the use of qualitative or quantitative methods. The two approaches are, according to some researchers, quite distinct from each other as they are closely related to different philosophical assumptions. For example, Burrell and Morgan (1980) state that all researchers make explicit or implicit epistemological assumptions about the way the social world is studied, which they describe as, "*assumptions about the grounds of knowledge*" (p1). Two opposing and what Bryman (1984), describes as "*incommensurable*" epistemologies can be identified. Quantitative and qualitative methods are frequently described as referring to an epistemological positivist or anti-positivist position. Positivists regard social phenomena as occurring objectively. Thus, within this approach, predictions about what happens in the social world are sought by identifying "*regularities and causal relationships between its constituent elements*" (Burrell and Morgan, 1980, p5). Quantitative methodology is often described as a social research method which applies a natural science and positivist approach to social phenomena. As such, quantitative research has an emphasis on collecting metric data, using well designed instruments (Das, 1983). In terms of methods, a quantitative approach to research frequently involves the use of a questionnaire survey or laboratory tests and experiments.

In contrast, anti-positivists view the social world as being "*essentially relativistic*" (Burrell and Morgan, 1980, p5). They state that it "*can only be understood from the point of view of individuals who are directly involved in the activities which are to be studied*" (Burrell and Morgan, 1980, p5). Qualitative methods have a commitment to seeing the world from the point of view of the actor. As a result, this method recommends close involvement and development of a contextual understanding. Through such close involvement, behaviour can be understood in the context of meaning systems employed by a particular group or society (Mishler, 1979; Van Maanen, 1979; Halfpenny, 1979). Van Maanen (1979) depicts the focus of qualitative methodology as describing, decoding or translating data in order to come to terms with meaning, rather than being concerned with frequency of phenomena. Sampson (1972) describes qualitative methodology as an unfolding process rather than a structured one. He also states that qualitative conclusions tend to be more impressionistic rather than definitive. Typically, qualitative methods may include observation, interviews and collection of documentary evidence.

The epistemological debate may itself be one basis upon which the choice of research method depends. Thus, positivists state the advantages of quantitative methods as objectivity, due to the distance maintained between observer and observed, the opportunity to place external checks on the questionnaire and the opportunity for replication. Anti-positivists argue that the qualitative is superior to the quantitative approach due to its flexible nature, its emphasis on discovering unanticipated findings and the possibility it has of altering research plans in response to these occurrences. Contrary to the epistemologists, Bryman (1984) argues that rationale for choosing an appropriate methodology does not rest on philosophical issues alone, but also on technical

issues. Snizeck (1976) points out that much research does not reflect an epistemological assumption. For example, in deciding which methodology to adopt, Trow (1957), recommends that it is dictated by the research problem. Contrary to the philosophical view, the technical view implies that one method is not superior to another, but is more useful in one context than another.

However, it also becomes clear that uncertainty begins to emerge if one is forced to choose exclusively between quantitative and qualitative methodology. For example, whilst previous studies have begun to show the type of informal organisational factors which may influence the career progression of IT managers, the area remains largely unexplored. In addition, the existence and impact of gender bias in formal or informal aspects of the career progression process has been highlighted as an area requiring further and more detailed examination. Thus, these aspects of the research demand techniques which allow in-depth qualitative exploration of processes, behaviours and relationships in the particular context of different organisational settings. Conversely, gathering data on IT skills and training gained by men and women IT managers clearly lends itself more easily to survey research.

Given the difficulties associated with choosing between quantitative and qualitative methods, a holistic approach is supported by Bryman (1984), who does not view the two approaches as being mutually exclusive. Indeed, Patton (1980) notes that although qualitative and quantitative are quite different methods, it does not mean that they both cannot be used at the same time. Joint utilisation of methods, Bryman (1984) argues, may improve the reliability and validity of data. Alternatively, research under each method may suggest issues which can be further explored using the other. Bryman (1984), describes a combined methodological approach or 'triangulation' as exuding good sense. He supports researchers who capitalise upon the strengths of different techniques and combine them in overall research projects. Bryman is in apparent agreement with Douglas (1976), who states:

"...since all research methods have costs and benefits, and since they differ greatly in their particular costs and benefits, a researcher generally finds it best to use some combination or mixture of methods" (p30).

Thus, a strong argument exists within methodology literature for combining qualitative and quantitative methods. Indeed, the objectives and focus of this study, on a technical level, demand such a holistic approach. That is, one aspect of the research, which focuses on comparing the skills and training background of IT managers, is well defined. It is a 'descriptive' (Yin, 1984) element of the overall study and, as stated earlier, lends itself easily to the survey method. In gathering widespread data, this study can contribute further information on skills and training to current knowledge about men and women IT managers.

The literature review has helped to identify gaps in existing knowledge pertaining to the career progression of men and women IT managers and therefore provides some focus for this research. By definition, this aspect of the study is 'exploratory' (Yin, 1984) in nature. It seeks to identify what formal and informal factors effect the career progression of men and women IT managers. The literature suggests what factors may exist, but is not definitive. Thus, it is important that the research strategy ensures space is allowed for exploration of known factors as well as others that may emerge from the data during the research process. The exploratory nature of the research and its need for in-depth information about IT managers' experiences points to the qualitative semi-structured interview method (see Patton, 1980) as being the most appropriate. However, the study also aims to compare the impact different organisational environments have on the career progression of men and women IT managers. Hence, detailed information about the context, policies and practices of organisations is also required. Given these needs, the case study method, which incorporates in-depth interviews, appears appropriate to adopt in conjunction with the survey questionnaire in meeting the objectives of this study.

Before explaining the rationale for multiple case studies and describing how the research was carried out, the following section considers the specific methodological demands of conducting a gender analysis of the IT managerial career progression process.

4.2.1 Employing Women's Voice and Experience in Conducting a Gender Analysis

This research seeks to conduct a gender analysis of the IT managerial career progression process by comparing women IT managers' experiences with that of men's. Such an approach is in line with developing feminist thought which, since the late 1970s, has begun to shift its focus away from equity, or its absence, between men and women. It is now moving more towards exploring and legitimising differences in men and women's experiences of work and their alternative ways of thinking (Calás and Smircich, 1992; Belenky et al, 1986; Gilligan, 1982).

The literature review (Chapter 3) showed how gender and IT, women in management and career progression literature areas have each taken up the challenge to explore differences between men and women's experience and position the different as another form of valid human experience. In so doing, research in the three areas have begun to show how activity within organisations can be deconstructed to more clearly reveal the presence and impact of gender by explicitly highlighting women's voice — their own accounts, interpretations and expression of their own experiences (e.g. Cassell and Walsh, 1993; Calás and Smircich, 1992; Ashburner, 1994; Gilligan, 1982; Alvesson and Due Billing, 1992).

It should be noted that deconstructing organisations in this way, comparing women's experience with men's and legitimising the different as another valid form of human experience, is at an early stage of development. Therefore, whilst current thought helps to shape the methodology

employed in this study, it is intended that its application here will also further progress understanding and use of women's voice and experience within future research.

4.3 Case Study Research Strategy

Hartley (1993) usefully defines case study research strategy as follows:

"Case study research consists of a detailed investigation, often with data collected over a period of time, of one or more organisations, or groups within organisations, with a view to providing an analysis of the context and processes involved in the phenomenon under study. The phenomenon is not isolated from its context (as in laboratory study), but is of interest precisely because it is in relation to its context." (p2)

This definition summarises those made by other contemporary proponents of the case study method, such as Stake (1995) and Yin (1994). Each of these proponents are helpful in showing how, as a research method, case studies can be used not only in exploratory research, but also in explanatory and descriptive research (Yin, 1994)³¹. Whilst the case studies within this research were largely exploratory, asking what factors influence the career progression of men and women IT managers, some explanation of phenomena and causal relationships were also sought.

Yin (1994) and Hartley (1993) provide a summary of commonly agreed conditions within the methods literature of the conditions under which case studies are appropriately adopted:

- when information is sought about processed relationships that are hard to obtain through other methods, e.g. surveys;
- when new processes or behaviours or ones which are little understood are being explored;
- when the contextual setting is important;
- when building or adding to theory through an inductive approach is required;
- when the boundaries between phenomenon and context are not clear;
- when informal, unusual or secret organisational behaviour is being explored.

Notably, most of the conditions can be applied to this study's research question and objectives. For example, the exploratory aspect of the study, which focuses on formal and informal factors effecting career progression, is more suited to in-depth, semi-structured interviews than a questionnaire. As new information arises from one interview, its relevance can be tested in further interviews. In addition, the above listed conditions state that the case study method is

³¹ Previously, a commonly held view was that case studies were appropriate only for the exploratory phase of an investigation. Surveys were viewed as appropriate for the descriptive phase. Experiments were viewed as the only method of doing any explanatory or causal enquiries (Platt, 1992).

appropriate where there is an objective, as in the case of this research, to build or further develop theory.

Another important point for consideration in case study design is whether to adopt a single or multiple case strategy. Case studies have traditionally been recognised as taking an organisation or department within an organisation as a case (Blau, 1955; Roy, 1960). However, there are also numerous examples of this research approach where two or more sites are included (Lupton, 1963). Yin (1994) and Hartley (1993) identify the following criteria as suited to a single case design:

- provides the critical case in testing a well formulated theory;
- represents an extreme or unique case;
- represents a revelatory case in a situation where an opportunity exists to observe and analyse a phenomenon previously inaccessible to scientific investigation;
- used in preparation for further study, e.g. exploratory or a pilot case;
- the only feasible option given limited resources or research opportunities.

If, as within this study, it is unlikely that a single case is unique or extreme, it can be argued that it does have limitations linked to being an isolated investigation (Yin, 1994)³². Conversely, as within this research, where the conditions identified by Yin (1994) and Hartley (1993) do not fully apply, multiple case designs are often regarded as more compelling and robust than single cases (Herriott and Firestone, 1983). They allow for advantages such as the generalisability of the research to be enhanced and comparisons allow the special features of cases to be identified more readily (Bryman, 1989; Miles and Huberman, 1984). Yet, due to the significant resources required to conduct multiple cases, Yin (1994) recommends their contribution to the overall study to be considered carefully. He notes that replication is extremely important in multiple cases. Each case should be selected so that it either *“predicts similar results or produces contrasting results but for predictable reasons.”* (p46).

The role of the theoretical framework here is crucial, as Yin (1994) asserts that it should state the conditions under which a particular phenomenon is likely to be found, and when it is not likely to be found. Such conditions imposed by Yin (1994) appear to allow far less scope for the important exploratory role of case studies. Whilst a theoretical framework may well provide guidance for the focus of data to be collected and a blueprint of assertions, if the phenomenon under study is previously largely unexplored, the conditions demanded by Yin may not only be difficult to satisfy, but also inappropriate.

³² In addition, as the research is at an exploratory stage, it is too early to tell whether one particular case may be representative of a sample of others.

Thus, this thesis suggests that multiple case studies are also highly suited to the development of theory. Exploring the same phenomena in different settings (within a set of parameters), it is argued here, can help to generate both generic and specific conditions under which certain results may be expected to occur. In line with Yin (1994), this approach is regarded within this thesis as highly iterative. That is, the results of a first set of multiple case studies may help to shape and build a theory which can then be tested in a further set of multiple case studies.

As Yin (1994) notes, however, replication amongst multiple case studies should not be confused with sampling. In the latter, a number of respondents and results arising from research conducted with them, are assumed to 'represent' a larger pool of respondents. Yin (1994) states that sampling is inappropriate for case studies which should not be used to assess the frequency of phenomena. As the context of case studies are as important as the phenomenon under study, a large number of cases would need to be conducted to allow any statistical consideration of the relevant variables.

The strength of case studies, therefore, is argued to lie in the depth and richness of data obtained from them. The quality of case studies arguably rests on the ways in which evidence is collected from them. Yin (1994) proposes three principles that are important to follow in quality case study research:

- i) multiple sources of evidence;
- ii) a case study database;
- iii) a chain of evidence;

i) Multiple Sources of Evidence

Yin (1994), together with other writers, e.g. Stake (1995); Hartley (1993) and Patton (1987), argue that gathering data within case studies from multiple sources (triangulation of sources) increases the accuracy and conviction of results. Yin (1994) proposes a non-exhaustive list of six sources of evidence, each of which have advantages and disadvantages, based on factors such as time, retrieve-ability and bias, associated with them. They include:

- documentation: e.g. letters, memoranda, agendas, newspaper articles;
- archival records: e.g. service records, organisational records, maps and charts, personal records;
- interviews: e.g. structured, semi-structured, unstructured, focus groups;
- direct observations: formal and/or casual;
- participant observation;
- physical artefacts: e.g. notice boards, machinery, office layouts.

No single source, Yin (1994) notes, has complete advantage over another. Conversely, the sources are complementary to each other. Using multiple sources to study the same phenomenon can also help to improve the validity of the case as different measures are applied to the same issue (Yin et al, 1983).

ii) Case Study Database

This principle referred to by Yin (1994), essentially distinguishes between the raw data and evidence collected during the case study and the final report emerging from it. Maintaining the raw data in a form which readers can refer back to enables other investigators to review the evidence directly and not just from the written report. In this way, Yin (1994) argues, the reliability of the study is drastically improved.

iii) Chain of Evidence

Through this principle Yin (1994), emphasises the importance of considering all the evidence collected during the case study in presenting the results and analysis. That is, a critical reader should not go back over the raw data and find evidence which has been ignored or overlooked in the analysis or writing up stage, influencing the conclusions reached. If a thorough chain of evidence is maintained, Yin (1994) argues, the quality and construct validity of the case will be increased.

The following section 4.4, in detailing the research process adopted within this study, shows how the three principles cited by Yin (1994) were incorporated into the research design.

4.4 The Research Process

This section will describe how each phase of the research process (pilot interviews, survey questionnaire and four case studies) took place, providing information about access, data gathering and analysis techniques.

