

**WOMEN'S CAREER ADVANCEMENT IN THE IT FIELD
IN THE KINGDOM OF BAHRAIN**

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Table of Contents

Chapter One: Introduction	1
1.1 Introduction	1
1.2 Women in the IT Field	1
1.2.1 Women in the IT Labour Force	1
1.2.2 Women in IT Education	4
1.2.3 Occupational Segregation in the IT field	6
1.3 Bahraini Women in the IT Field	11
1.4 Motivation of the Study	18
1.5 Key Terms	19
1.6 Research Problem Statement	21
1.7 Research Questions	21
1.8 Research Significance and Contribution	22
1.9 Research Objectives	25
1.10 Organisation of the Thesis	26
Chapter Two: Factors Affecting Women’s Career Advancement in the IT Field	27
2.1 Introduction	27
2.2 Theoretical Foundations of Gender and IT Research	28
2.2.1 Feminist Approaches to Technology Studies	28
2.2.1.1 Liberal Feminism	30
2.2.1.2 Socialist Feminism	31
2.2.1.3 Postmodernism Feminism	36
2.2.2 Theoretical Perspectives in Gender and IT Research	41
2.2.2.1 Essentialism in Gender and IT Research	42
2.2.2.2 Social Constructionism in Gender and IT Research	44
2.2.2.3 Individual Differences in Gender and IT research	46
2.2.3 The Rational for Theory Choice	49
2.3 Women in the IT Workforce	51

2.3.1 Factors Influence Women in the Information Technology Career.....	51
2.3.2 Factors Influencing Women’s Advancement in the Management in the IT Field	55
2.3.2.1 The Male Dominance of the IT Culture.....	56
2.3.2.2 Devaluing the Feminine Work Styles.....	57
2.3.2.3 Limited Women’s Access to the Informal Social Networks and Mentoring..	57
2.3.2.4 Stereotypical Image of IT Professionals and Managers: The broader Culture and Social Expectations.....	58
2.3.2.5 Work-life Conflict	59
2.3.3 Prior Research on Women’s Career Advancement in the IT Field.....	60
2.4 Summary and Conclusion.....	79
Chapter Three: Bahrain: a Muslim and Arabic Kingdom.....	82
3.1 Introduction	82
3.2 Context: Geography and People, Religion and Culture, and Economy	82
3.3 ICT Sector in Bahrain.....	86
3.4 Women in Bahrain: Education, Employment and Culture.....	90
3.4.1 Education.....	90
3.4.2 Employment	93
3.4.3 Political Empowerment.....	97
3.5 Summary and Conclusion.....	99
Chapter Four: Research Methodology	102
4.1 Introduction	102
4.2 Research Purpose and Questions	102
4.3 Research Epistemology	103
4.4 Research Approach	105
4.5 Research Strategy	106
4.6 Research Method	107
4.6.1 Cases Selection	107
4.6.2 Data Collection.....	109
4.7 Data Analysis	113
4.7.1 Stage One Individual Case Analysis	114
4.7.2 Stage Two Cross-Case Analysis.....	115

4.8 Research Validity	116
4.8.1 Construct Validity	116
4.8.2 External Validity	117
4.8.3 Reliability	117
4.9 Code of Ethics	118
4.10 Summary and Conclusion	118
Chapter Five: Data Analysis	120
5.1 Introduction	120
5.2 Background Profile of the Cases	120
5.3 Summary of Demographic Data	125
5.4 Summary and Conclusion	130
Chapter Six: Findings and Discussions.....	132
6.1 Introduction	132
6.2 Findings	133
6.2.1 Theme One: Individual Characteristics Influencing the Career	137
6.2.1.1 Level of Performance and Productivity	138
6.2.1.2 Work Competencies	148
6.2.1.3 Commitment and Motivation to the Organisation.	158
6.2.1.4 Determination, Challenge and Ambition	164
6.2.1.5 Interest in the IT Work	169
6.2.2 Theme Two: Organisational Context	172
6.2.2.1 Management Support	172
6.2.2.2 Relation with Peers	181
6.2.2.3 Training and Educating	189
6.2.2.4 Organisational Structure and Rules	194
6.2.3 Theme Three: IT Work Field	196
6.2.3.1 Understanding the Role of IT in the Organisation	196
6.2.3.2 Cultural Impact on Women in the IT Field	203
6.2.3.3 IT Field Opportunities and Challenges	219
6.2.4 Theme Four: Work-life Balance	230

6.4.1 Family Role.....	230
6.4.2 Family Support.....	245
6.2.5 Recommendations.....	250
6.3 Discussion	258
6.3.1 The Individual Characteristics	259
6.3.2 The Environmental Influences.....	260
6.3.3 The Organisational Context.....	260
6.3.4 The IT Work Field	261
6.3.5 The Work-life Balance.....	262
6.4 Summary and Conclusion.....	264
Chapter Seven: Critical Evaluation and Recommendations	265
7.1 Introduction	265
7.2 Summary of the Findings.....	265
7.2.1 The Individual Characteristics.....	268
7.2.2 The Environmental Influences	271
7.2.2.1 The Organisational Context.....	271
7.2.2.2 The IT Work Field	276
7.2.2.3 The Work-Life Balance	282
7.3 Recommendations.....	286
7.4 Summary and Conclusion.....	288
Chapter Eight: Contribution to knowledge, Future Work and Conclusion	289
8.1 Introduction	289
8.2 Contribution to Knowledge	289
8.3 Limitations of this Study.....	291
8.4 Further Studies	294
8.5 Summary and Conclusion.....	294
References.....	298
Appendixes	320
Appendix A.....	320
Appendix B.....	324

Appendix C..... 325

List of Tables

Table 1: The Percentage of Women Receiving First and Second Tertiary Degrees in Computing	5
Table 2: Percentage of Graduates from IT College (university of Bahrain) and Share of Male and Female Employees in IT Occupations in the Public Sector According to Year	12
Table 3: Numbers of Employees in IT Occupations According to Gender and Nationality	13
Table 4: The Distribution of Employees in IT Occupations According to the Nature of Job and Gender Since 2006 to 2009.....	15
Table 5: Individual Differences Theory of Gender and IT Constructs	48
Table 6: The Effects of the Structural and Social Factors	53
Table 7: Prior Studies in Women's Career Advancement in the IT Field	61
Table 8: Services Offered by Active Operators	87
Table 9: Communication Service Statistics	88
Table 10: e-Government Development of Gulf Cooperation Council (GCC).....	89
Table 11: Numeric and Percentile Distribution of Bahraini and Non-Bahraini in the Workforce	94
Table 12: Percentile Distribution of Women & Men in the Private Sector (2010)	95
Table 13: Women in Leadership Positions (2005-2013)	98
Table 14: Interview Questions	110
Table 15: Demographic Data of the Cases	126
Table 16: Work Experience of the Cases.....	128
Table 17: Summary of the Demographic Information of all the Cases in this Study	129
Table 18: Summary of Findings	134
Table 19: Level of Performance and Productivity	138
Table 20: Work Competencies.....	148
Table 21: Commitment and Motivation to the Work and Organisation	158
Table 22: Determination, Challenge and Ambition	164
Table 23: Level of Interest in IT Work.....	169
Table 24: Management Support.....	173
Table 25: Relations with Peers in the Work	181
Table 26: Professional and Technical Training	189
Table 27: Organisational Structure and Rules	194
Table 28: Management and People's Understanding of the IT Role and Work.....	196
Table 29: Cultural Impact on Women in the IT Field	204
Table 30: IT Job Opportunities in Bahrain	219
Table 31: Challenges in the IT Sector in Bahrain.....	220
Table 32: Work-life Conflict	231
Table 33: Ways Adopted to Achieve Work-Life Balance by Women in This Study.....	233
Table 34: Family Support	246
Table 35: Recommendations for Career Advancement in the IT Field	252

List of Figures

Figure 1: Female Representation Amongst IT Sector (IT firms) Within the EU15, 2013	3
Figure 2: Percentage of Employed Women in IT Occupations in U.S	8
Figure 3: The Representation of Females in Individual IT Occupations.....	9
Figure 4: Student by Programme in 2011-2012.....	11
Figure 5: Numbers of Employees in IT Occupations in a Number of Ministries and Government Organisations According to Gender at 2012.....	14
Figure 6: Number of Senior Managers and Heads in IT Directories According to Gender and Year	16
Figure 7: A Model of Social and Structural Factors Determinants of Women' Career Choice, Persistence, and Advancement in IT	52
Figure 8: Concept Level Casual Map	67
Figure 9: Comparison of Sectorial Contributions to Real GDP (2000 and 2013)	85
Figure 10: Numeric & Percentile Distribution of Students at the Compulsory School Age in the Kingdom of Bahrain (2012 – 2013	91
Figure 11: Numeric & Percentile Distribution of Scholarships Obtained from the Ministry of Education According to Gender (2007-2012).....	92
Figure 12: Ratio of Bahraini Workforce (above the age 15) According to Gender (1971-2010)	94
Figure 13: Numeric and Percentile Distribution of Women and Men in the Public and Private Sector	96
Figure 14: The Percentage of the BSc and MSc Degrees Gained by the Cases	127
Figure 15: Experience of IT Management (years).....	129
Figure 16: Level of Performance and Productivity.....	139
Figure 17: Work Competencies	149
Figure 18: Commitment and Motivation to the Work and Organisation.....	159
Figure 19: Determination, Challenge and Ambition.....	165
Figure 20: Level of Interest in IT Work.....	170
Figure 21: Management Support	174
Figure 22: Relations with Peers in the Work	182
Figure 23: Management and People's Understanding of the IT Role and Work.....	197
Figure 24: Cultural Impact on Women in the IT Field	205
Figure 25: Islam Impact in Women's Career.....	205
Figure 26: IT Job Opportunities in Bahrain.....	220
Figure 27 : Challenges of IT field in Bahrain	221
Figure 28: Work-life Conflict	231
Figure 29: Ways Adopted to Achieve Work-Life Balance by Women in this Study.....	234
Figure 30: Family Support	246
Figure 31: Recommendations for Career Advancement in the IT Field.....	253
Figure 32: The Model of Findings of this Study.....	259

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Declaration

This dissertation is an original and authentic piece of work from me. I have fully acknowledged and referenced material incorporated from secondary sources.