Throughout the empirical phase and following each of the four case studies, the literature and theoretical framework were continually updated and reviewed. In this way, the study illustrates the highly iterative nature of the research process. The empirical focus of the study was also regularly reviewed in light of emerging results. For example, within the first two case studies, participants were asked to describe the skills they used and tasks carried out in their job roles. However, a large overlap resulted between skills and tasks. Following this, case studies 3 and 4 were refined to ask questions related to skills used by IT managers only. In addition, the results of case studies 1 and 2 highlighted the particular importance of informal factors influencing the career progression process. Consequently, the focus of case studies 3 and 4 was narrowed slightly in order that greater attention could be directed at these aspects of the emerging results in the time frame available. Parlett and Hamilton (1976) describe the iterative process leading to

narrowing of focus as "progressive focusing" (p148). They conclude that researchers commonly move through three stages of observation, renewed inquiry and explanation and state that:

"Obviously the three stages overlap and functionally interrelate. The transition from stage to stage, as the investigation unfolds, occurs as the problem areas become progressively clarified and re-defined. The course of the study cannot be charted in advance. Beginning with an extensive data base, the researchers systematically reduce the breadth of their enquiry to give more concentrated attention to the emerging issues." (p148)

4.4.1 Pilot Interviews

The importance of piloting when carrying out case study research is highlighted by Yin (1994) who notes how piloting helps the researcher to refine interview questions and data collection strategies. The researcher found in practice, that in addition to the benefits identified above, the pilot phase was also essential in allowing her to build up interviewing, data recording and analysis technique.

The aims of the pilot interviews were two-fold:

- to test issues identified from the literature to be followed up in case study and questionnaire format;
- to assess the appropriateness of interview questions and wording.

In total, 7 pilot interviews were carried out, each of between 1 and 1.5 hours in length. Three of the interviewees were obtained through personal contacts³³. The remainder were past University of Brighton MSc Information Systems students. The interviewees were drawn from organisations based within the south east of England and each held management positions. The level of management varied between top, middle and junior management positions. Only one male IT manager was interviewed as contact made with six other male managers within the sample pool proved unsuccessful³⁴.

A general interview guide (Patton, 1980) approach was adopted for the pilot interviews. This ensured a degree of uniformity between interviews so that the questions asked could be tested thoroughly for understanding and relevance. It also allowed a degree of probing and pertinent

³³ Some effect of the source of the interviewees was detected in the results of the pilot interviews, illustrating how bias can develop. For example, one of the interviewees was obtained through the researcher's sister. The interviewee appeared unrelaxed throughout the interview and gave only short answers to open-ended questions. As the interview ended, the respondent commented that she hoped the details of the interview would not be revealed to the researcher's sister, showing that despite assurances of confidentiality, this had possibly been a fear of the respondent during the interview.

³⁴ This led the researcher to examine the contact literature and change the title of the project from "Barriers to Women's IT Managerial Career Progression", to "Factors Influencing the Career Progression of IT Managers" with the aim that the title may capture the interest of men as well as women.

issues to be pursued. This was an important process in gathering information on appropriate questions to ask in later case study interviews and the questionnaire.

The pilot interviews identified the following areas as appropriate for further investigation within the case studies and questionnaire:

- the influence of informal organisational factors on IT managers career progression;
- how IT managers learn about informal aspects of the career progression process;
- the technical education and training background of IT managers;
- the skills used by IT managers in their current job roles;
- the role of a company equal opportunities policy in overcoming gender bias within the career progression process.

4.4.2 The Questionnaire

Bryman (1984) describes the questionnaire as:

"...the collection of data....on a number of units and usually at a single juncture in time, with a view to collecting systematically a body of quantifiable data in respect of a number of variables which are then examined to discern patterns of association" (p104).

The term units is used by Bryman (1984) as the objects the data relates to may refer to people, organisations or industries. Within this research, people are the objects of the questionnaire data as their individual experiences, training and background was sought.

The purpose of the questionnaire was to complement and provide additional information to the case studies, to provide a comparison, on a broader scale, of the educational and training backgrounds of men and women IT managers. The objective of the questionnaire was not to prove statistically whether or not women were being precluded from IT management positions due to their educational and training background. Nor was it to provide statistical evidence of factors influencing career progression in IT departments. Following the factors suggested within the pilot interviews as important influences on career progression, an objective of the questionnaire was also to test the relevance of these factors on a broader scale than the four case studies allowed.

More than 60 questionnaires had to be completed and returned to fulfil the objectives by allowing cross tabulations which were significant. IT managers within companies were therefore sought within the following parameters. Firstly, companies were only included that were based in the same geographic area as the case study population, that is, within the south east of England³⁵.

³⁵ This parameter had been set and the questionnaire conducted before it was discovered that the fourth case study (IT Co) was situated outside this region.

Secondly, companies were sought which had their own internal IT service department. Such a parameter dictated to an extent the size of the organisations, as those with an IT service department tended to be large. In keeping with this fact, as well as the parameters set for the case studies, large organisations were targeted. These included companies with a turnover of one billion pounds and over and total number of employees of over one thousand. Appropriate company names, addresses and telephone numbers were obtained through Kompass On-line UK³⁶. Within these parameters, the total number of companies obtained were 133. From this population a total of 71 completed questionnaires were returned yielding a response rate of 60%.

A questionnaire is often regarded as containing a fixed set of questions and responses that are systematically classified so that quantitative comparisons can be made. In reality, many questionnaires vary both in the degree of structure in their questions and in how their responses are coded. A distinction is generally made within questionnaires between open-ended questions, questions in which response categories are not specified, and closed-ended questions, in which the respondent selects one or more of the specific categories provided by the researcher.

Within this study the questionnaire approach was chosen as the method best suited to gathering specific information regarding the training and education experienced by IT managers. Such information could most easily be gained by using closed-ended questions. The use of open-ended questions was kept to a minimum given its associated disadvantages in the survey setting (see Bailey, 1987).

The pilot interviews had elicited some indication of informal factors which may influence IT managers' career progression. These factors were included within the questionnaire in order to test their relevance on a wider scale and contribute to the case study results.

In addition, given the lack of available data on the number of women IT managers working within the UK (as shown in Chapter 2), a question was included within the survey to provide information on the number of men and women IT managers employed in the responding organisations. Respondents were asked to provide the number of men and women working within their IT department as well as the number of men and women working on their level of management. Although this information could not provide accurate statistics of the number of women and men IT managers and the number of women and men working within IT on a non-management level, it could provide some indication of their level of representation within the field. Thus overall, closed-ended questions were favoured for the questionnaire in order to try and obtain a high rate of return, accuracy in response, ease of analysis and effective use of limited time. A copy of the questions asked are provided in Appendix I.

³⁶ The Kompass On-line service was obtained through the British Library.

4.4.3 Questionnaire Response Categories

Response categories for open-ended questions generally consist of only a blank space. The researcher is able to regulate the amount a respondent writes by limiting the space allowed. Response categories for closed-ended questions are more complicated. Response categories are influenced by the variable and can be one of the following four categories:

- nominal, e.g.. male, female;
- ordinal, e.g.. most favourable, neutral, least favourable;
- interval or ordered categories for which intervals between each rank is equal;
- ratio - an interval measurement with a fixed zero point, e.g. age.

Only one ordinal question was included within the questionnaire. This asked the respondent how influential they perceived different factors were in enabling them to progress their careers. Such an attitude/opinion question posed the problem of how many categories to provide the respondent with and whether to allow a 'no opinion' option.

Three major types of scales are identified by Sellitz et al (1959)³⁷. These include differential, summated and cumulative scales. The summated scale with use of a Likert type scale (Likert, 1932) was regarded as most appropriate for gathering data on responses to the career progression question. The summated scale asks the respondent to react to a particular statement. The Likert scale measures the degree of agreement or disagreement. Thus, for the career progression question, the Likert scale was used to identify the respondent's perception of the degree of influence of each of the informal aspects of career progression provided within the question, ranging between very influential, neutral and not very influential.

A study by Schuman and Presser (1979), assessing the effect of including 'no opinion' in surveys showed that inclusion of such an option induced about a fourth or fifth of the sample to shift from one of the answer categories to a 'no opinion' category. However, if a respondent really has no opinion or regards, as in the case of this research, a factor as neutral in influencing career progression, little may be gained by forcing the respondent into another answer category. Therefore, it was regarded as important to include a neutral answer option for the respondents.

4.4.4 Questionnaire Presentations and Response Rates

The presentation of a questionnaire is important not only to ensure that respondents understand the questions, thereby increasing reliability, but also to encourage respondents to complete and return the questionnaire. Consequently, close attention was paid to the ordering of questions, layout and overall presentation.

³⁷ See Sellitz et al, (1959) pp357-383 for a detailed account of each of these approaches.

Appendix I shows how the questionnaire for this research was designed adhering to the guidelines set by Bailey (1987). Easy to answer questions such as company name and job title were placed first. More sensitive questions, concerning the respondent's age and family status were placed later on in the questionnaire. Space was also left at the end of the questionnaire for comments to be made by the respondent. These may have included reference to an area not covered within the questionnaire or comments on the questionnaire itself. Importantly, the questionnaire was kept concise. Only 19 closed ended questions were included. The final design of the questionnaire was reached after it had been piloted with 3 IT managers.

In order to try and increase the response rate, each of the companies identified by the sample search were telephoned in order to obtain a name for the questionnaire to be sent to. Identifying the named individual was a random process. The researcher would initially speak with a receptionist or a member of the Personnel department and ask them to identify an IT manager. No preference was given by the researcher for a male or female manager. Whilst time consuming, this process was useful, in that a number of companies were immediately eliminated as they informed the researcher that it was company policy not to complete questionnaires. This reduced the population to 118. It also allowed the researcher a short period of time to explain the objectives of the research to the respondent and alert them to the fact that a questionnaire would be sent. It was the aim of this process that the contact with the respondent and prior warning of the arrival of the questionnaire would improve response rates.

The questionnaires were initially sent out, on the same day, to 118 IT managers. They were sent with a covering letter, explaining the objectives of the questionnaire (Appendix II). A pre-paid envelope was included in order to encourage respondents to return the questionnaire promptly. Each of the questionnaires were coded in order to enable a follow up stage. After two weeks, a reminder letter was sent to respondents who had not yet replied.

The questionnaire data was analysed using the personal computer statistical analysis package, PICASTAT. The package was used to generate descriptive statistics, such as frequencies, means and medians. Cross tabulations were also conducted in order to discern any differences arising in each of the areas of results in relation to, for example, gender, qualification and skill experience.

4.4.5 Case Study Selection and Sample Characteristics

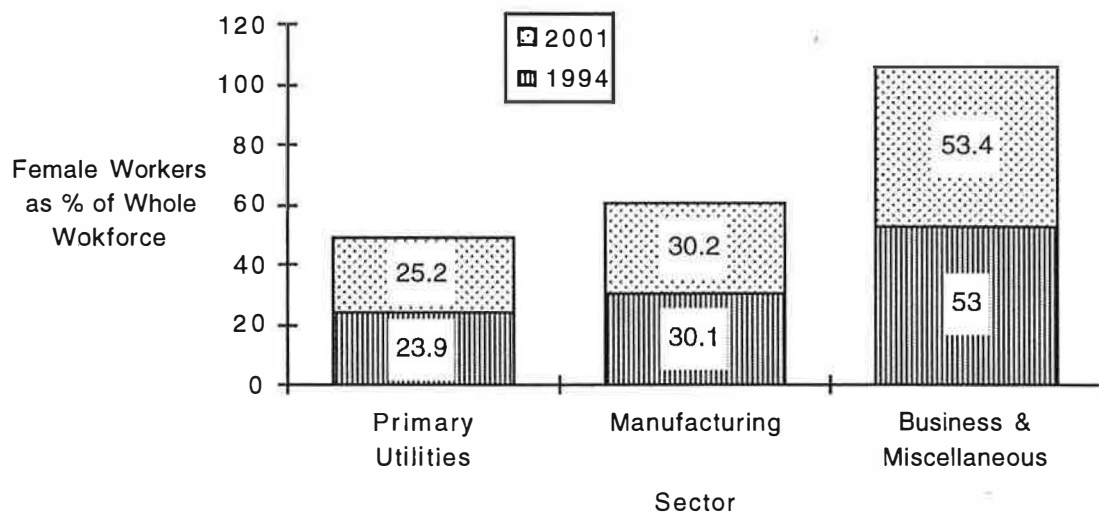
Following the rationale described in section 4.3, multiple case study methods were employed in the research. However, as Yin (1994) noted, multiplicity should not be equated with representative sampling. In adopting the multiple case study method, the aim was not to test the frequency of phenomena, but to explore potential factors influencing IT managers' career progression, in depth. A spread of companies was therefore appropriate as different factors may have been found to occur in each and may have been effected by the context of the organisation itself. It is these variables that the study aimed to explore, rather than concern itself with frequency.

Thus, the decision of how many cases to conduct was influenced by the need to gain a contrast in context, but also by limited time and financial resources. Guided by these factors, four case studies were conducted, each from a different sector, including:

- financial services;
- utility;
- retail;
- IT manufacturing.

It was regarded as important by the researcher to compare one company whose main business was IT with others where the IT function supported the main business, in order to gain one dimension along which context could be contrasted. The extent to which an industry was dominated by men may also be an influencing factor and therefore the four companies were drawn from sectors which had varying numbers of men and women overall working within them³⁸. No specific figures could be identified showing the proportion of women working within the retail or financial services sectors. However, within the framework of Figure 4.1 below, if the companies drawn from the financial services and retail sectors are regarded as being within the business and miscellaneous services sector, an indication of the different levels of women working within the sectors can be viewed.

Figure 4.1 Female Workers as a Share of All Employees in Three Sectors



Source: Institute for Employment Research, 1995 in Labour Market Skills and Trends, 1994/95/

³⁸ The theoretical framework in Chapter 3 refers to the predominance of men in social, economic and political positions of power as an important element in the analysis of research results.

Figure 4.1 shows that the lowest proportion of women were working within the utility sector in 1994 and that they are predicted to increase by less than 2% by the year 2001. Whilst slightly more women are shown to be working within the manufacturing sector overall, the predicted increase in the percentage of women in the sector by 2001 is only 0.1%. Almost twice the proportion of women appear to work in the business and miscellaneous sector as compared with the previous two, although the predicted increase here is also low at 0.4% up to the year 2001.

Whilst varying company contexts were identified as important, these were sought within the framework of a common set of parameters. Thus, each of the case companies were classified as large firms. That is, they employed over 1,000 staff and had a turnover in excess of £1 billion. In addition, the case study sites of the financial services, utility and retail companies were based in the south east of England. Whilst this parameter was also set for the IT organisation, it proved impossible to adhere to and this case study site was based in the west of England.

Set within the parameters described above, the case study companies were not chosen randomly, but through contacts already established with the Centre for Research in Innovation Management (CENTRIM) at the University of Brighton. This approach was taken in an attempt to achieve smooth and swift access and reflects the importance placed by Bryman (1984) on technical issues. In the event, negotiating access in each case lasted about three months. This period of time proved necessary to make contact with an appropriate manager within each firm who would co-ordinate the study and to agree terms and a research process with the firms that delivered feedback to them in a mutually acceptable format. An agreement was made with each company to keep their identities anonymous. Consequently, only a limited description of each company is provided at the start of each case in Chapters 6 - 9. In addition, the companies are referred to not by name, but as Finance Co, Utility Co, Retail Co and IT Co.

Twelve interviews were sought within each case company, spread equally between men and women from across the company's IT managerial hierarchy. An additional interview was held in each company with a representative from the Personnel function responsible for IT staff in order to gain formal policy information about career progression and equal opportunities. This number of interviews arose as the optimal for two major reasons. Firstly, it appeared as an acceptable number to the companies themselves who were less willing to agree access if more interviews were requested. Secondly, due to the low numbers of women IT managers in the case companies, twelve interviews meant that an equal number of men and women could be identified and interviewed. IT Co, however, were only able to identify three women working within IT roles on managerial grades who agreed to be interviewed. Consequently, IT Co themselves identified three non-management women to participate in the study in order to complete the sample. In each case, a spread of managers was required from across the hierarchy in order to ensure an even number of men and women, as fewer women than men managers were placed at the top of

the management hierarchy. Such a spread also enabled any differences in experience, attitude or perception to be tested against hierarchical level as well as gender. Details of the number of men and women working within the IT function at different hierarchical levels were requested from each company. Only three agreed to provide this information. Utility Co declined to provide this data for reasons they stated as confidentiality.

Potential interviewees were selected and contacted within each case company by the company co-ordinator. The managers were provided with details of the project and participation was voluntary. Due to problems in obtaining voluntary participants and fitting this with diary constraints, only ten managers were finally interviewed within Utility Co.

In each company, access was negotiated for a period of two weeks. During this time, interviews were conducted, company documentation collected and observations took place. Details about each of these methods used within the case studies are described in the following three sections.

4.4.6 Case Study Interviews

Patton (1980) identifies three types of interviews:

- the informal conversational interview;
- the general interview guide approach;
- the standardised open ended interview.

Patton describes the first type of interview as the "*spontaneous generation of questions in the natural flow of interaction*" (p197). Such an approach was regarded as inappropriate for this research as it is generally used when the researcher has no preconceived ideas about what is important when talking to the participant. Within this research, the literature review and pilot interviews generated information indicating areas of importance to be pursued through interviews.

The standardised open ended interview is described by Patton as consisting of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence. As flexibility in probing is fairly limited with this approach, it was rejected as an inappropriate interview technique.

Patton (1980), describes the interview guide as involving outlining a set of issues to be explored with each respondent before the interview, although the wording and order of these questions is not necessarily worked out in advance and may vary. The questions simply serve as a checklist during the interview to ensure that all relevant areas are covered. This approach was followed as it ensures that basically the same information is obtained from each respondent, allowing comparisons to be made within and between the case studies. This approach also allows

flexibility as the interviewer is free to probe and ask questions which will illuminate the subject. Thus, a conversational style can be used but with a focus of a predetermined subject area. Patton states the advantages of this approach as making best use of limited available time during an interview. It also makes interviewing across a number of different people more systematic and comprehensive.

Each of the interviews lasted between 1 and 1.5 hours. In the first ten minutes of the interview, the researcher explained the purpose and detail of the study. An interview guide was used to conduct the case study interviews. The questions were derived from analysis of the literature and results of the pilot interviews. The interview guide covered four broad areas, including the interviewee's career history, their present job role and skills, knowledge and experience of the career progression process and knowledge and experience of the equal opportunities policy (the interview guide for IT managers and the representative from Personnel are included within Appendix III).

Questions about the interviewee's career history were designed to elicit the manager's training and educational background and uncover any differences arising between men and women. This was to test the validity of literature which argued that the reason many women did not reach IT management positions was due to a lack of IT training. The managers were asked about the type of skills they used within their job role, in particular, the degree of technical and managerial skills required in their role. This followed on from the previous section by testing the extent to which technical training and knowledge was required within an IT management position. Informal and formal organisational factors were uncovered by asking a general question about how people progressed their careers. It should be noted that the researcher did not specify whether information was required relating to the formal or informal career progression process. Yet within each interview the respondents concentrated heavily on informal aspects of career progression. The researcher did not specify whether the manager's personal experience of career progression was sought or how they progressed more junior staff. However, the researcher was able to distinguish between these and, in general, the managers referred to their own experience of career progression. Due to the importance placed by the respondents on this factor, it was pursued in more detail by the researcher. The managers were also questioned about their knowledge of the content of the company's equality policy as well as their perceptions of its effect on their careers. Finally, the manager's personal details, such as age and family status were requested.

Notes were taken by the researcher during each of the interviews and more detail was added immediately following the interview. A tape recorder was also used as a back up check on the information noted during the interview.

4.4.7 Case Study Documentation

With the co-operation of the IT and Personnel managers interviewed, documentation was gathered which both supported and expanded the information provided through interviews. For example, policy documents relating to both career progression and equal opportunities policies were obtained. Highly confidential documents and memoranda, illustrating the career progression process carried out for individual managers were provided within Retail Co. Notes of more public documentation displayed on notice boards, which provided information about career progression, equal opportunities as well as more informal social activities within the companies were also noted. These were gathered through the observation process described below.

4.4.8 Case Study Observation

The reliability and validity of using observation as the major research tool can be questioned due to differing human perceptions, social backgrounds and value systems (Katzner et al, 1978; Patton, 1980). However, used in conjunction with another research tool, such as interviews within a case study, observation can allow the evaluator to better understand the context of the research setting (Patton, 1980). It also allows the researcher the opportunity to see things that may routinely escape the conscious awareness of the participants. As Patton (1980) notes, "*observations permit the evaluator to move beyond the selective perceptions of others*" (p125).

Variations in the observational method exist related to the degree of observer involvement from participant to onlooker. The main difference between participant observation and on-looker is that the former combines simultaneously the activities of document analysis, interviews and observation. As an on-looker, these activities are separate (Denzin, 1978). A participant observer gets an insider's view of a situation, they not only see what is happening, but also feel what is happening, although they must be able to retain an onlooker's approach and be able to describe events to outsiders. For the reasons described above, Douglas (1976) expresses a preference for the covert participant observation in order to get as close to the truth as possible. However, time and other practical constraints associated with becoming a participant observer inside four organisations made participant observation an inappropriate method for use within this research. Thus, the approach undertaken within the research fits Junker's (1960) description of a "*complete observer*" where the observer's activities are completely public³⁹.

The length of time over which observational data is gathered can vary from days to years. Patton (1980), states that in deciding on the appropriate length, it should follow the nature of the evaluation and the use to which the observational data is to be put, rather than some ideal about what a typical observation must necessarily involve. The major aim of spending time as an on-looker within each of the case companies was to gain understanding of its context, cultures and

³⁹ Such an overt approach to observation does have associated concerns related to the reliability and validity of the data collected in the effects the observer has on what is being observed. For discussion on this point, see Patton (1980).

business⁴⁰. This was achieved by shadowing one of the IT managers interviewed (after their interview had taken place) in each company and spending some time observing departmental settings and activities.

4.4.9 Case Study Analysis

Analysis of the case studies included interview transcripts, observation notes and company documentation. The analysis process adopted followed the Miles and Huberman (1984) method of coding. Through this method, categories were identified, initially guided by the interview questions and research aims, into which interview, observation and document data could be filed. The initial categories were not artificially preserved. For example, as the researcher read through the raw data and coded it, if initial categories proved inappropriate, they could be dropped. Similarly, new categories could be created if unpredicted issues arose from the semi-structured interviews and observations. This method of coding helped to sustain the reflective and exploratory nature of the research process throughout the study.

As advocated by Glaser (1978), the interview data was not coded or analysed until the observation had taken place, enabling it to be placed in context. Appendix IV provides an example of the codes used to analyse IT Co raw data.

Once the data had been coded, more in-depth analysis was undertaken in order to draw out further meaning from it. Differences and similarities in interview responses between men and women and between respondents on different hierarchical levels were highlighted. Causal relationships and explanations for the results found were also searched for within the overall case study material. This analysis was facilitated by transforming codes material into table format (Miles and Huberman, 1984). In this way, frequencies and cross-relationships could more easily be viewed. Appendix V provides examples of some of the tables produced from the Retail Co case study⁴¹. The creation of codes, categories and tables also helped to maintain the quality of the case study, ensuring that all information was considered during the analysis phase. It also enabled a chain of evidence (Yin, 1984) to be established for each of the case studies.

In presenting the analysis, as Chapters 6 - 9 will show, the language used by respondents was employed wherever possible in writing up the results. Again, this process reinforces the chain of evidence and also helps to limit bias during the analysis phase by avoiding where possible, the use of interpreted, replacement phrases being imposed by the researcher.

⁴⁰ Given that access to career progression decision groups was denied within the companies, it was regarded that observation data specifically relating to career progression would be difficult to obtain.

⁴¹ The complete set of tables used for analysis are presented in each of the case studies (Chapters 6 - 9).

At the start of section 4.4, it was emphasised that the case studies were more concerned with exploring and identifying formal and informal factors effecting the career progression of IT managers than seeking out frequencies. Despite this, frequency did become an issue for consideration as the case studies progressed. As Chapters 6 - 9 will show, the frequency of certain responses from men and women, for example, is noted within the analysis. However, throughout the research, it was acknowledged that any such frequency cannot be treated as significant due to the small sample of interviewees taken within each case. The issue of frequency, however, also arose as similar significant issues appeared within each of the case studies. The term frequency, however, is again used here with caution. Nevertheless, it was important to note the emerging frequency of certain factors as this helps to create a framework from which future, larger scale studies can be designed.

4.5 Methodological Limitations

By choosing a largely qualitative methodological approach for this research, which includes a quantitative survey of limited geographic scope, it may be argued that limitations are placed on the generalisations that the research is able to make. In addition, it should be noted that the organisations themselves in choosing IT managers for interview, may have introduced some bias into the samples. However, in considering such limitations, it is important to note the overall purpose of the research. Rather than aiming to statistically test a research hypothesis, this study was concerned with exploring phenomena and identifying patterns and linkages of theoretical significance.

Given that a large proportion of the data drawn on in this research came from case studies, this section considers more closely the limitation of generalisation directed at this approach. Interesting debate exists within methodology literature as to whether generalisations from case studies are possible or, indeed, appropriate. Ethnographic and phenomenological researchers tend to present their particular cases in such detail that it is possible for the reader to make good comparisons (Stake, 1995). Indeed some writers argue that case studies are a useful small step toward grand generalisation (Campbell, 1975; Ragin, 1987).

If the view is taken that comparison and generalisation is an important aspect of the case study method, then it is also essential to consider how it can be effectively achieved. Hartley (1993) argues that the problem of generalisation is not unique to qualitative research. Within quantitative research generalising is achieved through techniques such as sample size, sampling frame etc. The idea is to be able to sample cases (respondents, organisations), which are typical in specified ways, of the population. If the sample is correctly drawn then the results are deemed to be applicable (generalisable) to the specified population. The researcher may even try to draw even wider generalisations where it is possible to argue that other populations may share the same characteristics as the targeted population. Hartley (1993) argues that this is a useful

aspect of generalising but not the only one and not without problems. This approach can only make generalisations about the sample to the population and it is on the basis of typicality. What happens, she asks, if the sample is not typical, as with many people or organisations

Hartley (1993) suggests that generalising from case studies is as difficult as generalising from quantitative studies. However, the detailed examination of case studies can reveal processes which can be proposed as general or peculiar to that organisation. The detailed knowledge of the organisation and especially the knowledge about the processes underlying the behaviour and its context can help to specify the conditions under which the behaviour can be expected to occur. However, Hartley (1993) adds that there are certain actions which a researcher can take to ensure that generalisations are as strong as possible. Clearly the measures for ensuring the internal validity of the research are important so that the case study itself is well argued and presented and examines alternative explanations of the data.

Thus, whilst generalisation of results appears a common problem associated with the case study approach, as Mitchell (1983), Yin (1984) and Hartley (1993) have argued, case studies should also be evaluated in terms of the adequacy of the theoretical inferences that are generated. The aim of this research was not to infer findings from a sample to a population, but to engender patterns and linkages of theoretical importance. Therefore, the view taken within this study is that comparison of cases is important in order to explore in greater detail the influence of different contextual factors on the career progression of women as compared to men IT managers. It appears clear, however, both from the literature on how to conduct quality case studies and the debate on generalisation, that a thorough approach to case study research is essential. Rigour was applied to this study by following guidance from the methods literature and in particular, applying triangulation of sources within the case research. The results of the case studies, together with the survey questionnaire are described in the following chapters.