It has not been submitted elsewhere for assessment.

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Abstract

Despite the growing number of women in the IT field in Bahrain, they are under-represented in senior management positions in the Information Technology (IT) field. Specifically, the purpose of this study is to gain better understanding of the factors that influence Bahraini women in their career advancement to upper managerial levels within the IT field. The underrepresentation of women in the IT field has been widely studied in the context of Western countries, however, there are few studies in Eastern Arabic countries. This study will explore how the culture in Bahrain society, which is Arabic and Islamic, shape the experiences of women working in the IT field. The Individual Differences Theory of Gender and IT (IDTOGIT) (Trauth, 2002; Trauth et al., 2004; Queensberry & Trauth, 2007) was used in this study as a conceptual and an analytical framework for understanding the factors that influence women's career advancement in the IT field. This theory examines the variations between women's personal characteristics and their ways of responding to the environmental influences in understanding women's participation in the IT profession.

An interview methodology was used for investigating the work experience of a group of ten Bahraini women in a senior or middle management position in the IT field. The interview methodology helps in getting a more complete picture of what happened in their career advancement, and how they achieved high managerial positions in the IT field. Face-to-face and semi-structured interviews were conducted with the cases in order to investigate the factors that hinder or facilitate their career advancement in the IT field. The constructive grounded theory analysis (Charmaz, 2006) was used for analysing the data of the interviews. The key findings of this study are that women in IT careers, especially at the early age of their career, need to show a high level of performance, productivity, and competencies in the work. Women's career advancement in the IT field also demands a high level of commitment and motivation to the organisation, determination, challenge and ambition, and interest in IT work. The data analysis has showed that all of these identified individual characteristics are necessary and have a significant impact on the ability and way of responding to the environmental influences identified in this study. The most important environmental influences identified in this study are management support, relationship with peers, training, organisational structure and rules,

understanding the IT role, cultural impact on women in the IT field, and work-life balance. Examining the influence of these individual and environmental factors together and the links between them helped to understand the participation of Bahraini women in the IT profession.

The research findings will help in understanding some of the reasons behind gender segregation and women's under-representation in the IT field in Bahrain. The study findings further offer insights into how to improve women's career advancement in the IT field. Also, it provides a contribution to knowledge in the area of IT and gender by addressing the factors influencing women's career advancement in the IT field. It is an original contribution to the body of knowledge by establishing the basis of further studies of women in IT careers in Bahrain focusing on career advancement.

Chapter One: Introduction

1.1 Introduction

Despite a significant growth of Information Technology (IT) during the past two decades as well as the demand of IT specialist skills, and an increase of women's participation in the IT workforce, they still have low participation rates in many countries. Women's underrepresentation in the IT field is clear in several aspects, including, IT access, adoption and use of IT, IT education and IT workforce and the structure of the IT workforce itself (Huang, 2006). This chapter begins with a comprehensive overview of women's underrepresentation in the IT field internationally and Bahrain. Following this, the motivation of the study, key terms, research problem, research questions, significance of the research, research objectives, and the structure of the dissertation are provided respectively.

1.2 Women in the IT Field

Although the demand of IT jobs continues to grow, women are still underrepresented in the IT field. The percentage of women in IT occupations and education are lower than male in many countries. Also, the occupational segregation in the IT field is obvious, whereas men concentrated in more valued and higher-paying jobs, such as technical management and network administrator, and women in lower valued and lower-paying jobs, such as data entry and system operator/administrator. A brief review of women's issues in the IT field is provided below with available statistics on IT employment and education in a number of countries around the world.

1.2.1 Women in the IT Labour Force

Information technology has become a vital and potent force in developing a country in aspects such as economy, health, education, society and others. Despite the significant growth and demand in IT jobs demand on a global scale since the beginning of the 1990s, women are still

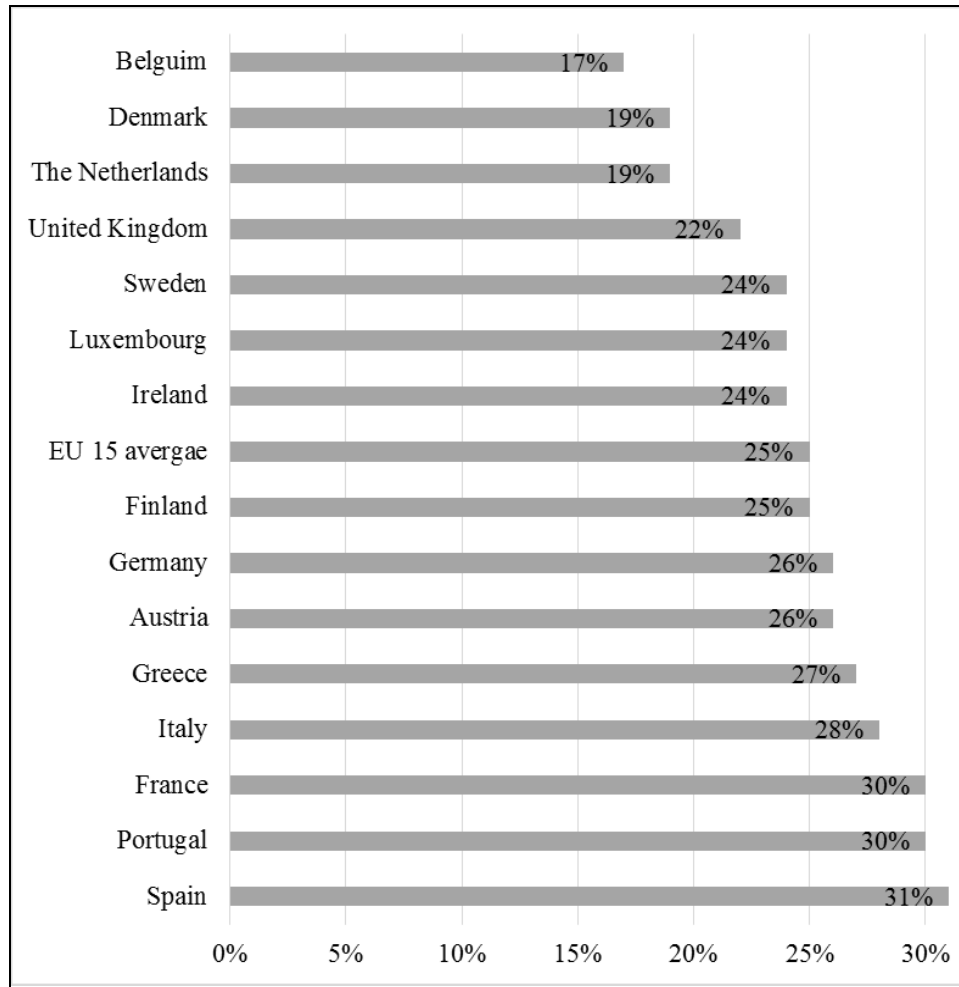
underrepresented in the IT field at all levels. The percentage of women in IT occupations is lower than men over the past 20 years in many western countries (Demaier & Adams, 2009; Trauth & Quesenberry 2007). The issue of women's underrepresentation is not limited to the IT workforce as women continue to be underrepresented in the other Science, Technology, Engineering and Mathematics (STEM) fields. The environment of STEM field is 'often characterized as a chilly climate, which tends to be male-dominated, highly impersonal, and individualistic' (Morganson, Jones & Major, 2010, p.169).

The studies in women and IT have revealed that the problem exists in many countries over the world such as in US, the UK, Australia, Germany, the Netherlands, India, Nigeria, South Africa and others. 'Yet the Information Communication and Technology (ICT) profession is gender neutral in other areas of the world such as Malaysia, Singapore, and Hong Kong' (Craig, 2006, p.755). 'The underrepresentation of women in the information technology sector has been widely studied in the context of western countries such as North American and Western European countries' (Huang, 2006, p147). The US Bureau of Labour Statistics (BLS) projects that most computer and information systems occupations will remain among the fastest growing jobs for years 2012-2022 (BLS, 2013). Despite this growth in the IT jobs in the US, the number of women is still lower than men. Women in the US represented 41% of the IT workers in 1996, 32.4% in 2002 (ITAA, 2003, 2005), 26.4% in 2011 (BLS, 2011), and 47% in 2013 (BLS, 2014). Also, in Canada, women represented 30% of the IT workforce at the early 1990s, but in 2005 the rate has declined to 25% in 2005 (Wolfson, 2006).

In the European Union (EU), there has been since 1997, a significant growth in hardware manufacturing and particularly in software and IT services, and in the employment in computer services, but this pattern has not been matched by a parallel increase in women's participation in IT work (Webster, 2006). Webster (2006) showed that, between 1997 and 2001, women's employment in IT has remained resolutely around an average of 28% across the EU in the professional areas of IT work. For example, in 2001, the percentage of women in the IT workforce was 15% in the UK, 14% in Austria, 18% in Italy, 29% in Ireland, 17 % in France, 15% in Belgium (Webster, 2006). However, the statistics in 2007 indicated an increase in the participation rates of women in the IT professions in some Europe countries, but they still made

up less than 30 % of the IT labour force. According to e-skills UK analysis, in 2013 women represented 22% of the UK IT workforce, 30% in France, 26% in Germany, 26% in Austria, 28% in Italy, and 24% in Ireland (e-skills, 2014) – (see Figure 1).

Figure 1: Female Representation Amongst IT Sector (IT firms) Within the EU15, 2013



Source: e-skills UK analysis (2014) of Eurostat 2013 data

According to the Australian Bureau Statistics (ABS) data (as cited in ACT, 2013), despite the growth in IT jobs IN Australia since 1990s, women constituted 26.6 % in ICT occupations in February 2011, and over 28% of the total ICT workforce in February 2013. Similarly, in India, the IT industry has generated nearly 2.8 million direct jobs opportunities in 2010 for women, but women still constitute only 30 % of the IT employees (Kumar & Anita, 2014).

1.2.2 Women in IT Education

The low participation of women in IT careers is aligned with the disproportionately low number of girls pursuing computing disciplines such as computer science (CS), information systems (IS) management information systems (MIS) at all levels (undergraduate, Masters, PhD). Male dominance in the IT field is 'similarly reflected in teaching and student enrollment levels' (Ghoshal & Passerini, 2006). According to Nelson & Veltri (2011, p 1), this 'the frequently cited phenomenon for women's underrepresentation in IT is the "shrinking pipeline" (Gürer & Camp, 2001), which disproportionately and at all stages leaks female students from middle and high-school through college to graduate schools and IT careers in academia or industry'. The issue of low percentage of women in computing disciplines exists in many countries, although there is an increase in the importance and need of IT personnel, and a shortage of IT specialist skills in the labour market. According to the statistics of Eurostat (2009), the percentage of women receiving first and second tertiary degrees in computing in 2009 is quite low in the European countries and US, for example, 16 % in the UK, 13% in Switzerland, 15% in Germany, 18 % in Italy, 19 % in Sweden, and 19 % in the United States – (see table 1). From 2011 to 2013, the proportion of female applicants onto computer sciences/IT related high education courses made up just 12% of the applicants in the UK (e-skills, 2014).

Women in Australia made up 25% of those with university level IT qualifications in 2010-2011 according to ABS (2014). In India, according to Catalyst (2014), the percentage of women enrolled in Engineering/Technology undergraduate degree programs in 2011-2012 was 29%. In the sub-Saharan Africa, African women have low participation rates in science and technology education (Galpin, 2006). Galpin (2006) discusses the low rates of females' participation in the undergraduate computer science (CS) in some universities in the sub-Saharan Africa from mid-1990's to 2003. For example, Botswana, 10%(1998); Eritrea, less than 10% (2001); Nigerian Polytechnics and some Universities, around 30% (mid-1990s); University of Nairobi, Kenya - 11% (2001); Kenyatta University, Kenya - 14.3% (2002/2003); University of Makerere, Uganda - 27% (2002); Zimbabwean Technical Colleges, 41.7% (1996); South African Universities, 31% (2001); Technikons, 37% (2001)' (Galpin. 2006, p.1280).

Table 1: The Percentage of Women Receiving First and Second Tertiary Degrees in Computing

Country	Male	Female	Female (%)	Male (%)
Iceland	418	73	14.87%	85.13%
Malta	497	148	22.95%	77.05%
Cyprus	1,444	226	13.53%	86.47%
Estonia	2,904	426	12.79%	87.21%
Slovenia	3,071	450	12.78%	87.22%
French Community in Belgium	3,327	494	12.93%	87.07%
Latvia	3,373	567	14.39%	85.61%
Former Yugoslav Republic of Macedonia	3,641	652	15.19%	84.81%
Bulgaria	4,611	666	12.62%	87.38%
Croatia	4,896	817	14.30%	85.70%
Lithuania	5,015	891	15.09%	84.91%
Switzerland	5,798	902	13.46%	86.54%
Norway	6,204	1,341	17.77%	82.23%
Portugal	6,443	1,558	19.47%	80.53%
Ireland	6,856	1,664	19.53%	80.47%
Slovakia	7,603	1,677	18.07%	81.93%
Denmark	8,147	2,108	20.56%	79.44%
Belgium	9,459	2,364	19.99%	80.01%
Finland	11,132	2,630	19.11%	80.89%
Sweden	11,192	2,652	19.16%	80.84%
Romania	11,213	2,683	19.31%	80.69%
Austria	11,914	2,928	19.73%	80.27%
Hungary	12,215	3,375	21.65%	78.35%
Czech Republic	17,591	3,863	18.01%	81.99%
Netherlands	23,991	4,254	15.06%	84.94%
Italy	25,709	5,710	18.17%	81.83%
Turkey	49,970	9,041	15.32%	84.68%
France	58,148	10,037	14.72%	85.28%
United Kingdom	78,303	15,702	16.70%	83.30%
Spain	81,264	17,975	18.11%	81.89%
Poland	81,788	19,773	19.47%	80.53%
Germany	108,241	19,917	15.54%	84.46%
United States	441,483	106,838	19.48%	80.52%

Source: Based on Eurostat data (2009)

1.2.3 Occupational Segregation in the IT field

The computing disciplines and professions are gender segregated, with male dominance at all levels (Ghoshal & Passerini, 2006). Despite the growth in the IT professions since the 1990s, women continue to be segregated both horizontally and vertically in the IT field. As showed above, the statistics of the IT workforce in many countries indicate that men represent not less than 60%. The IT workforce is horizontally segregated by gender, whereas the proportion of women in high technical, status and highly paid jobs is low. The “horizontal segregation” ‘can be understood as separation of women workforce from men in terms of the type of work which requires less technical skills’ (Ghoshal & Passerini, 2006, p. 30). Whitehouse (2006, p. 1223) mentioned that ‘in spite of perditions that the spread of information technology (IT) would help break down the gender segregation that characterized employment in the industrial era, women are under-represented in professional computing occupations through the advanced world, and those who do take up work in the IT sector are most likely to be found in routine and comparatively low paid jobs’. Many women, who entered the IT occupations, are locked into lower paying, lower skilled and less prestigious IT jobs with little opportunities for advancement and less visibility. Overall, women are found working much more often in what are considered to be “softer” aspects of the IT profession, for example, in sales, marketing and support functions such as help desk and customer service, and work project management, while men continue to dominate in technical areas such as analysts/programmers, network designers and maintenance (Ghoshal & Passerini, 2006; Myers, Moody, Beise & Woszczynski, 2006). Demaiter & Adams (2009, p. 37) viewed that ‘women still tend to be segregated into a few, “less desirable” jobs such as database analysts, web designers, and system technicians’. In general, it is reported that ‘women are more often assigned to tasks that are considered less challenging and less technical expertise’ (Myers et al., 2006, p. 1007).