Section 2: Empirical Results

This section provides the empirical results of the fieldwork phase of the research. It begins in Chapter 5 with the presentation of the questionnaire responses. The following four chapters (6 - 9), provide a description of the results of interviews, observations and documents collected during four case studies. Whilst each of the five chapters within this section include preliminary analysis, further cross analysis of the four case studies and the questionnaire is presented in Chapter 10.

In presenting the results of the case studies, each chapter is divided into five sections. These are:

- i) **CONTEXT:** This first section briefly describes the core business and size of the case companies¹, the development of IT within the companies and the approach taken to achieving equal opportunities for all staff. The size and organisation of the IT function is presented, together with an overview of its history and where appropriate the key challenges it faces. How the challenges faced by IT may have guided the firm's considerations of the skills and characteristics needed currently and increasingly in the future by their IT managers is also outlined.
- ii) **SAMPLE:** A descriptive profile of the IT managers interviewed is provided in the second section of each chapter. The sample is described in terms of hierarchical level, age and family status as well career and educational backgrounds.
- iii) **SKILLS:** The skills IT managers described themselves as possessing are compared with those highlighted by the Personnel representative of the firms as sought in their IT managers. This section also shows the extent to which women compared with men IT managers have developed technical skills during their career and how necessary they perceive technical skills are for effectively conducting their IT management role.
- iv) **CAREER PROGRESSION** The formal career progression approach as described by the representative from the companies' Personnel department is compared with the perception and experience of career progression described by the sample IT managers within this section. The experiences of women and men IT managers are contrasted and the effects of any differences in experience on future career progression prospects and aspirations are examined.
- v) **EQUAL OPPORTUNITIES:** IT managers' awareness of the equality measures being undertaken by the companies is reviewed. In addition, the section presents any additional examples or incidents that the IT managers interviewed perceived may differently effect the career progression experience of men and women.

¹ The background information provided on each case company has been kept to a minimum in order to meet the request of each company for anonymity.

Chapter 5 - Questionnaire Results

5.1 Introduction

This chapter provides descriptive information about the data collected through the questionnaire which was conducted in September 1992, as well as including some cross-tabulations carried out between different variables. The chapter provides an indication of differences arising in each of the broad areas of results in relation to gender, qualifications and skill experience⁴². A further level of analysis, in which the questionnaire results are considered in relation to the case study results, the literature review and this study's theoretical framework, is provided in Chapter 10.

5.2 Respondent Profiles: General Characteristics

This section provides some general background information about the respondents, including their age and gender. Description of the levels of seniority the respondents hold ensures that responses from the level of manager set by the questionnaire parameters was achieved. Finally, further background information is provided concerning the family status of the managers.

5.2.1 Gender

The telephone method that was used to obtain named IT managers from the sample companies to whom the questionnaire could be sent (see Chapter 4), yielded a total of 22 women and 111 men. Of the total 71 responses, 18 were from women IT managers. Thus, whilst a high response was received from the sample of women managers contacted, overall, there was a low percentage of female (25%) to male (75%) respondents.

A question was included within the questionnaire asking how many men and women were on the same hierarchical level as the respondent within their department. This was designed to compensate for the manner in which respondents were selected and allowed a greater insight into the number of women IT managers present within the selected survey company's IT department. The results showed that:

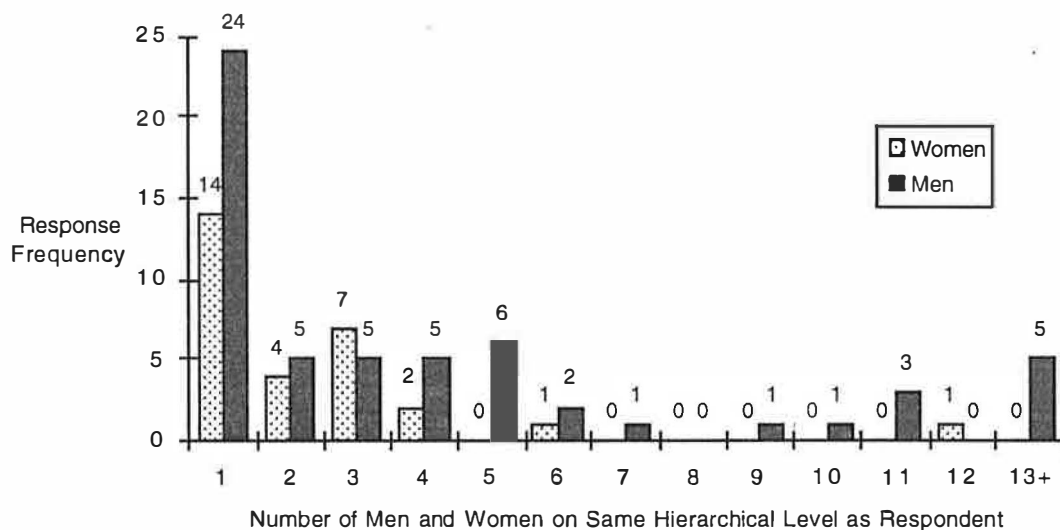
- in 52.1% of the survey companies (37 responses), no women were reported to be on the same hierarchical level as the responding manager;
- there was at least one other woman manager on the same hierarchical level as the respondent in their department in 40.8% of the survey companies (29 responses);

⁴² Cross tabulations have been calculated at the 5% significance level. That is, only results of chi-square tests that show the probability of a relationship existing between two variables that is over 95% (i.e. a probability result of 0.05 or less) are regarded as significant. Only one test on the relationship between gender and seniority in this chapter produced a significant result. However, due to the way in which the respondents were selected for this survey, that is often through a company secretary, which introduced bias to the selection process, caution should be applied to the significant chi-square result.

- there were no men at the same hierarchical level as the responding manager in only 11.3% of the survey companies (8 responses);
- in 81.7% of the companies (58 responses), there was at least one other man at the same hierarchical level as the responding IT manager;
- the mode response for the number of male and female managers on the same hierarchical level as the responding manager was 1 in both cases;
- two responses showed cases of 6 and 12 other women represented at the same hierarchical level as the responding manager. There were also isolated responses where 16, 20, 26 and 80 other male managers were reported as present at the same hierarchical level as the responding manager. These isolated responses indicate the probable larger size of the IT department compared to the other responses.

Overall, the responses present a picture showing fewer women IT managers compared to men present at the same hierarchical level as the respondents in their department (Figure 5.1)

Figure 5.1 The Number of Men and Women Represented at the Same Hierarchical Level as the Responding Manager in Each Survey Company



Null response = 5

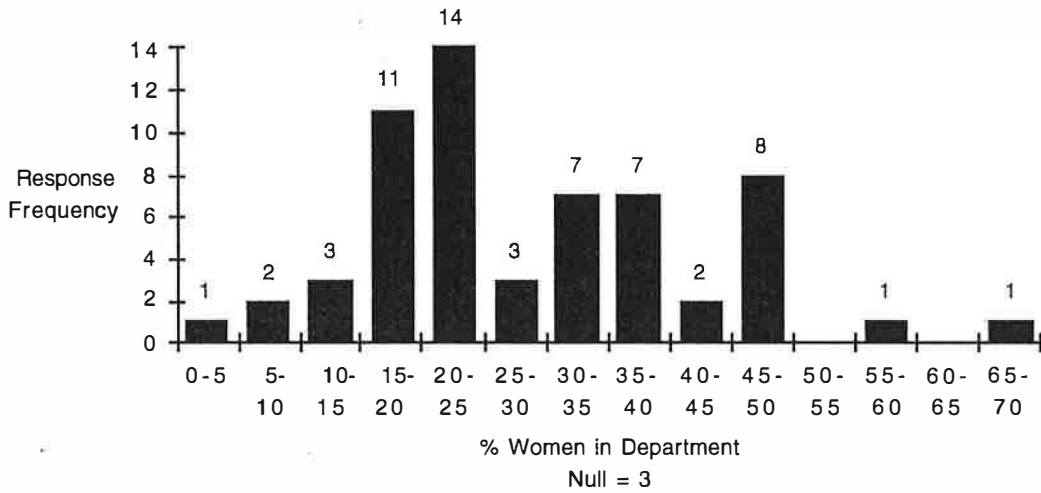
In order to try and gain a further indication of the proportion of women and men employed overall within the survey companies IT department, an additional question asked for the total number of men and women employed there (excluding administrative and secretarial staff).

The results revealed a similar picture of relatively few women, compared to men, presented overall within the IT department (Figure 5.2):

- there were no women employed at all in only 11.3% of the survey companies (8 responses);
- similarly, there was an equal proportion of men and women employed in only 11.3% of the survey companies (8 responses);

- 43.6% of the sample (31 responses) reported that women made up less than 25% of the overall department;
- two isolated cases appeared where women formed the majority within the IT department. Both these cases represented small IT departments where there were 2 men and 3 women employed in one and 2 women and 1 man employed in another.

Figure 5.2 The Percentage of Women Represented Overall in Each Survey Company IT Department



Whilst only conducted over a small geographic area of the UK and in large organisations, this survey supports other studies (e.g. National Computing Centre, 1987; Virgo, 1994) indicating that there are only a small number of women working within IT departments and within IT managerial roles.

5.2.2 Age

The average age of respondents was between 30 and 40 years (Figure 5.3).

Figure 5.3 Age Distribution of Respondents

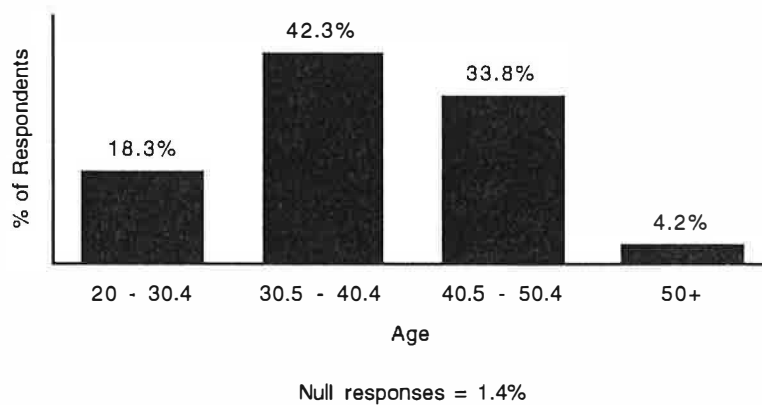


Figure 5.3 shows that the majority of respondents (76.1%) stated they were aged either in the 30.5 to 40.4 or 40.5 to 50.4 age bracket, which may be expected as a typical age range for people in a management position. Cross tabulation showed that there was no significant difference between the age of the responding male and female managers. This suggests that within the sample, women and men may have been progressing to IT management positions at a similar age.

Despite the lack of significance, it is interesting to look at the actual proportion of men and women in each category. Table 5.1 shows that amongst the sample of women, the majority (88.8%) were aged between 20 and 40, whereas the majority of men (83%) were aged between 30 and 50. Therefore, inspection of the actual figures indicates that the women in the sample were slightly younger than the men and may, therefore, have progressed to management levels at a slightly younger age than their male counterparts. However, as the next section shows, the women appeared to be drawn from slightly lower management hierarchical levels than the men in the survey, which may also account for their younger age.

Table 5.1 Age Range of Men and Women Respondents

Age Bracket (Years)	20 - 30.4	30.5 - 40.4	40.5 - 50.4	50.5 - 60.4
Proportion of Men (%)	9.4%	41.5%	41.5%	5.7%
Number of Men	5	22	22	3
Proportion of Women (%)	44.4%	44.4%	11.1%	0%
Actual Number of Women	8	8	2	0

5.2.3 Seniority

Respondents were asked to show their level of seniority on a continuum, where 1 indicated the lower end of seniority within a department and 5, the upper end. The mode of response was at level 4 on the seniority scale, showing that the level of manager reached was within the parameters set. Figure 5.4 shows how the majority of respondents (77.5%) placed themselves at the upper end of seniority within their department. Only 2 respondents (both women) placed themselves towards the lower end of seniority.

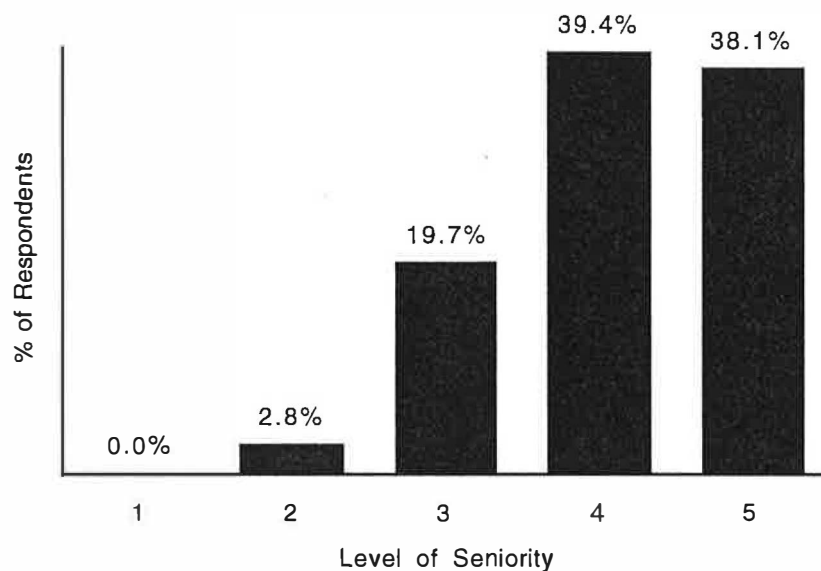
A chi-square test showed a level of significance of 0.005 between gender and the level of seniority of responding IT managers. The majority of women managers (77.8%) placed themselves in categories 4 and below on the seniority continuum. Conversely, the majority of male managers (86.8%) placed themselves in categories 4 and above⁴³. Thus, within this

⁴³ Given the bias introduced in selecting the sample managers for this survey, care should be taken in interpreting this chi-square result. However, indication of its significance could usefully be tested in future research.

survey, even within the broad category of 'manager', women appeared concentrated at slightly lower levels than men. It should be noted, however, that this result provides only a feel for the position of women managers, as the continuum cannot be regarded as accurate. The questionnaire does not show, for example, how many hierarchical level exist in each organisation.