The IT workforce is vertically segregated by gender and it is more evident in the high managerial positions. The "vertical segregation" refers to ‘ separation of women work force in terms of low paying, low ranked jobs which involves relatively low decision-making powers in an organisational context’ (Ghoshal & Passerini, 2006, p. 30). According to Tattersall, Keogh, Richardson & Adam (2006), vertical segregation means the concentration of individuals in the

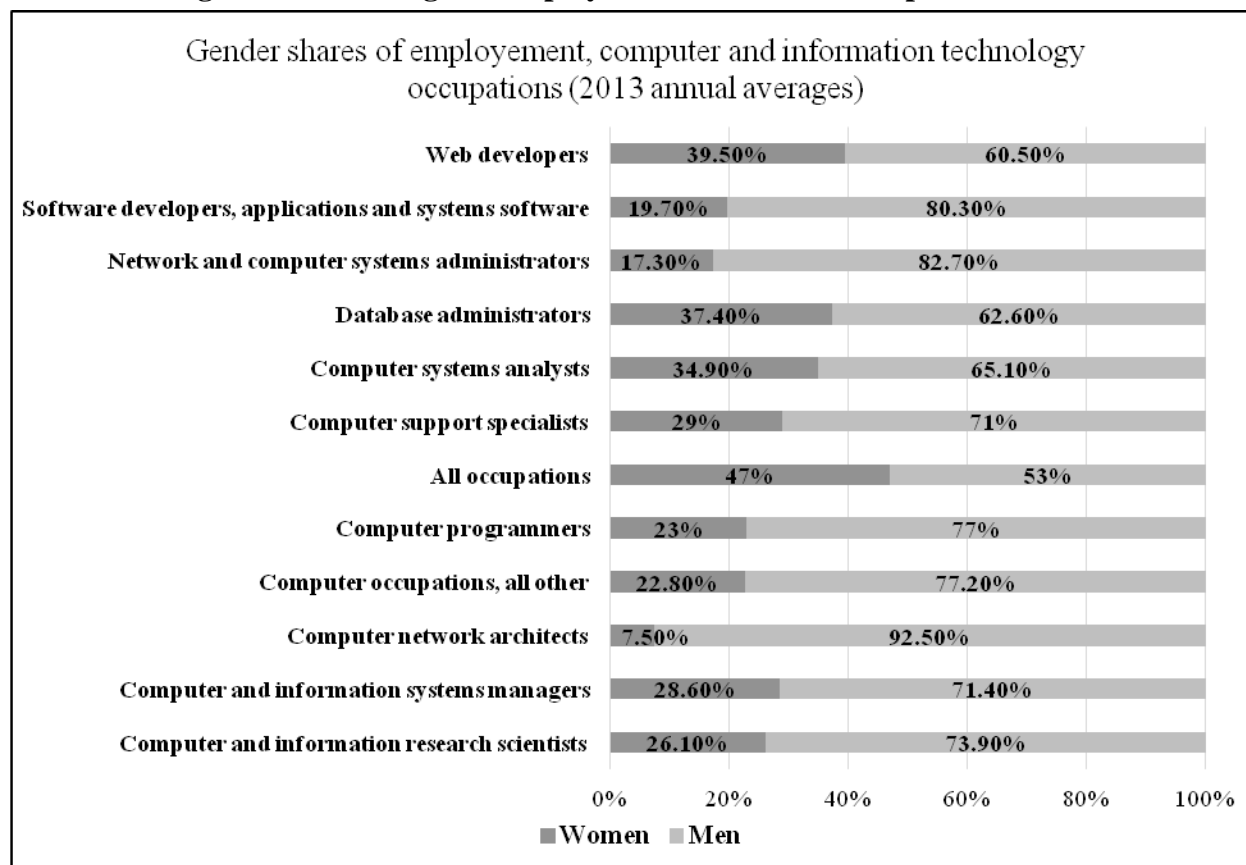
lower echelons of an organisation (EOC). Women's participation in IT occupations are low and it decreases as women climb the corporate ladder (Wentling & Thomas, 2009). World-wide, there are few women in senior management positions, employed by government departments responsible for ICT, and they are more likely to be in low level jobs than in IT management (Galpin, 2006). Women are underrepresented in IT higher management levels, although the research showed that women tend to do jobs, which require management, communication and social skills rather than high technical skills. King (2004) for example viewed that 'with respect to management, it is believed that women, make ideal managers in tech organisations based on the strength of their communication, social skills, relationship management, team building, and multitasking (as cited in Hazzan & Levy, 2006, p. 10).

Few women have broken the 'glass ceiling' in the IT field, which is defined by the Glass Ceiling Commission in the USA (n.d.) as: '... invisible, artificial barriers that prevent qualified individuals from advancing within their organisation and reaching their full potential'. The glass ceiling keeps women in the middle-management levels of the organisations. According to the Germany's Gender Research Group 'the "glass ceiling" phenomenon is invisible but nonetheless a rigid barrier that blocks women's access to leading positions whereby women can advance in an organisation, but only to a certain point, usually in middle-management, not to upper management or administrative roles' (as cited in Ghoshal & Passerini, 2006, p.30). Women who face the glass ceiling in the IT field 'might be due to the fact that managerial jobs require years of experience, and women are still at an entry level of the career ladder, whereas men already had years of experience, enabling them to fulfill the requirements for managerial positions' (Tijdens, 1997, p. 457).

The phenomena of gender segregation and gender gap in the IT workspace manifest on a global scale. Since the 1990s, 'the majority of women are employed in routine and specialist work, while men are engaged in analytical and managerial activities' in the computing industry in the US and the UK (Shuttleworth, 1992, p.25). In US few women have made few inroads into high tech employment. Statistics from US Bureau of Labor Statistics (2014) see figure below indicated that women accounted for 39.5% of the total web developers, 37.4% of database administrators,

and 34.9% of computer systems analysts, but 28.6% of the total IT managers, and 7.5% of computer network architects in 2013 – (see figure 2).

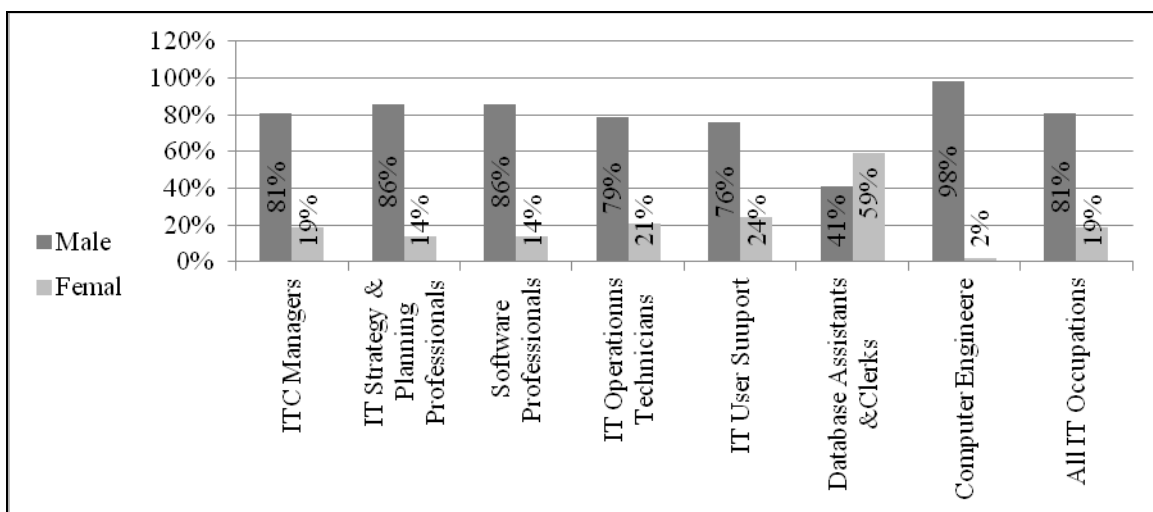
Figure 2: Percentage of Employed Women in IT Occupations in U.S



Source: based on U.S. Bureau of Labor Statistics (2014)

In the UK, women are also heavily represented in the lower skilled, less well paid occupations in the IT sector. According to a survey carried by e-skills, the UK Skills Council for Business and Information Technology – (see figure 3), women accounted for 59% of the total database assistants and clerks and 24% of the IT user support in 2008, but they accounted for just 19% of IT managers and 14% of IT strategy and planning professionals and 14% of software professionals.

Figure 3: The Representation of Females in Individual IT Occupations



Source: e-skills UK analysis of ONS LFS Q2.2008.

The occupational segregation and the differences between women and men in the IT field are also reflected by the gender pay gap in IT occupations. Labour statistics show that women who are full-time workers in IT occupations have lower weekly earnings than men. In addition, women's absence from the high-paying and valued IT jobs led to have a gender pay gap in the IT sector. Gender pay gap is defined as 'the percentage difference in earnings between men and women with similar characteristics, estimated in an earnings regression' (Weinberger, 2006, p. 226). For example, according to the Office of National Statistics (2013), the median gross weekly for men full time employees in the associate professional and technical occupations was 624.7 and 519 for women in the UK in 2013. Also, according to BLS (2013a), the median weekly earning of full-time wage and salary workers in computer and mathematical occupations was \$1,452 for men, and \$1,174 for women in the US in 2013.

The research of gender and IT showed that the problem of gender segregation in the IT fields also exists in several other countries, such as, the European, Asian, African and Australian countries. For example, Aaltio & Heilmann (2006, p. 782) showed that in Finland, the 'ICT sector is a sector of young men; in over half of the Finnish ICT companies, the majority of employees are males under 35'. They viewed that the ICT sector is a masculine environment,

where ‘there exists some kind of suspicion toward women’s competence in the area of information and communication technology. Women’s tasks are usually connected to lower level or supportive assignments, and their career progression may stop at the glass ceiling’ (Aaltio & Heilmann, 2006, p. 784).

Nielsen & Hellens (2006, p. 1110) indicate that in Australia, ‘the IT industry appears to be constructed as a masculinized domain, unattractive to most women and many men’. According to Von Hellens & Nielsen (2006), women in Australia are not only in a minority but also are overrepresented in jobs that tend to have lower formal qualifications, are at the lower level and lower skilled jobs. Also, ‘there are income disparities between men and women with women concentrated in lower income occupations’ (Staehr Byrne & Bell, 2006 p. 467).

In India, women’s participations in the IT field are at a low rate despite the growth in the IT sector. For example, in 2000, women constitute 30% of the IT work force in India (Muthumani & Saranya, 2014). The IT industry is one of the important components of the Indian economy and as a market in the world, generates billions of dollars through IT services, such as software development and business process outsourcing. Muthumani & Saranya (2014, p. 184) also mention that job opportunities in the field of information technology created a job demand rivalled all others in the history of the Indian labour force, and also that ‘India has the largest population of employed women and the largest number of certified women professionals in information technology, finance, and healthcare services just after the USA’. However, women in India are still underrepresented in the IT field and some efforts have been made by the government to recruit and retain more women in IT.

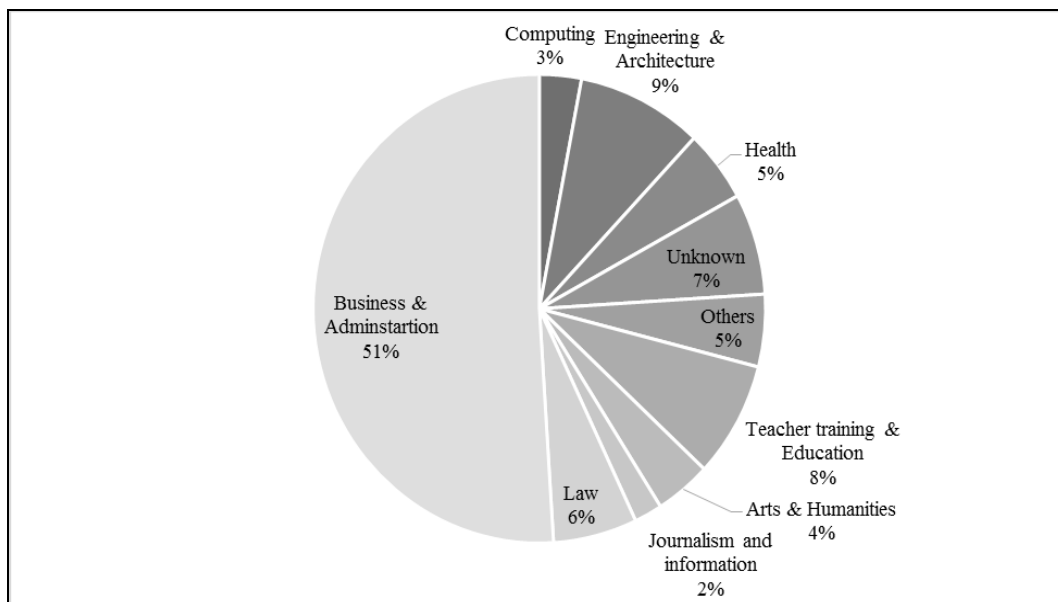
Galpin (2006) shows that in the sub-Saharan Africa, there is a low number of women working as IT professionals, and women are unlikely to be found in management or system analysis positions, as well as teachers or lecturers of computing courses, although they can be found as programmers and operators. The low participation of women as IT professionals is ‘caused in part by lower literacy and education rates of women in sub-Saharan African compared to men, as well as by societal and other factors that influence the choices of women who do have the opportunities to study beyond the secondary level’ (Galpin , 2006, p. 1282).

Olatokun (2006) mentions that in Nigeria, the ICT industry is highly sex segregated, whereas women are found in disproportionately high numbers in the lowest-paid and least-secure jobs, while they are underrepresented in all ICT decision-making structures, including policy and regulatory institutions, public and private companies. ‘This is because ICT decision-making is regarded as a technical area (typically for male experts)’ (Olatokun, 2006, p. 443).

1.3 Bahraini Women in the IT Field

Notwithstanding significant growth in the IT professions in Bahrain during the past decade, there remains a gender imbalance. Women still face difficulties in achieving equal representation and opportunities in the IT field. Despite the need for qualified IT professionals in the public and private sectors and the high numbers of females pursuing academic study in the IT disciplines, women are still under-represented in IT careers. For the year 2011-2012, eleven IT programmes were provided by the Higher Education Institutions in Bahrain, and the percentage of student enrolled in computing was 3% out of all programmes provided by higher education institutions (Secretariat general of the higher education council, 2012) – (see Figure 4).

Figure 4: Student by Programme in 2011-2012



Source: (Secretariat general of the higher education council, 2012, p.5)

Overall women's participation in the IT workforce is increasing; however, it is not equal to the numbers of graduates from IT education. They are still unable to make significant gains in the upper-level managerial positions in the field of IT, and their ability and skills are under-utilized relative to men in higher technical roles. According to information requested from the University of Bahrain, since 2006, the percentage of IT female graduates exceeded IT male graduates by more than 20 per cent (see Table 2).

Table 2: Percentage of Graduates from IT College (university of Bahrain) and Share of Male and Female Employees in IT Occupations in the Public Sector According to Year

	2007		2008		2009	
	Male	Female	Male	Female	Male	Female
Number of Graduates (%)	36.99%	63.01%	38.33%	61.67%	35.65%	64.34%
Number of employees in IT occupations (%)	58.24%	41.76%	57.60%	42.40%	58.95%	41.04%
Number of employees in IT occupations	205	147	216	159	237	165
<i>Source: Author's collection based on data requested from CSB and UOB (2009)</i>						

Ironically, although there are more female graduates than male graduates in IT education in Bahrain, men represent a higher percentage in IT occupations. For example, according to the information requested from the Bahrain Civil Service Bureau (CSB), which concerns the distribution of employees in IT occupations classified by gender and occupational status between 2007 and 2009 in the public sector, the total percentage of women in IT occupations in 2009 is 41.04%, whereas it is 58.95% for men (see Table 2). Moreover, the difference between the number of females and males in IT occupations in the public sector from 2007 to 2009 increased in favour of males from 58 to 72 individuals (see Table 2).

The gap between the percentage of male graduates (35.65 per cent) and male employees in IT occupations (58.95 per cent) (as shown in table 2) might be justified by the percentage of non-

Bahraini employees who constitute 17.16 per cent out of the total number of IT employees in the Ministries in 2009 (see table 3).

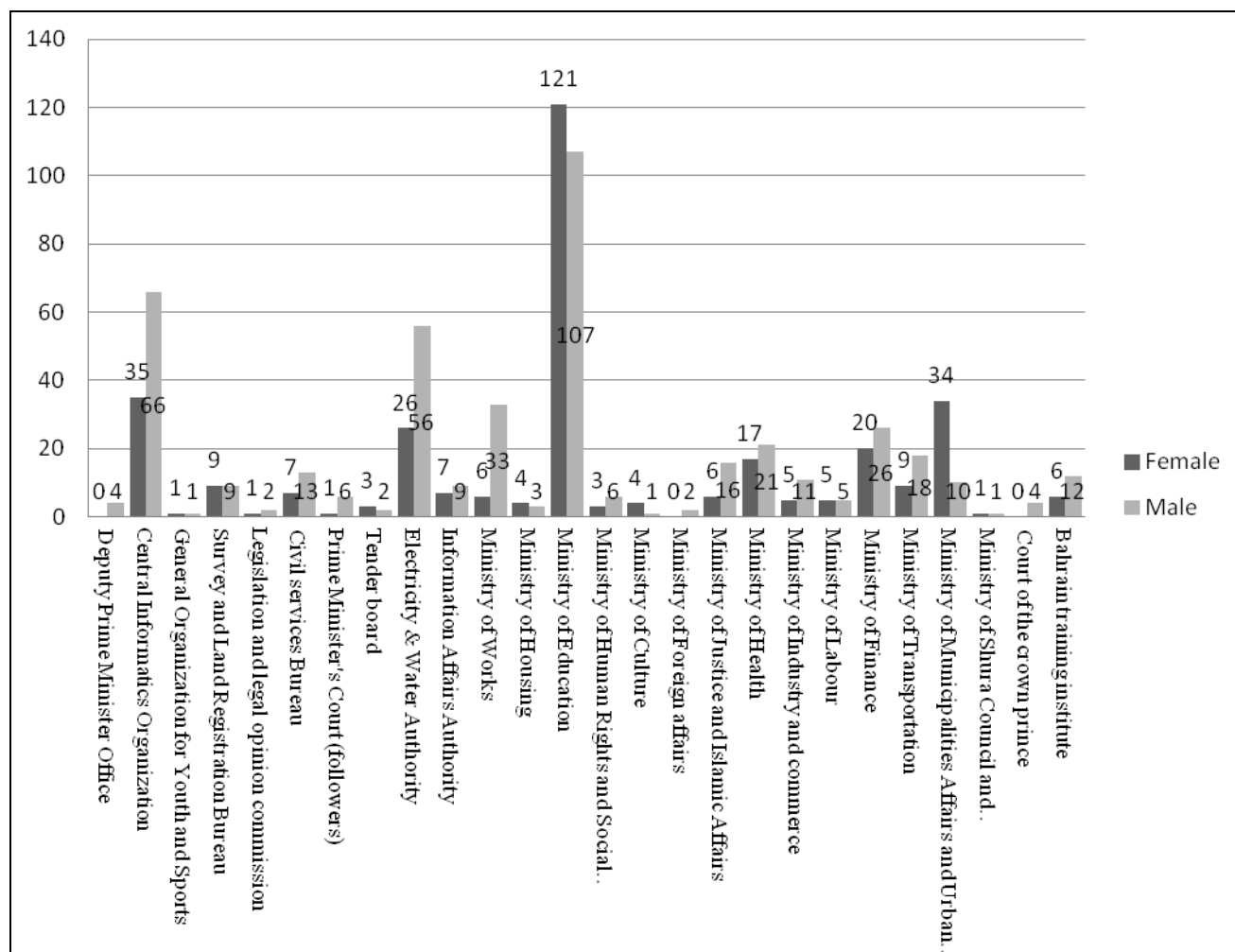
Table 3: Numbers of Employees in IT Occupations According to Gender and Nationality