In contrast to gender, a chi-square test confirmed the null hypothesis that there is no significant relationship between a respondent's age and level of seniority.

Figure 5.4 Level of Seniority of Respondents

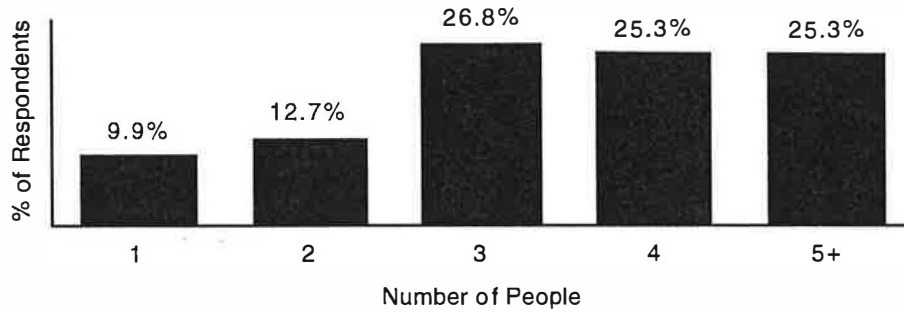


5.2.4 Family Status

The questionnaire included two questions relating to family status. This was carried out as a result of some studies suggesting that whilst men commonly combine having a family with developing a career, women more often find difficulty in combining the two (Institute of Management, 1992). Other studies have also shown a lack of child care provision to be a major barrier preventing women's career progression (Metcalf and Leighton, 1989; Institute of Directors, 1992).

In order to gain an indication of the number of respondents with and without partners, respondents were asked to state the number of people living within their household. Just over half the managers (50.6%) had at least 4 people living within their household. Only 9.9% of respondents lived alone (Figure 5.5). However, there was no significant relationship between managers living alone and gender.

Figure 5.5 Number of People Within the Respondent's Household



The second question referring to family status asked the ages of people within the respondent's household. The aim of this question was to obtain an indication of any direct care responsibilities the manager may have. Four age categories were constructed, where:

- 1 = 0 - 5.4;
- 2 = 5.5 - 16.4;
- 3 = 16.5 - 20;
- 4 = 60 and over.

It is suggested here that respondents with household members in categories 1, 2 or 4 may have care responsibilities for children or elderly relatives. Table 5.2 shows how overall the majority of respondents (61.97%) had children under 16.4 years. Only 2 male respondents reported household members aged over 60. Notably, far fewer women (9) than men (35) had household members under 16 years of age. Thus, it appears that within this research survey sample, fewer women than men managers combined their careers with having a family.

Table 5.2 Age of Household Members

Household Members Age (Years)	% of Total Women Respondents	Number of Women Respondents	% of Total Men Respondents	Number of Men Respondents
0 - 5.4	33.3%	6	24.5%	13
5.5 - 16.4	16.7%	3	41.5%	22
16.5 - 20	5.6%	1	13.2%	7
60+	0%	0	3.8%	2

5.3. Career History

This section analyses the career path history of the responding IT managers. Information regarding the length of time respondents had been working for their present company, the length of time they had been working in their present job and previous areas they have worked within, enables a more detailed picture of the respondent's career background to be drawn. This information allows for any trends in the career patterns of IT managers to be identified. In

1992; Dreher and Ash, 1990; Graddick, 1984) and is a factor which is explored in more depth in the following case study chapters.

Chapter 6 - Case Study 1 - Finance Co

6.1 Context

Finance Co is a financial services company and one of four subsidiaries wholly owned by a North American parent organisation. Collectively, the four subsidiaries and parent organisation employ 70,000 staff world-wide. Based in the South of England, Finance Co directly employs some 2,000 staff.

At the time of the case study in November 1992 Finance Co was undergoing a process of corporate re-engineering and re-structure in order to strengthen their capital position and focus on their core business. This initially meant that a freeze was placed on external recruitment and, as re-organisation took place, some redundancies were made.

The IT division of Finance Co began in the early 1970s by automating clerical procedures such as payroll, customer billing and payments. By the 1980s the company had developed far more sophisticated systems, providing users with on-line access, and by the 1990s it was concentrating on developing value-added services for customers. Thus, whilst IT is not the company's core product area, it does provide essential support to the effective and competitive delivery of products and services.

Finance Co world-wide has two IT organisations which support the activities of all four subsidiaries and the parent company. One IT organisation is based in North America, the other at the case study site in the UK. The UK IT function is divided into 6 departments. Three of the departments develop and implement systems that support the company's three different product areas. The remaining three departments provide systems, network, platform and architecture support to each of the product areas (Figure 6.1).

Figure 6.1 Finance Co IT Departments



Management of the departments within the IT division is organised on 4 levels. These will be referred to within the case study as:

- senior manager 1 (level 1) = Vice President
- senior manager 2 (level 2) = Director

- manager (level 3) = Manager
- junior manager (level 4) = Project Leader

Despite IT's strategic importance, many interviewees referred to a number of tensions they perceived to exist between the IT division and the rest of the business:

"We are a very marketing led company and they make commitments on our behalf and quite often with dates that we haven't had any input to and to deliver in three months time."

"IT is seen as a central part (of the business), but I don't think we are seen as good value."

"...you've got people inside DP (data processing) providing supposed solutions to a business problem they do not comprehend and similarly, you've got people using computers in the business whose understanding begins and ends at that sheet of glass."

"The open toed sandal sub-culture of IT has not disappeared completely and there is a need to perform a translation from IT to the business. IT is still separate from the business. There are some old lingering attitudes. There are still some managers that feel they do not want to understand IT. We've also been our own worst enemy in the past, we've supported the Chinese wall syndrome."

The above statements highlight perceived problems in communication between IT developers and users and IT developers and the marketing function. In particular, the statements show that IT feel they are perceived by the business as failing to provide value for money service. These perceptions were reinforced during the case study within a meeting of all IT divisional managers. The senior US manager leading the meeting emphasised the need for the division to improve its efficiency and effectiveness if it was to avoid being outsourced.

The challenge faced by IT in improving efficiency and effectiveness was also to move closer to the business in terms of understanding, communication and strategic input. The way in which this challenge influenced the skills required by IT managers in their job roles and in progressing their careers will be explored in sections 6.3, 6.5 and 6.6.

6.2 Finance Co IT Staff and Approach to Equal Opportunities

Around 600 staff are employed within the IT division of Finance Co in the UK, 182 of which are managers⁴⁹. The most senior IT manager post and overall vice president of the division is held by

⁴⁹ Data for the distribution of men and women in IT management was provided by Finance Co in percentage format. The company was unwilling to provide further information on actual numbers of men and women in IT management or within other functions.

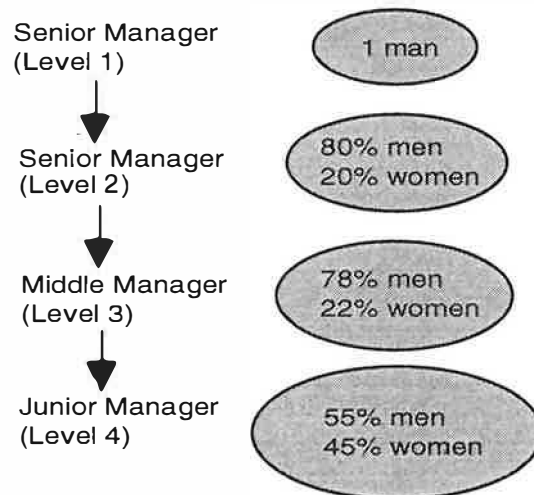
a man. As Figure 6.2 illustrates, whilst men are predominant in middle and senior IT management positions, an almost equal proportion of men and women are junior IT managers.

Finance Co does have a policy of commitment to equal opportunities which states that:

"No account will be taken of sex, marital status, race, colour, creed or spent convictions of applicants and employees in any aspect of Human Resources administration."

The company recognise their obligations to operate within current disability, racial and sex discrimination and equal pay legislation and argue that, in many instances, they exceed the requirements of the law. No specific action had been taken to promote women into or within IT positions in the UK.

Figure 6.2 Distribution of Men and Women in IT Management Roles

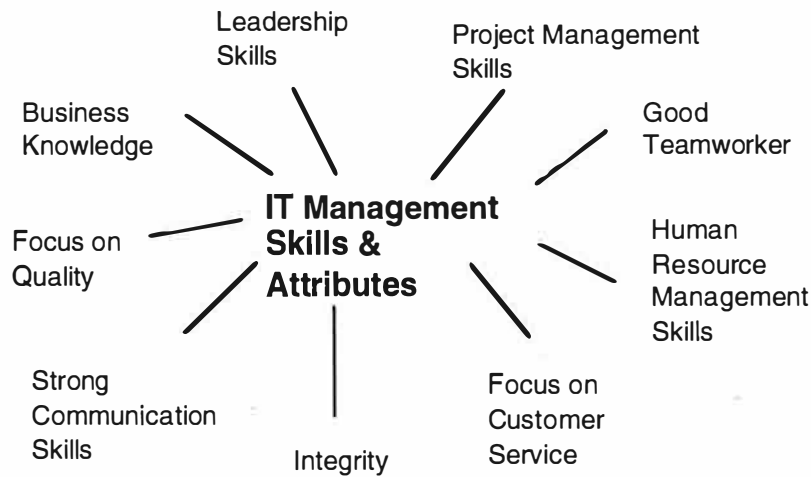


6.3 Skills and Attributes Sought in IT Managers

The IT division was under pressure to increase its efficiency and effectiveness and improve its communication and relations with the rest of the business. In meeting this challenge, the Personnel function, in conjunction with IT, had reviewed the skills and attributes sought in IT managers in order to make the required changes. This had led to a shift in focus away from project management skills to an emphasis on the importance of senior IT staff developing leadership skills and behaviours.

Figure 6.3 illustrates the specific skills, attributes and behaviours defined as essential for IT managers to possess and exhibit in order to meet the challenges of efficiency, effectiveness and leadership.

Figure 6.3 Skills and Attributes Sought in IT Managers by Finance Co



Notably, the skills and behaviours looked for in IT managers also reflect many of the shared values adopted by the company, which include:

- placing the interests of clients and customers first;
- a continuous quest for quality in everything we do;
- treating our people with respect and dignity;
- conduct that reflects the highest standards of integrity and teamwork from the smallest unit to the enterprise as a whole;
- being good citizens in the communities in which we live and work.

It should also be noted that the Personnel function do not include technical skills on their IT manager profile. A representative of Personnel explained that, although technical skills are required at positions below the managerial level, once staff have reached a management position, they are no longer expected to get involved with technical detail. Whilst they are expected to be able to manage technical projects, increasingly their role focuses on human resource, customer and strategic management issues.

6.4 Interview Sample Profile

Four levels of management exist in the IT hierarchical structure and interviews were held with staff from across this range (Table 6.1). In total, 6 men and 6 women IT managers were interviewed, together with a representative from the Personnel department responsible for IT human resource management (referred to hereafter as IT Personnel)⁵⁰.

⁵⁰ IT Personnel selected the 12 IT managers interviewed.

Each of the sample managers were drawn from IT Development in the travel related services product area (see Figure 6.1) and all but 2 were involved with managing the development and implementation of new systems in this product area. One of the remaining managers (code 12) was a Vice President within IT Development for travel related services and oversaw the development, implementation and maintenance of new systems in this area. The other manager (code 4) was developing a common systems architect for the area.

Table 6.1 Finance Co Sample Profile

Code	M/F	H/L	Education Level	Education that Included IT	Family Status	Age
1	F	4	Degree	Computing Degree	single, no children	31
2	F	4	Degree	Computer Evening Class	married, 2 children	42
3	M	4	Degree	None	married, no children	37
4	F	3	Degree	Maths/Science Degree	married, no children	38
5	F	3	A'Levels	Finance Co IT Conversion Course	single, no children	37
6	F	3	Degree	Maths/Science Degree	single, no children	38
7	F	3	Degree	None	married, 2 children	41
8	M	3	Degree	HNC Computer Studies	married, 2 children	39
9	M	3	A'Levels	None	married, 3 children	47
10	M	3	Degree	None	married, 1 child	45
11	M	2	A'Levels	None	married, 2 children	42
12	M	1	A'Levels	None	married, 3 children	47

Key: M = male F = female H/L = hierarchical level

Table 6.1 also shows that the sample had reached similar levels of education with slightly more women (5) than men (3) having gained degrees. Two women had undertaken computing education courses and another had undertaken the company IT conversion course. Only one male manager had gained an HNC in computing whilst working as a technical author in order to better understand the technical aspects of his job. The lack of IT specific education, particularly in the older male managers interviewed, is possibly due to the time at which most of the sample had taken degrees, during the 1960s and 1970s, when fewer courses were available that included elements of computing.

Each of the interviewees were aged in their 30s or 40s and the age range varied across the management levels. The women junior managers (level 4) were on average slightly younger (36.5) than the men interviewed at this level (37). The difference in average age between men (47.7 years) and women (38.5 years) increased at the middle management level (level 3). Overall, women in the sample were on average almost 4 years younger (37.83 years) than the men (42.8 years).

Thus, whilst overall there were fewer women than men in IT management positions within Finance Co, it appears that within the sample, women managers may have progressed at a younger age than their male counterparts. However, in so doing, it is possible that the women chose to avoid or delay starting a family. As Table 6.1 shows, only 2 women, but 5 men in the sample had children.

All but one of the sample (code 5) had undertaken IT roles in at least one other company before joining Finance Co. (Table 6.2). Four of the sample (2 men and 2 women) began their working lives outside the IT field (codes 2, 5, 9 & 10). However, only the women undertook IT training through evening classes and a Finance Co conversion course before entering the field.

Table 6.2 Career Path Prior to IT

Code	M/F	H/L	Career Path Prior to IT Entry	Date
1	F	4	None	-----
2	F	4	Teacher Social Services Foster Parents Recruitment	1975 - 1983 1983 - 1986
3	M	4	None	-----
4	F	3	None	-----
5	F	3	Finance Supervisor	1974 - 1981
6	F	3	None	-----
7	F	3	None	-----
8	M	3	None	-----
9	M	3	Trainee Accountant Metal Welder	1963 - 1964 1964 - 1967
10	M	3	Academic Researcher	1970 - 1972
11	M	2	None	-----
12	M	1	None	-----

Key: M = male F = female H/L = hierarchical level

In following the overall development of the manager's career paths, it appears that more men (5) than women (3) progressed from programming based rather than analyst roles through to management positions (Table 6.3). Differences in the acquisition, use and importance placed on technical programming skills in the career progression process will be explored in sections 6.5. and 6.6.

Table 6.3

Sample IT Managers' Career Path

Code	1	2	3	4	5	6	7	8	9	10	11	12
M/F	F	F	M	F	F	F	F	M	M	M	M	M
H/L	4	4	4	3	3	3	3	3	3	3	2	1
Co. 1	trainee programmer 1982 - 1985	trainee analyst -> analyst 1986-1989	trainee programmer 1976 - 1978	trainee programmer 1976 - 1977		trainee programmer-> programmer 1976 - 1978	trainee analyst 1976-1978	technical author -> systems analyst 1975-1977	computer operator -> programmer 1963 - 1964	programmer -> senior programmer 1970 - 1979	computer operator -> programmer 1962 - 1970	trainee programmer -> programmer 1963 - 1971
Co. 2	programmer 1985 - 1988		programmer 1978 - 1981	junior programmer -> systems analyst 1977 - 1984		programmer -> senior technician 1978 - 1984	systems analyst 197-1990		programmer -senior programmer 1964 - 1967		programmer -> systems analyst 1970 - 1977	programmer 1971 - 1973
Co. 3			contract programmer 1981 - 1983						project leader 1967 - 1971			
Finance Co	analyst programmer 1988 - 1989	systems analyst 1989 - 1990	computer auditor 1983 - 1985	project leader 1984 - 1986	trainee analyst '80 - '82	lead programmer 1984 - 1985	systems analyst 1980-1982	systems analyst 1977-1979	systems analyst 1971 - 1973	senior programmer 1979 - 1982	systems analyst 1977 - 1979	programmer 1973 - 1974
	systems analyst 1989 - 1990	senior systems analyst '90 - '91	programmer 1985 - 1988	manager 1986-	analyst '82 - '84	project leader 1985 - 1987	senior systems analyst 198-1985	senior systems analyst 1979-1982	senior systems analyst 1973 - 1975	project leader 1982 - 1987	senior systems analyst 1979 - 1981	senior programmer 1974 - 1975
	senior systems analyst 1990 - 1991	project leader 1991-	senior programmer 1988 - 1990		senior analyst '84 - '88	consultant 1987 - 1988	project leader 1985-1988	project leader 1982-1987	project leader 1975 - 1977	manager 1987-	project leader 1981 - 1987	project leader 1975 - 1976
	project leader 1991-		project leader 1990-		project leader '89 - '90	manager '88-	manager 1988	manager 1987 -	manager 1977-		manager 1983 - 1987	manager 1976 - 1980
					manager '90-						senior manager 1987-	senior manager (level 2) 1980 - 1986
												senior manager (level 1) 1986-

Key: M = male F = female H/L = hierarchical level

6.5 IT Managers' Skills and Attributes

The skills, attributes and behaviours sought in IT managers by IT Personnel are compared with the actual skills sample managers described as using in their job roles within this section. It should be noted that it is difficult to draw any firm conclusions from this comparison as it is unlikely that the sample managers referred to all the skills used in their job role. However, patterns that did emerge from the data are noted here (Table 6.4).

Table 6.4 Skills Used by IT Managers Compared With Those Sought by IT Personnel

Skills sought by IT Personnel		Skills used by IT Managers	Code	Male / Female	Hierarchical Level
Project management skills	->	Project management skills	11,12	M,M	2,1
Leadership skills					
Business knowledge	->	Business knowledge	1,2,3,4,5,6,7,8,9,10,11,12	F,F,M,F,F F,F,M,M, M.M.M	4,4,4,3,3, 3,3,3,3, 3, 2,1
Focus on quality					
Communication skills	->	Communication skills	2,3,6,7,8	F,M,F,F,M	4,4,3,3,3
Integrity					
Focus on customer service	->	Customer service & satisfaction	2,3,6	F,M,F	4,4,3
Human resource management	->	Staff management skills	1,5,6,7,10	F,F,F,F, M	4,3,3,3, 3
Good teamworker					
		Technical skills	1,2,3,4,5,8,9	F,F,M,F,F M,M	4,4,4,3,3, 3,3
		Problem solving skills	1, 3, 9,11	F, M, M,M	4, 4, 3,2
		Analysis	1,2	F, F	4, 4
		Strategic skills	1,2,5,6,7,8	F,F,F,F,F, M	4,4,3,3,3, 3

Key: M = male F = female

Firstly, 5 of the 9 skills and attributes stated by IT Personnel as important for IT managers to possess were also referred to by the sample. In particular, all the managers interviewed stressed the importance of business knowledge and getting closer to the business, in order to conduct their jobs effectively:

"I think we've finally woken up to the fact that we really need systems that do what the business needs. I have a much stronger relationship with my users than I ever did before and part of our plans for next year are to deepen that and broaden it to a larger cross section of the user base."
(code 5, female, level 3)

Linked with business knowledge, communication and customer satisfaction skills were also described as important by 5 different managers.

In line with the shift in focus IT Personnel were making away from project management skills, whilst noted, only 2 managers referred to their use of project management skills. However, the shift IT Personnel were making towards leadership skills was not reflected in the skills referenced by the sample.

Overall, it is difficult to discern any significant gender patterns in the skills data, however, it is notable that more women (4) than men (1) mentioned staff management skills and more women (5) than men (1) referred to the importance of strategic thinking in their job roles. However, one can only debate why these results emerged. In addition, such results highlight the unstable nature of this data, as all the managers had staff management responsibilities and the more senior managers in particular held strategic roles, although none mentioned strategic skills.

Table 6.4 also shows that despite the lack of importance placed by IT Personnel on technical skills in the IT management role, 7 of the 10 middle and junior managers referred to their use of technical skills.

Deeper analysis of the technical skills issue highlighted 3 interesting points. Firstly, only 1 of the managers who stated they used technical skills in their job role (code 4), was actually carrying out a role (systems architect) which demanded her to work directly with technology. The other managers, whether having progressed through a programmer or analyst route, described how they enjoyed undertaking technical tasks from time to time. For example, as 1 manager explained:

"I'm a technician originally by training, so I like to make sure the right technical decisions are being made and not just business decisions."
(code 9, male, level 3)

Secondly, differences in interpretations of what is technical emerged from the sample. One manager summed this difficulty up by saying:

"...there's technical and technical. In a sense practically everybody's a technician to somebody else. I started off as a programmer, but an applications programmer, so I was never one of those software whiz kids or anything like that." (code 10, male, level 3)

Despite difficulties in interpretation, almost all the managers who had progressed through a programming route (codes 1, 3, 4, 6 & 10) continued to regard themselves as technical, as the following statements illustrate:

"At heart, I'm still an out and out techie, I like to keep abreast of new technology." (code 6, female, level 3)

"I would feel disappointed if I couldn't do anything technical. I suppose I've been doing it so long now, I don't realise how technical what I'm doing is."
(code 3, male, level 4)

Two of the 3 men with analyst backgrounds (codes 9 & 11) did regard themselves as technical, for example, as 1 man stated:

"I have an affinity with techie's shall we say, I used to be one."
(code 11, male, level 2)

In contrast, none of the women (codes 2, 5 & 7) who had progressed from an analyst role to become managers regarded themselves as technical:

"I'm not in a position to solve a technical problem." (code 5, female, level 3)

"I'm not a computer buff." (code 2, female, level 4)

This result, together with the finding that only women undertook IT training before changing careers to enter the field, begins to suggest that some women in the sample may rely more heavily than men on IT qualifications and experience to justify to themselves that they have technical ability⁵¹.

All of the sample felt that a degree of IT technical skills and background were important in effectively undertaking an IT management role. The most senior manager interviewed felt that IT technical programming skills and background were important in order to gain respect from technical staff:

"...in highly specialist areas, people are usually motivated by their own specialist skill. Therefore, it doesn't work to put in a good people manager as they don't get respect from the line." (code 12, male, level 1)

This response, which comes from a senior IT manager, is particularly interesting as it appears to be in direct contrast to the view of IT Personnel, that people management, rather than technical skills are highly important in IT management positions.

Two other managers (codes 4 & 9) also felt that without first hand knowledge, it would be difficult to make decisions in the management role and that an IT manager may face the danger of his/her staff keeping information from them:

"I think it's important to have a technical background. It's a comfort thing for me, you know they can't bullshit me. If I ask a question I know what sort of answer I should get. Whereas someone who is less technically able might not be able to spot that.... and it may be something to do with respect too."

⁵¹ This suggestion was reinforced outside the interview sample by observation data showing a discussion between an IT manager and her non-management staff member. The manager was advising her staff to abandon perfecting all aspects of her technical skills, as this would severely delay her career progression. She added that perfecting IT technical skills in a number of different areas was unnecessary in order to progress her career to a management level. The woman staff member replied that by perfecting technical skills she felt more confident in her own ability.

I've heard a lot of people in bars or wherever, especially if they're technicians, they don't have a lot of respect for managers who they know have never written a line of code." (code 9, male, level 3)

"I think it's important that you've had the technical background in order to manage the project because I don't think you could do it if you didn't understand what the issues were." (code 4, female, level 3)

Two women (codes 5 & 7), who progressed from analyst roles and did not regard themselves as technical, described the difficulties they had experienced at the start of their management careers in not having a technical background:

"I sometimes feel less confident because I haven't had a programming background. But I think that's becoming less and less of a problem." (code 5, female, level 3)

"I did feel at the time that I'd like to have done some programming so that I understood the technical side of it - and for a long time I felt as though it was a disadvantage not having that background ...because you, you don't understand, when people are talking about technical issues and things to consider and ... programming problems, you don't understand necessarily what people are talking about - and actually it's quite easy for people to pull the wool over your eyes." (code 7, female, grade 3)

Although Finance Co IT Personnel do not stipulate technical skills and background as essential in recruiting and progressing IT managers, each of the sample managers had come from an IT background. In addition, the experience of the sample managers indicates that technical skills and background may in practice be an important factor in at least providing managers with confidence and respect in their roles.

The degree to which technical skills appear as important to possess in the career progression process is explored in the following section.

6.6 Career Progression

This section reviews the formal policy approach to career progression and compares it with IT managers' experiences and perceptions of the career progression process.

6.6.1 Formal Career Progression Procedures and Characteristics⁵²

Two career paths - technical and managerial operate within Finance Co below the IT management level. Career Progression to a higher post at pre-management level is proposed by an individual's Director through their immediate manager and presented to a Promotions Review Board. The Board, made up of the 2 most senior IT management staff and a Personnel representative,

⁵² The information within this section has been drawn from interview data conducted with a representative of IT Personnel and personnel policy documentation provided by Finance Co.

considers each promotion on the basis that a change in the individual's role has occurred and that they can demonstrate proven ability and job performance.

Career progression at the managerial level is slightly less structured and achieved by applying for higher level jobs. All vacancies world-wide within Finance Co are advertised fortnightly on staff notice boards. Interviews for advertised posts are conducted by the post's immediate manager and a representative from Personnel. The interviewers ask questions relevant to the skills and tasks required for the post. They also take into consideration results of the applicant's annual appraisal and 6 monthly review.

No clear guidelines relating to criteria managers should be appraised and reviewed by were in place. Consequently, managers were left to decide themselves the performance and competence criteria on which they would appraise their immediate reporting staff.

Identifying a clear set of skills and attributes (characteristics) looked for within Finance Co when progressing IT managers was problematic as characteristics would vary from post to post, driven by the demands of that post. However, IT Personnel stated that in progressing a manager's career, evidence of skills and behaviours which reflected the company's values should always be checked, as well as the generic skills and attributes sought in IT managers. Thus, the only common characteristics that could be identified within Finance Co were those already illustrated in Figure 6.3.

6.6.2 Managers' Interpretations and Experiences of Career Progression Procedures

Each of the managers interviewed explained that career progression was achieved by applying for a higher level job. However, they also referred to other procedures they perceived as important to follow in the career progression process (Table 6.5).

Table 6.5 Perceived Career Progression Procedures

Procedure	Code	Male / Female	Hierarchical Level
Networking	1,2,3,4,5,6,7,8,9,10, 11,12	F,F,M,F,F,F,F,M,M,M ,M,M	4,4,4,3,3,3,3,3,3 2,1
Canvassing	1,2,4,5,7,11	F,F,F,F,F,M	4,4,3,3,3,2
Right place, right time	1,2,3,6,8,9	F,F,M,F,M,M	4,4,4,3,3,3

Key: M = male F = female

Overall, both men and women in the sample felt "*networking*" and "*being in the right place at the right time*" were important career progression procedures. However, whilst almost all the women managers interviewed (5) perceived "*canvassing senior managers*", that is, lobbying them for career progression as important, only 1 man referred to this procedure. As the male manager explained:

"I think if anyone would be promoted to Director level, there would be a bit of canvassing going on, unofficially that goes on." (code 11, male, level 2)

One of the women managers described her observations and perceptions about canvassing, but emphasised that she would not adopt this approach:

"...a lot of people I know who've been promoted have actually been promoted because they asked and I've never actually done that, and I know a lot of people who've resigned or threatened to resign." (code 1, female, level 4)

Being in the right place at the right time or "luck" was viewed by 3 men and 3 women as important in the career progression process, highlighting the perception of it as a subjective process:

"...it (career progression) has quite an element of luck in terms of being in the right place at the right time...I think career progression is quite a lottery here...it does very much depend on your relationship with your manager, there's very few defined objectives." (code 2, male, level 4)

The feeling of the subjective nature of the career progression process may have been due to the lack of structure associated with it. That is, career progression should be based on job interviews and evaluation of an individual's appraisal record. However, no common criteria was being applied to either the job interview or appraisal within Finance Co. This could leave the process open to the influence of bias, leading to the view that career progression was based on luck.