	2006		2007		2008		2009		Total (2009)
	Bahraini	Non Bahraini	Bahraini	Non Bahraini	Bahraini	Non Bahraini	Bahraini	Non Bahraini	
Male	125	41	148	57	157	59	173	64	237
Female	118	5	143	4	154	5	160	5	165
Percentage	84.02%	15.91%	82.76%	17.33%	82.93%	17.06%	82.8%	17.16%	
Total employee	289		352		375		402		
Source: Author's collection based on data requested from CSB (2009)									

According to data requested from CSB in 2012, the difference between the number of females and males in IT occupations in the public sector from 2009 to 2012 increased in favour of males from 72 to 113 individuals (see figure 5).

Although women in Bahrain have showed their capabilities in pursuing IT academic study; they are still marginalized within highly technical IT careers. They tend to be segregated into routine and low technical roles like system developer or specialist, while men work in higher analytical roles. For example, with reference to Table 3, since 2006 females have had a slightly higher share in occupations relating to computer and information systems development and administration, while the number of females working in technical maintenance/services and support is 29 compared to 84 males in 2009. Similarly, women have a low share in networking and security control - 13 females compared to 41 males in 2009 (see table 4).

Figure 5: Numbers of Employees in IT Occupations in a Number of Ministries and Government Organisations According to Gender at 2012



Total Male = 444, Total Female = 331

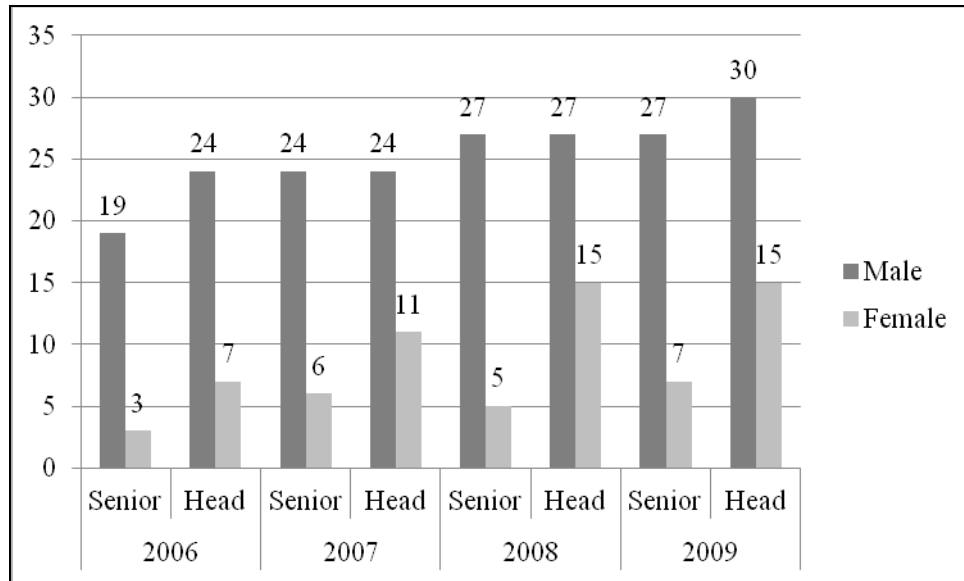
Source: Author's collection based on data requested from CSB in (2012)

Table 4: The Distribution of Employees in IT Occupations According to the Nature of Job and Gender Since 2006 to 2009

Occupational Group	2006		2007		2008		2009	
	M	F	M	F	M	F	M	F
Systems Development and Administration	29	59	49	50	47	53	44	57
Specialist/ Advisor/ Consultation	27	30	36	39	43	39	58	46
Technical Support/ Services/ Maintenance	67	8	60	16	68	25	84	29
Networks and Security Control	27	5	35	12	38	17	41	13
Quality Assurance	3	7	2	17	7	12	4	12
Programming	4	1	4	2	4	3	4	2
Database Administration	9	5	10	3	9	4	7	3
IS Analysis	8	5	10	5	10	9	11	8
M: Male, F: Female								
<i>Source: Author's collection based on data requested from CSB (2009)</i>								

Women in Bahrain have had lower participation in IT management workforce compared to men, and they are still unable to advance to higher managerial level in the field. For example, in 2009, there were 27 males in senior management positions compared to only 7 females, and 30 males as heads compared to 15 females (see Figure 6). Moreover, the difference between the total number of senior male managers and senior female managers is increasing in favour of males from 16 individuals in 2006 to 20 in 2009.

Figure 6: Number of Senior Managers and Heads in IT Directories According to Gender and Year



Source: Author's collection based on data requested from CSB (2009).

Such figures led to the question to why women in IT careers do not advance at the same rate as men? This research intends to address this *Why* question by investigating the experience of a number of successful women (senior managers) in IT in Bahrain, in order to explore which factors influenced the advancement of women in the IT field. Only by understanding the influence of those factors, can recommendations be made to enable more women to advance to higher IT managerial positions.

Comparing the statistics of women in the IT in Bahrain is not much different than any other place in the world such as the US and UK, except that women in the computing education at university level are well represented in Bahrain as shown in table 2 above. Most of the studies of women in IT careers were conducted in the UK, US and Australia. According to Galpin (2006), international research has shown that in most countries, there are few women studying towards information technology careers, and there is much research, particularly in the US, UK and Australia into why is this the case (Gürer & Camp, 2002, p. 1279).

Although there is much international research about women's underrepresentation in the IT field, relatively little has been researched or written about women in the IT education and professions in the Arab countries. Most of research and reports related to Arab countries focus on the issue of the gender digital gap, and provide statistics on the aspects of IT access, use and adoption and not on the IT employment and education. Very few researches in Arab countries were found which point to women's presentation in IT education and profession, and most of these also lack statistics on IT employment. Thus, this knowledge gap will be partly addressed by this study. For example. Zineddine & Kindi (2011) state that there have been drastic change and adoption of ICT during the last decades in in UAE, Oman, Egypt and Jordon, but that many economical, educational, and societal constraints hinder Emirati women from penetrating the ICT job market. Al Marzouqi & Forster (2011) found that In general, very few women in the Middle-East and North Africa (MENA) region,work in CSIT fields and that Emirati women are not attracted to IT careers and they are lagging behind in the local CSIT sector. Elnaggar (2007, p. 4) state that in Oman 'women in the Arab Gulf region in general and in Oman in particular are at a higher risk of being marginalized from today's knowledge-based economy'. Females are still responding to gender steadying of ICT jobs, and employers are not encouraged to employ females in IT jobs (Elnaggar, 2008). Hassan, (2005) states that in Egypt, women constituted about 36% of total workforce specialized in scientific and technological fields in the public sector in 2004 () (as cited in Mandour, 2009). However, according to Mandour (2009, p. 15) 'despite weak employment rates that women experience in ICT sector, Egypt is still recognised as one of the few African countries where women have high potential in significantly participating in the sector'. In Jordan, women are also underrepresented in the IT field (Khreisat, 2009). Khreisat (2009) has investigated the available statistics and found that the percentage of females enrolled in computer science and computer information systems undergraduate programs was only 26% in 2007 in all public and private universities. She also found that the percentage of women in the public sector in 2006 was 37.4% in the IT workforce in Jordon. Moreover, she showed that the majority of women working in IT in Jordon occupy the lowest jobs; 'only 7% are decision makers, 2% are project leaders, 44% work in software maintenance and web-related tasks, 27% are data entry personnel and receptionists, and only 11% hold jobs related to hardware security and network engineering' (Khreisat, 2009., p. 292).

In summary, women are underrepresented in the IT fields in several aspects. Research and statistics indicate that women are underrepresented in IT education at different levels in many countries like the US and UK, while women in Bahrain have a higher percentage in the IT education. Statistics also show that within the IT employment structure, the same IT employment patterns occur internationally and in Bahrain, whereas women are concentrated in the low-valued, less- technical and low- pay jobs, and underrepresented in the high level positions.

1.4 Motivation of the Study

The motivation for conducting this study is derived from several factors. First, my motivation came originally from my personal desire for embarking on a PhD, which has increased after I received my MSc degree in IT, and also my aspiration to improve my career prospects and my personal growth. Second, the lack of job satisfaction was a factor that led me to do this study. I was the only woman in the IT team of our work organisation. Comparing to the males in the IT team, I was not satisfied with the low-valued tasks I was being assigned. Although I was the one who own the highest college degrees in the team, my knowledge was not utilized and my abilities were under-valued in the work. I felt that men were given more attention from management and people in the organisation than me, and they have a higher visibility and importance in the work. Therefore, as I am a woman working in the IT field, I am part of the story. I live the experience and I understand what women feel and face in this field where men are preferred.

Third, there is yet no study in Bahrain on women in the IT professions. The numbers of women who enrol in the computing and IT programs at undergraduate levels and work in IT, are not low in Bahrain compared to other places such as the US and UK. However women work in IT in Bahrain are segregated in low-valued IT jobs and are still underrepresented in higher IT management positions. Therefore, this study is an attempt to understand the factors impacting on women's career advancement in the IT field in Bahrain. When fully understood, this study could help in planning to enhance Bahraini women's participation in the IT field which is a driving force in the economic and development of Bahrain and also to enable women in IT to achieve

leadership positions in the IT domain. All of these factors have motivated me to conduct this study as a way to improve women's participation in the IT workforce in Bahrain.

1.5 Key Terms

Career advancement

'Career advancement implies a series of work experiences in which responsibilities, skills, authority, commitment, and changes in level of reward increase in a relatively linear fashion over time' (Parasuraman & Greenhaus, 1997, p. 145).

Information technology

Information technology (IT) 'includes all tools that capture, store, process, exchange, and use information. The field of IT includes computer hardware, such as mainframe computers, servers, laptops, and PDAs; software, such as operating systems and applications for performing various functions; networks and related equipment, such as modems, routers and switches; and databases for storing important data' (Reynolds, 2010, p. 4).

Information Technology Career

Information technology career refers to the 'technical and professional level careers in the design, development, support and management of hardware, software, multimedia and systems integration services' (Ohio Department of Education, n.d). For example, the following are considered part of the IT career; 'communications- computer design, computer manufacturing, computer programming, computer sales, computer service, database management, data service, database management, data service organisation, expert systems, information science management, internet, intranet, networks, operations, personal computers, personal computer user services, security, system analysis, system development and programming, and word processing' (Apel, 2003, pp. 12-13).

Gender

Gender refers to 'the different roles men and women play in a society or a community. These roles are determined by cultural, social and economic factors and differ within and between

cultures and countries. Gender roles are different from sex differences in that sex differences are biological, and for the most part, unchangeable' (Moghaddam, 2010, pp. 722-723).

Manager

'The term 'manager' usually includes any person who carries out the four fundamental functions of management'; planning, organizing, leading and controlling (Nieuwenhuizen, Rossouw & Tertia, 2009, p. 43).

Managerial levels

'Three levels of management are normally distinguished, namely top managers, senior/middle managers and first-line (supervisory) managers. These also called strategic, tactical and operational management' (Nieuwenhuizen, et al., 2009, p. 43).

Top managers

'Top managers (strategic managers) are people in executive positions and they normally have titles such as chief executive officer (CEO), president, vice-president or managing director (MD)' (Nieuwenhuizen, et al., 2009, p. 43). 'Top managers are responsible for managing an entire business or major part of it. Top managers are responsible and define the purpose, goals, strategies and long-term plans of the business. They report to other executives and the board of directors, and they supervise the activities and performance of senior/middle managers' (Nieuwenhuizen, et al., 2009, p. 43)

Middle managers

'Middle managers are specialists with responsibilities for specific parts of a company's operations. Examples of middle management jobs are marketing manager, information technology manager, customer service manager, operations manager, and human resources manager' (Dlabay, et al., 2011, p. 150) 'They are responsible for implementing the top manager's strategy by developing medium-term goals, strategies and plans. They generally report to top management and supervise the work of lower management' (Nieuwenhuizen, et al., 2009, pp. 43-44).

First-line/supervisors

‘First-line/supervisors (operational managers) have titles such as sale managers, section head or office manager. They are responsible for implementing the plans and strategies formulated by middle managers over the short term. They generally report to senior/middle management and they supervise operative employees. Operative employees are the workers in a business who do not hold managerial positions. They report to first-line managers/supervisors’ (Nieuwenhuizen, et al., 2009, p. 44).

Upper managerial levels

In this study the upper managerial levels encompass the middle and top managers.

1.6 Research Problem Statement

Despite the growing numbers of women in the IT field in Bahrain, women are still underrepresented in higher IT managerial positions. The overall purpose of this study is to gain a better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field.

Sub-problem 1

Investigate senior women manager's perceptions toward the factors that hindered or facilitated their advancement to upper managerial levels in the IT field.

Sub-problem 2

Investigate the strategies used by senior women managers to overcome the factors that hindered the advancement to upper managerial levels in the IT field.

1.7 Research Questions

This research aims to answer the questions on factors that influence the career advancement of women to upper managerial levels in the IT field in Bahrain, and how it can be used for career advancement. More specifically the following research questions are addressed:

Main research question

What factors influence the career advancement of women to upper managerial levels in the IT field in Bahrain, and how can these factors be used for career advancement.

Research question 1

What are the factors that hinder or facilitate the career advancement of women to upper managerial levels of women in the IT field in Bahrain?

Research question 2

How do those factors can be used for the career advancement to upper managerial levels of senior IT women managers in Bahrain?

Research question 3

How have senior IT women managers in Bahrain overcome the factors that hinder their career advancement?

1.8 Research Significance and Contribution

The underrepresentation of women in the IT field is an important topic of concern given the increasing significance of the IT field. The field of IT is one of the most important fields that has a dramatic impact on nation's development and has become a critical component of the economic sector. The level of development in the IT industry and the availability of high specialist IT skills are linked to the economic and competitiveness of countries globally. According to Tattersall et al., (2006, p. 1256), 'women's underrepresentation in the IT industry should not be looked upon as a 'women's problem, 'but rather a problem for the industry as a whole'.

Arab countries realized that ICT is one of the most important factors in achieving sustainable growth, and it has become an effective force for accelerating political, economic, and social development of countries and that its exclusion will limit the process of development. According to El Louadi & Everard (2006) 'women in the Arab world have an essential role to play in the economic and social development of their nations' (p. 1234), and it is recommended that Arab government should' enable women to fully participate in ICT decision making, and all

stakeholders 'need to increase job opportunities to women in the field of ICT, giving more room for female creativity, design, and production' (El Gody, 2006, p. 777).

This PhD study is the first of its kind in the Kingdom of Bahrain, even though the phenomenon of women's under-representation in the managerial positions in the IT field is not new in Bahrain. This study will contribute to raising the awareness among employers, decision and policy makers about the factors affecting women in IT careers in Bahrain. It will help in developing and making effective strategies, policies, programmes and efforts to support women in the IT field. Enhancing women's participation in the field of IT in Bahrain became important in order to execute the current trends and projects which need IT workers and IT skills diversity. Recently, many projects have been initiated for the purpose of transforming the services and processes of government and businesses from the traditional manner to electronic and online services, for instance, E-government, E-learning, E-Tendering projects. The progress of these projects depends primarily upon the extent of existing qualifications and experience that is suitable with what is required in the implementation of ICTs. Therefore, business and government in Bahrain will need to ensure the IT workforce is prepared to meet the IT demands of the future and should make positive investment. Moreover, given that women's percentage of IT education and IT workforce in Bahrain is fairly low, it is important to identify the factors affecting the advancement of women in the IT field. By identifying these factors this study will help Bahraini women in IT in understanding the factors affecting their career advancement and what strategies can be used to respond to the challenges they face in the IT field.

The underrepresentation of women in the information technology (IT) field has been widely studied in the contexts of western countries such as North American and Western European countries (Huang, 2006), whereas, few studies come from the Gulf Cooperation Council (GCC) or Arabic countries. The academic literature on women working in the IT field in Bahrain is almost non-existent. Al Marzouqi & Forster (2011, p. 544) claimed that their exploratory study of the under-representation of Emirate women in the United Arab Emirates (UAE) information technology sector is 'the first research on this issue conducted in the UAE/GCC region'. Western countries differ from Arabic countries at the level of societal, cultural, and economical. Zineddine & Kindi (2011) is of opinion that western countries are more open societies where

women strive to participate in their economies beside men, however, women in Arab countries face ‘many cultural, societal and religious factors that affect their participation in the ICT sector. Trauth, Quesenberry & Huang (2008, p. 7) believe that ‘without in-depth understandings of the influential factors from the surrounding of the socio-cultural contexts, solutions intending to improve the social inclusion of women in IT may only have limited effect and may not be far reaching’. This study will be conducted in the socio-cultural context of the Kingdom of Bahrain which is one of the Eastern, Arabic and Islamic countries, and hence, the research findings will help in understanding some of the reasons behind women’s under-representation in the IT field in Bahrain based on the understanding of influential factors from the surrounding socio-cultural context of Bahrain, and in making recommendations to stakeholders and decision makers on how to enhance women’s representation in IT workforce in Bahrain, in general, and in IT management, in particular. The findings of this study will be compared with previous studies in order to find common and different influential factors between women in the IT field in Bahrain in an Arabic context and women in other countries. It will thus contribute in better understanding of the cultural influences about women working in the IT field, and to the cultural diversity in gender in IT studies.