The way in which informal processes and potential bias may have replaced the gap left by the lack of formal career progression characteristics is shown in the importance each of the sample managers felt was placed on networking. Networking was explained by the managers as encompassing a number of different activities. Essentially, as the following statements describe, the sample managers appeared to feel that it was not good enough just to do a good job in order to progress their careers, but was also important to be known, accepted and respected by senior managers who influence career progression:

"...to gain promotion is basically be good at what you're doing and be noticed - it's basically networking." (code 8, male, level 3)

"You have to get your face known by the appropriate people."
(code 5, female, level 3)

"...there's a guy at the head (of the IT Division) and he has a team working for him. I believe that in order to get promoted you have to be acceptable to that group of people or certainly acceptance to the group of people who influence that group." (code 4, female, level 3)

The importance of networking was illustrated in further comments made by the managers, in which some expressed their difficulty with following this procedure.

Almost all the men in the sample (codes 3, 8, 9, 11 & 12) but just 1 woman (code 6) felt networking was something they did naturally and therefore felt very comfortable with. As one stated:

"It's how I operate...I've always been happy working essentially in a networking way." (code 3, male, level 4)

Conversely, 6 managers (5 women and 1 man, codes 1, 2, 4, 5, 7 & 10) stated that networking was not something they found easy to do. Two managers, 1 man and 1 woman, both felt that by not networking, they would limit their career progression opportunities and therefore, the man believed, it was a weakness in himself not to network:

"I don't know how it (networking) really works. It's one of my weaknesses." (code 10, male, level 3)

"...the idea of networking is very much pushed and again, the idea of seeking people out and influencing them, this kind of thing's very much thought to be the thing and my boss at the time said, you want to get on and do this, you're not doing enough of this networking stuff. I said, I'm quite happy to network with people I like. I suppose I've lost out in that way, from not seeking people out who I influence." (code 4, female, level 3)

However, despite their reluctance to network and their perception that not networking would inhibit their career progression, both these interviewees had reached middle management positions. This suggests that whilst the perception of networking as an essential career progression procedure may exist amongst the sample, it may be questioned how crucial this activity is in practice.

Two women managers (codes 5 & 7) described how they felt that much of the networking within the IT Division was carried out on an informal and often social basis. This was something that they did not find easy to join in with. However, the women, realising the importance of networking ensured that they participated, but in a different way. As 1 woman explained:

"...It helps if you're very gregarious, socialising and all that sort of thing, which I don't tend to do.....There's a certain group.... including my immediate manager, who sort of have liquid lunches...it's referred to sort of like the other office, the local pub. I think it could be a disadvantage as the fact that I don't, I mean I don't like drinking at lunch time anyway, and I don't like going to the pub.But I think that on the whole it's not been too much of a drawback to me....I think, you know that if you're not one of the crowd that goes down to the pub, you can often be perceived as the outsider and therefore the one who's not one of the gang, not to be included, not talked to. But I think I've managed to become one of the management team, as it were, through other methods.....So the fact that I'm not part of the, you know, one of the boys, as it were, doesn't seem to matter." (code 5, female, level 3)

Thus, whilst all the sample managers had emphasised the importance of networking, the extent to which they found this procedure easy to follow and did follow it, varied. The decision of whether to adhere to perceived career progression procedures and the effect this has on an individual's career progression will be explored further in section 6.6.5.

6.6.3 IT Managers' Interpretations and Perceptions of Career Progression Characteristics

In explaining how they perceived career progression worked in practice, the sample managers also referred to a number of different skills, attributes and behaviours (career progression characteristics) they felt were important to possess and exhibit. As Table 6.6 shows, a wide range of characteristics (15) were referred to by the managers. These included 6 of the 9 generic characteristics described by IT Personnel. Thus, overall, it may be argued that the sample managers had a fairly good knowledge of the characteristics looked for by IT Personnel in the career progression process.

Table 6.6 Career Progression Characteristics Perceived as Important by IT Managers

IT Personnel Stated Career Progression Characteristics		Career Progression Characteristics Referred to by IT Managers	Code	M/F	H/L
Human resource management skills	->	Be people oriented	8,11,12	M,M,M	3,2,1
Good teamworker	->	Be a team player	4,5,7,11	F,F,F,M	3,3,3,2
Focus on customer service	->	Be customer sensitive	11, 12	M,M	3,1
Strong leadership skills	->	Be a good leader	9,12	M,M	3,1
Strong communication skills	->	Good communication skills	8,10,11	M,M,M	3,3,2
Business knowledge	->	Business awareness	11	M	2
Focus on Quality					
Integrity					
Project management skills					
		Be positive	5,7,12	F,F,M	3,3,1
		Be dynamic	7,8,12	F,M,M	3,3,1
		Performance	2,3,4,5,6	F,M,F,F, F	4,4,3,3, 3
	->	Good technical background	10	M	3
		Good negotiation skills	11	M	2
	->	Good analytical skills	8	M	3
		Take responsibility from senior managers	9,10,12	M,M,M	3,3,1
		Be politically aware	2,5,7,8, 11	F,F,F,M, M,	4,3,3,3, 2
		Know how to influence others	1,7,8,11	F,F,M,M	4,3,3,2

Key: M = male F = female H/L = hierarchical level

In breaking the overall picture down, however, in contrast to the career progression procedures, Table 6.6 shows that men within the sample referred to many more characteristics than the women. It should also be noted that the 3 junior managers (level 4) within the sample, 2 of whom were women, referred to very few characteristics (4 in total). More men (5) than women (3) described different characteristics which were in line with those stated by IT Personnel. In particular, the senior male managers within the sample (levels 1 & 2) appeared to place greater importance and referred to more characteristics that were in line with those stated by IT Personnel, than those that were not.

These results indicate that knowledge of career progression characteristics sought by IT Personnel may be divided along gender and hierarchical lines. That is, more men than women and more senior men than junior men and women within the sample, appeared aware of different career progression characteristics.

The term 'informal' may be applied to some of the characteristics referred to by the managers which were outside the generic skills referenced by IT Personnel. The additional 9 characteristics varied in the extent to which they can be directly related to job tasks and performance, or to what may be described as more informal organisational demands. For example, *"performing well in your job"*, *"analytical"* and *"negotiation"* skills may be expected characteristics sought in managers planning and managing projects and departments. However, 4 managers also interpreted being *"dynamic"* and *"having a positive attitude"* as necessary characteristics to exhibit. As the following statements imply, a positive attitude may be more informally encouraged, and negative attitudes discouraged:

"..a lot of it (career progression) is how you behave as a manager, how you come across. People are constantly being criticised in this company for having negative attitudes." (code 4, female, level 3)

"...if you're negative then that will never go down well." (code 7, female, level 3)

Similarly, whilst office politics are not uncommon within organisations, being politically aware was not a skill formally demanded by IT Personnel. Yet, 5 managers felt this was crucial in the career progression process.

The evidence of both formal and more informal characteristics referred to by the sample managers implies that formal and informal channels of communication may be operating within Finance Co, carrying along them different messages about skills and behaviours favoured when progressing IT managers. The following section explores whether the sample managers experience of the career progression process provides any evidence relating to such channels of communication.

6.6.4 Development of Awareness of Career Progression Procedures and Characteristics

Each of the managers interviewed were asked to explain how they had gained knowledge about the career progression process. The majority of men in the sample (5) but just 2 women were unable to describe how they had developed awareness of career progression procedures and characteristics. The 2 women were the oldest within the sample of women. Their more tacit knowledge may therefore have been linked to age and company experience. However, a difference in method of learning did not appear amongst men of different ages. As the following statement illustrates, the managers who were unable to describe how they had learnt about the career progression process felt that expectations linked to career progression had always been clear to them:

"....that's how it is. I think you recognise that quite early on, it's quite obvious that a lot of people get promoted that you know, that's the reason they've got promoted, it's not necessary they're particularly good at their jobs, it's just that they are perceived as being good in the eyes of the people for who they'd be working. Say for example, by the time you've got to the position of project leader, you'll know that that's the way it works. I mean you, there are, there have been some examples of people that you know are good at what they're doing but they won't get promoted because, because they're just not seen as being the right sort of person really." (code 7, female, level 3)

In contrast, 4 women managers (codes 1, 4, 5 & 6) and 1 male manager (code 11) were able to clearly describe how they learnt about the career progression process. Each of the women managers learnt in a similar way, through guidance from a senior manager:

"One of the first appraisals, annual appraisal from the next superior up, I had an appraisal, the first one that I had and that person said to me, if you want to get on, you need to go drinking with X, dress like Y, you know he pointed out this woman who wore fantastic clothes and that's how you get on. "
(code 4, female, level 3)

Two women in particular stated that they felt they would not have acquired knowledge of the career progression process so quickly without guidance from a senior manager:

"I'm much more politically aware than I used to be. I don't think I'm a political player as such, but I'm aware of the things that go on.....I didn't realise the mechanics of the political, not really until I was a manager. I've learnt an awful lot in the last two years, partly because when I was first promoted, my boss's boss...was very very good, he used to always tell me what was going on and sort of explain where people were coming from..about all the hidden agendas that there would be.....So it was through that learning process, to a certain extent guided by him, that I've started to understand how things work."
(code 5, female, level 3)

"I think the real awakening came when I started working for somebody who was a real political animal and not only could you see it in operation, but he

actually explained what was going on to you and then was definitely when I realised how it operated because until then, really I hadn't been involved too much in the politics, where as since then that has just not been true."
 (code 6, female, level 3)

The male manager's (code 11) development of awareness of the career progression process contrasted with the women's and was described as a process of self realisation:

"I was a manager for four years and I believe in terms of the results that were achieved I was the best manager in Systems and it was a constant source of frustration to me that I couldn't make it to Director level. It began to dawn on me that it had nothing to do with my track record and my ability to think strategically or anything that was holding me back, what it was, was my attitude, I was very aggressive." (code 11, male, level 2)

Table 6.7 summarises the different routes the sample managers appeared to follow in becoming aware of how the career progression process operated within Finance Co.

Table 6.7 How Sample Managers Became Aware of the Career Progression Process

Code	Male / Female	Hierarchical Level	Age	How Awareness Developed
1	Female	4	31	Guidance from a senior manager
2	Female	4	42	Experience over time (always known)
3	Male	4	37	Experience over time (always known)
4	Female	3	38	Guidance from a senior manager
5	Female	3	37	Guidance from a senior manager
6	Female	3	38	Guidance from a senior manager
7	Female	3	41	Experience over time (always known)
8	Male	3	39	Experience over time (always known)
9	Male	3	47	Experience over time (always known)
10	Male	3	45	Experience over time (always known)
11	Male	2	42	Self realisation after not gaining promotion
12	Male	1	47	Experience over time (always known)

Within the small sample, the results suggest that there is a possibility men gain career progression information through a different route from women, such as male networks, for example. Conversely, women appear to rely more on guidance from senior managers. However, as the men appeared unable to explain clearly how they had gained information, such alternative routes can only be open to speculation.

Whilst most of the managers were unable to state exactly when they felt they learnt about the career progression process, there is an indication from a woman (code 5) and a man (code 11) within the sample, that realisation came once they were already managers. This suggests that knowledge of the career progression process may not be a prerequisite to successful career progression.

This section has shown that gender differences were found within the sample in the way and time the IT managers became aware of the career progression process. The following section explores the managers own perceptions of how knowledge of the career progression process may influence their future career progression.

6.6.5 The Effect Perceptions of Career Progression Procedures and Characteristics have on IT Managers' Career Progression

Five managers who were able to describe how they had gained knowledge about the career progression process, also explained how this had led to a conscious choice in how they would pursue their careers. Overall, 3 different choices were described by the managers (Table 6.8):

- **rejection** of the skills, actions and behaviours perceived to be demanded by the career progression process;
- **compromise** by following to an extent the skills, actions and behaviours demanded ;
- **acceptance** and adherence to the skills, action and behaviours perceived to be demanded.

Table 6.8 Choices Made by Sample Managers Following Knowledge of the Career Progression Process

Choice	Code	Male / Female	Hierarchical Level
Acceptance	1, 6, 11	Female, Female, Male	4, 3, 2
Rejection	4	Female	3
Compromise	5	Female	3

The woman manager (code 4) who expressed her choice to reject the information gained, described the realisation process as painful and uncomfortable. Consequently, she chose not to adhere to the behaviours and action she felt were being demanded of her in order to progress her career:

“When I first joined I felt that the way in which people treated each other within a company should be as you would in any kind of society and I was quite shocked to discover that within this company there’re people who’ll stab you in the back and they do, and I’ve been stabbed in the back and it took a long time to come to terms with that. I mean it’s not something I would do myself. I’ve probably lost out from not doing it...becoming friends with people who have influence...One of the first appraisals, annual appraisal from the next superior up, I had an appraisal, the first one that I had and that person said to me, if you want to get on, you need to go drinking with X, dress like Y, you know he pointed out this woman who wore fantastic clothes and that’s how you get on...I said at that point, I’m not going to do that, I want to be promoted on merit, I’m not going to change myself in that way, I’m certainly not going to go drinking with people I don’t like just to influence them. “ (code 4, female, level 3)

As the above statement shows, this manager felt that she may well forfeit career progression opportunities by not adhering to the perceived procedures and characteristics.

In light of the importance of the perceived demands, 1 woman manager (code 5), decided to follow them to an extent, but behave in ways she felt comfortable with as far as possible, without jeopardising career progression opportunities (compromise):

"I think you have to make a choice..when you realise that a company operates in that way, I think you have to decide, well can you live with it for a start, 'cause if you can't, then you've just got to go, and then, the next thing to decide, if you decide you can live with it, I think is to decide how you're going to deal with it. You can either join in and become one of them, or you can just be aware of what's happening and still try and do things your own way, but protecting yourself if you like...it's basically trying to make the decisions so you can get things to go your own way.....There's no women up there that I can see, but I'm very much of the view that I do not behave like other people to succeed. I want to continue to be yourself and do things the way I think they should be done...I can modify my behaviour in the way I do things to quite a degree without necessarily compromising my principles on the way things should be done." (code 5, female, level 3)

It should be noted that this manager perceived a difference between herself and the other managers (the majority of whom are male). This is shown in the statement: *"You can either join in and become one of them, or you can just be aware of what's happening and still try and do things your own way..."*

The final 2 women managers (codes 1 & 6) that described how they had learnt about the career progression process showed that they had decided to accept and comply with the process. As one woman manager explained:

"I've realised it's very important to make myself known and it's important to be seen to be doing the right things as well....not being too argumentative, not being a yes man either. To be prepared to stand up and say what you think but being prepared to listen to other people's point of view as well....The other thing is just getting yourself included in as many projects as possible so you get to know a wider cross section of people around that you can and building up a relationship with those people." (code 6, female, level 3)

This manager, in contrast to the last, does not perceive an 'us and them' situation between herself and the other managers. Her statement implies she wishes to be part of the management group and therefore will behave accordingly. Indeed, the manager's language also adheres to the prevalent sex within the management group. This is illustrated in the phrase: *"...not being a yes man either."*

The male manager (code 11) that described how he had learnt about the career progression process, also implied in his explanation that once realisation had occurred, he was prepared to accept the information and act accordingly in order to progress his career.

The choices made by 5 of the sample implies that a link may be perceived by the sample managers between a choice of action and future successful career progression. Due to the environment of streamlining and re-structure Finance Co was situated in at the time of the case study, which had resulted in a freeze on recruitment and some redundancies, overall the sample felt there was little opportunity for progression. However, 2 women and 1 man (codes 4, 5 & 9) did express progression aspirations (Table 6.9)

Table 6.9 Career Progression Aspirations and Action Following Awareness of the Career Progression Process

Code	M/F	H/L	Action Following Awareness of Career Progression Process	Future Career Aspirations
1	F	4	acceptance	No career progression aspirations as a higher level job would remove her more from day to day business
2	F	4	acceptance	Career progression aspirations are impossible in the current environment
3	M	4	rejection	Career progression aspirations are impossible in the current environment
4	F	3	compromise	Career progression aspirations
5	F	3	acceptance	Career progression aspirations
6	F	3	acceptance	No career progression aspirations due to stress levels in more senior positions
7	F	3	acceptance	No career progression aspirations as a higher level job would remove her more from day to day business
8	M	3	acceptance	No career progression aspirations due to high level of bureaucracy of more senior positions
9	M	3	acceptance	Career progression aspirations
10	M	3	acceptance	Promotion aspirations are impossible in the current environment
11	M	2	acceptance	Career progression aspirations are impossible in the current environment
12	M	1	acceptance	Career progression aspirations are impossible in the current environment

Key: M = male F = female H/L = hierarchical level

It is interesting to note that 1 of the managers (code 4) who had described her decision to reject the demands of the career progression process and acknowledged that this may have an adverse effect on her progression prospects did have progression aspirations. It is also interesting to note that the managers who explicitly expressed they did not wish to progress did not list any reasons connected to the career progression process itself. Instead, their reluctance was based on the perceived demands and nature of the higher level job:

"...I prefer to get a job done rather than complete bureaucracy basically and certainly, well I think in all companies, the more managerial position you have, the more bureaucracy there is and I have no appetite for seven different status reports filled in weekly, monthly and quarterly etc., but give me a problem and I'm happy to solve it." (code 8, male, level 3)

"The other aspect is whether I want to or not, I'm in two minds about that, about whether I want to be a senior manager...Well 'cause it's a different sort of job to the job that I've been doing and that, I think that sort of makes you feel slightly insecure, that you're not sure whether you've got the skills to handle the job, plus in this company you know that the pressures get greater as you move up, and I'm not sure whether in fact they're worth it." (code 6, female, level 3)

6.6.6 The Impact of Equal Opportunities on the Career Progression Process

Overall, the extent to which interviewees were aware of the company's equal opportunities policy varied. Although only 2 women (codes 1 & 6) stated they did not think the company had a policy on equal opportunities, only 3 men (codes 8, 9 & 10) were certain it did have a policy. The following statements illustrate the confusion apparent amongst the sample concerning the company's commitment to equal opportunities:

"...(Finance Co) has always described itself as an equal opportunities employer...which, you know, is usually interpreted as race, religion and sex. I know that's corporate policy." (code 10, male, level 3)

"I don't know if it's (equal opportunities) written....I don't know, is the honest answer...but the higher you go, it's very much a male dominated company, for whatever reason." (code 3, female, level 3)

"We do not differentiate between race, colour, creed, sex, huge long list of things that we don't penalise people for, now if that's what you're calling equal opportunities, then yes, the words have been said in writing." (code 9, male, level 3)

Further analysis showed that the company culture and working hours demanded by IT roles were both perceived as significant factors that could be linked to gender inequality and that may effect the career progression of IT managers.

i) Finance Co Culture

Four of the 5 women managers spoke about their impressions of Finance Co culture as aggressive and male. For example, as one woman manager described:

"..I think you've got to be fairly assertive because if you're not you're lost because it's a very male atmosphere and I know some women would find it quite threatening.." (code 6, female, level 3)

Another woman manager (code 5) explained that senior managers will often enquire about an individual's home life, to see whether they had a "balanced life" and interests outside of work.

She explained that it was "fashionable" within Finance Co to be caring for staff, which may be one explanation for such a question. However, she felt that it was more likely that life-style questions were aimed to ensure an individual could cope with the pressure Finance Co placed on them.

The male culture was also described by 1 woman (code 6) as being reflected in the type of team building events undertaken by Finance Co:

"I don't think it's a deliberate intention but for instance when we have social events, as oppose to social, social events, where people get together and team building and all this kind of stuff, they tend to be male oriented. For instance at least one I went on was all about playing games, you know cricket, golf and well, it doesn't actually appeal to me a great deal and I think that's inevitable when the people that are in charge are male, 'cause it's just the way things are. So most of the men are having a really good time and thought it was an excellent week-end, I sat there thinking what am I doing here ?"
(code 6, female, level 3)

Two of the managers (codes 5 & 6) described the male culture as reflected in the way they believed they were perceived by male colleagues. For example, 1 woman felt there was a tendency in meetings to regard her as the secretary:

"There are definitely some people who think female equals secretary. One of my main users always insists I take the minutes at a meeting and always gives me loads of things to do which really aren't my job and he wouldn't do if I were a man." (code 5, female, level 3)

She also felt that appearing in an acceptable way to male managers was an important factor in men accepting women IT managers:

"One of the other women (managers) like me, we're both fairly short, we're both sort of fairly slim and we're both fairly efficient and its almost like the men know how to behave towards us because they can put us in this pigeon hole...they seem to accept us much more than the other woman in the group who is quite tall, bigger and quite, what's the word.... strident."
(code 5, female, level 3)

Only 1 woman manager described an incident in which she felt she had been treated differently by a senior male manager because she was a woman:

"I can only think of one occasion where I was actually prevented from doing something, not just because I was a woman but because I was a married woman....we were travelling to Japan to install a system and we were all asked if we were prepared to go and how long we were prepared to go for and I was prepared to go for the duration of the testing period which I think was for about six weeks. And when they announced who was going and when, I was only booked to go for two weeks, which worried me because I didn't see how I could do my job adequately in that time, and when I queried it, my project leader at the time, his answer was quite open - well you've got a husband to

look after. And I said, you asked me if I was prepared to go and I told you I was prepared to go, how it effects my husband is my business, not yours. And he got very upset about it because he felt that he was taking on such a fatherly attitude and I should have been eternally grateful." (code 6, female, level 3)

A more junior manager (code 2, level 4) also perceived that the Finance Co culture rejected the idea of part-time managers and career progression of part-time staff:

"There are people who've left and come back part-time and that kind of thing and I think once you come back part-time you're pretty well written off really." (code 2, female, level 4)

Whilst the above statements reflect the women manager's perceptions of the company culture, such perceptions are legitimate and important as they help to understand the environmental picture of Finance Co as seen by the managers. In light of this picture, although the managers themselves did not always directly link the gender aspects of Finance Co culture with the career progression process, this link is important to consider. For example, to succeed and progress within Finance Co, it may be important to display behaviour that fits with the 'male' culture or the cultural picture of how women managers should appear.

ii) Working Hours

The other significant factor to arise from the gender analysis of the data related to the hours respondents stated they were expected to work in IT positions. General working hours were described as being long by the managers, at least 40 hours a week and more often 50 or 60 hours. In addition, many of the sample managers were expected to be on call during evenings and weekends, particularly when a new system was being implemented. The view taken by 3 of the women managers and 1 male manager (codes 1, 4, 7 & 11) was that such hours were often difficult for women, particularly women with families to care for:

"We have a number of Directors in the business who are female and most of them have to work 8 to 6 and weekend working just doesn't happen.....as a general rule, that isn't an issue for them, they conduct their business nine to five, five days a week. In IT it isn't like that....for me to work late at night and weekend isn't an issue at all. As a general rule, I would suggest that a lot of women that have children at home and a husband to take care of may not wish to put in that amount of commitment because the way life is today, the husband still expects the wife to be home at a particular time particularly if there're kids involved...That isn't to say that we don't have people who don't have those commitments and so they are... more flexible in their ability to take on that role. But I do believe in a lot of cases the personal aspects can be seen as a hindrance, even at manager level." (code 11, male, level 2)

"I think that's why a lot of women don't go into IT management because of the amount of time you can be expected to spend and it can disrupt family life significantly...the hours, the phone calls in the middle of the night." (code 6, female, level 3)

"...at times you do have to work longer hours and awkward hours and that can be difficult with a family. The standard hours are nine to five...but it varies from area to area...I think you should be flexible about people's time."
(code 2, female, level 4)

Thus, the perceptions expressed above in many ways create the image of IT as a difficult place for women to work, due to the demands the management role makes on an individual's time. Assumptions are made within this perception that women have a family and play the major role in caring for them. Such an image may create a series of choices for women which may include not to enter IT, not to combine a family with an IT management career, or to combine the career and family. The same sort of choices do not appear to be faced by men according to the perceptions of this sample.

This section has suggested that, whilst Finance Co has an equal opportunities policy in place, it has not yet extended it to consider the more culturally linked inequalities that may exist within the company and the effect this may have on men and women's career progression.

6.7 Summary

In drawing together the analysis and conclusions resulting from Finance Co, four elements are highlighted in particular. These concern:

- the training and qualifications of IT managers;
- the role of technical skills and experience in the career progression process;
- informal aspects of the career progression process;
- the role and impact of equal opportunities.

Within the sample, both men and women were educated to a similarly high level and few had gained IT qualifications. Yet, only women within the sample had gained IT qualifications before moving into the IT field from another career. This suggests that women, more than men within the sample, may have felt a need to legitimately show their IT aptitude before having the confidence to enter an IT position.

The issue of self confidence amongst the women managers also arose elsewhere within the case study data. For example, more men in the sample than women had progressed from a more technical programming background. Whilst women who had been analysts prior to their management role did not regard themselves as technical, men who had been analysts did describe themselves as technical. Being technical and having programming background in theory should not have impacted on the career progression of IT managers as such a skill was not sought by IT Personnel for the position. Yet, the IT managers themselves did place importance on this skill, in part to gain respect from junior staff. Significantly, the most senior IT manager in

the sample also felt that technical ability and background was an important skill for IT managers to possess for this reason. Despite these views, some IT managers in the sample had progressed from less technical analyst roles, although 2 of these women described how their lack of technical experience had adversely effected their confidence at the start of their managerial careers. Conversely, only one manager referenced technical experience as an important career progression characteristic.

The IT managerial career progression process appeared fairly unstructured within Finance Co. Little guidance was given to managers by IT Personnel on what skills and attributes to appraise or interview staff on. A possible consequence of this lack of structure was a feeling within the sample that career progression was a highly subjective process. This feeling was reflected in the informal procedures and characteristics the sample perceived were important to follow.

Some gender differences could be discerned within the sample relating to knowledge of career progression procedures and characteristics. In particular, more men and more senior men interviewed appeared to perceive as important the characteristics referred to by IT Personnel as looked for in IT managers. These results suggest that men and women may be gaining knowledge about career progression through different routes. It is difficult to substantiate this suggestion from the interview data, as many men were unable to state accurately how they had gained career progression knowledge. In contrast, the women seemed to be more dependent on guidance from senior managers.

The other important gender difference to note, was the choice men and women made on gaining information about the career progression process. Whilst all the men in the sample appeared to accept the demands they perceived were made of their behaviour and actions, overall the women were less comfortable with the demands. This led to more women either choosing to reject the demands or reach a compromise by following the procedures and characteristics as far as they felt they had to in achieving career progression.

In addition to the gender differences that arose from the interview data on career progression, gender appeared an important aspect of the women's perception of the Finance Co general and specific IT culture. The Finance Co culture was described as male and possibly unfriendly to some women. The working patterns demanded of IT managers were also perceived to be difficult for married women with families to cope with. Indeed, half of the women managers were single and only 1 had children, whilst all the men in the sample were married and only 1 had no children. Notably, the equal opportunities policy did not appear to address cultural or work hours issues.