This study will contribute to the understanding of the phenomena of women’s under-representation in the IT management by exploring the influential factors responsible for gender imbalances. This study will contribute to the literature of women in IT careers by deepening the understanding of factors influencing women’s career advancement in IT. Trauth, Quesenberry & Huang (2008) suggest that more research is needed in articulating how cultural factors influence the image of gender, the image of technology, and gender relations with respect to technology. This study will fill the research gap in the gender and IT field literature through examining the cultural impact in women’s career advancement in the IT field within an Arabic context.

1.9 Research Objectives

To accomplish the purpose of the study which is to understand the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field, the researcher aims to accomplish the following objectives:

- Review literatures and research related to the research problem to build a theoretical foundation on which to base this research and to justify and clarify the research method selected in this study. Researcher intends to review literature and research on the followings:
 - Gender and technology, considering the theoretical and conceptual framework used to understand gender and technology relation.
 - Women in IT careers, considering the factors impacting women working in IT careers in prior research.
 - Women's career advancement in the IT field, considering the research questions, methodologies used, and key findings and conclusions reached in prior research.
- Choose a research design appropriate for the research problem and questions which aim to understand factors affecting women's career advancement in the IT field in Bahrain.
- Conduct the research then analyse and interpret the collected data guided by the research questions and purpose.
- Synthesise and validate the research findings, and make comparison with the literature review and prior research to increase the credibility and generalizability of the research.
- Make recommendations based on the findings and conclusions to the stakeholders and decision makers in Bahrain about how to make efforts to enhance women's participation in IT workforce and how to attract more women and how to advance to higher IT managerial positions.

1.10 Organisation of the Thesis

This thesis is structured as follows: first, the introduction chapter provides a comprehensive overview of the research topic and problem, and the aim of conducting this research. Chapter two will provide relevant literature including how gender and IT are theorised in the research, factors impacting on women working in IT careers, and then key factors identified in the research in women's career advancement in the IT field. Chapter three describes the context of Bahrain, focusing on the IT sector and Bahraini women in a number of specific aspects related to the research problem. Chapter four presents the research design used in this study, including the epistemology, methodology, and method, description of the data collection and analysis process, and code of ethics. Chapter five presents the background profile of the cases in this study and data analysis. Chapter six presents the findings and discussion after analysing the data constructed based on the interviews of the cases. Chapter seven presents a summary of the study and discusses research findings as they relate to the literature in women in IT. Finally, it provides recommendations to initiate the change for women in the IT field. Chapter eight discusses the contribution of knowledge, limitations of this study, and the need for further research. Finally it provides the main conclusion of the study.

Chapter Two: Factors Affecting Women's Career Advancement in the IT Field

2.1 Introduction

This chapter provides an overview of theoretical and empirical literature on gender and technology, focusing on women in the IT field research. The purpose of this research is to gain better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field. The primary aim of this research is to answer the following research questions:

1. What are the factors that act as barriers or facilitators for the career advancement to upper managerial levels of women in the IT field in Bahrain?
2. How do those factors influence the career advancement to upper managerial levels of senior IT women managers in Bahrain?
3. How have senior IT women managers in Bahrain overcome the barriers that hinder their career advancement?

To build a theoretical foundation on which to base this research and to justify and clarify the research method used to address the research questions, a literature review is provided in this chapter. The main purpose of the literature review work was to survey the theoretical perspectives used in gender and IT research, develop understanding of the issue of women's underrepresentation in the IT research, and explore the research methods, key findings and recommendations of previous studies on women's advancement in the IT field. This chapter is divided into two sections; (1) the theoretical foundations of gender and IT research, and (2) women in the IT workforce. The first section begins with a background overview of the theoretical foundations of gender and technology research, and then provides an overview of the theoretical perspectives used in the gender and IT research. The first section ends with the rationale for the theory chosen for this study. The second section begins with a comprehensive

overview of the factors impacting on women working in the IT field. Next, it focuses on the factors influencing women's advancement in to management in the IT field. Following this, a review of earlier studies that focused on the career advancement of women in the IT field is provided.

2.2 Theoretical Foundations of Gender and IT Research

The intersection of feminist scholarship and gender and technology studies has come a long way over the last quarter of a century (Wajcman, 2009). In the 1970's and 1980's, various early feminist theories were used to conceptualise the link between gender and technology, such as liberal feminism, socialist feminism, and feminist standpoint theory. During the 1990's, postmodern feminist theories have been emerged to offer a new vision of technology and gender, and they 'focus on the mutual shaping of gender and technology, in which technology is conceptualised as both a source and consequence of gender relations' (Wajcman, 2009, p. 143). These current feminism approaches challenged the earlier feminist debate and found 'to be not only more accurate for explaining the actual practices of electronic communication and behaviour, but also more to the achievement of feminist political goals' (Ratliff, 2006, p. 1018). Next, an overview of a number of feminist approaches utilised in the context of the gender and technology literature are presented.

2.2.1 Feminist Approaches to Technology Studies

Feminism (the term was not coined until 1895) is defined by Kvasny & Chong (2006, p. 1171) as 'a set of social theories and political practices that are critical of past and current social relations which privilege men as a group. Feminism involves the promotion of women's rights, and the belief that men and women should be politically, economically and socially equal'. Feminism studies offered various theories and methods which always taken diverse and overlapping forms and did not develop in a simple chronological order, examples are, liberal, Marxist, socialist, essentialist, existentialist, psychoanalytic, radical, and postmodern. Together, these theories provide a 'conceptual frameworks that organize beliefs about the nature and causes of women's

oppression and inequality and that propose methods for eradicating oppression and establishing gender equality' (Enns & Sinacore, 2002, p.469).

Recent feminist scholars generally classify the rich history of feminism into three different waves (Enns & Sinacore, 2002). The first feminism wave spanned from 1830 to 1920, and it focussed on changing the existing systems of rules and laws to achieve equality for women in society. The second feminism wave spanned from the mid-1960s to the mid-1980s, and 'it produces a variety of schools of thought about gender oppression, the appropriate goals of feminism, and the optimal means of reaching these feminist goals' (Enns & Sinacore, 2002, p. 470). Three major theories associated with the second wave feminisms are liberal feminism, Marxist/socialist and radical feminism. The third feminisms wave appeared in the 1990s, which 'have produced elaborations and critiques of pervious theories and include postmodern, women of color, lesbian, global, and generation-X third wave feminisms' (Enns & Sinacore, 2002, p.470).

The debate on women's position in the IT field has begun in the 1970s when different feminist scholars started to utilize feminist approaches to understand the link between gender and technology and women's exclusion from the IT domain. Various feminist approaches have been utilised in the technology studies to conceptualise the link between gender and women, and as a framework for analysing women's participation and experiences in IT and to address the gender gap in IT. These feminist technology studies are seen as to provide 'a more nuanced and politically helpful framework for analyzing the relationship between technology and gender' (Faulkner, 2001, p. 79). This chapter focused on the review of three principle feminism approaches in the gender and technology literature, which have served as the theoretical foundations of the *individual differences theory of gender and IT* (IDTOGIT) (Trauth 2002, 2006) that guides this study as will be outlined later in this chapter. These approaches are, the liberal feminism, socialist feminism, and postmodern feminism.

2.2.1.1 Liberal Feminism

The liberal feminism is defined as the belief that women are suppressed in society because of the unjust discrimination (Jaggar, 1983). This perspective is based on the premise that men and women are essentially the same, thus they should both receive the same rights. It views that the socialization of men's and women's roles is a primary source of women's oppression. Men's social role is linked to more social status and power (e.g. competitive and aggressive) than women's role (e.g. nurturing). Consequently, the liberal feminists seek equality between women and men in political, social, legal and economic aspects. The liberal feminists seek 'no special privileges for women and simply demand that everyone receives equal consideration without discrimination on the basis of sex' (Rosser, 2006, p. 14). This approach argue that 'women should share the same inherent rights to make productive individual choices as men, participate in the same opportunities and social contracts as men, and receive the same treatment as men' (Enns & Sinacore, 2002, p. 470). Lorber (2010) noted that, the solution of gender imbalance, to the 'second-wave liberal feminists, in particular, focused on the removal of barriers to women's equality, including the division of paid work into women's jobs and men's jobs, devaluation and low pay of women's jobs, women's primary responsibility for housework and childcare, the "glass ceiling" that limited women's advancement into top positions, limited procreative choice, and gendered socialization of children' (as cited in Branaman, 2011, p.30-31).

When it comes to technology jobs, the liberal feminists view that in order to address the gender gap, the focus should be on employment, access, and discrimination issues. For liberal feminism in the 1970s and 1980s, the solution was posed in terms of getting more women to enter science and technology (Wajcman, 2007). The most notable aspect of the liberal feminism agenda to the problem of women in IT is the recommendations for action advocated (Griffiths & Moore, 2006). Liberal feminists tended to be more concerned with removing the barriers that prevent women from entering and persisting in the IT jobs (Rosser, 2006), highlighting the need to improve access to ICT, the need to encourage more women into computing courses, and the need for better equal opportunities and diversity management legislation (Griffiths & Moore, 2006).

Although the liberal feminism has drawn the attention to the problem of women's underrepresentation in IT, it has been criticized for its tendency towards technological determinism and the way of addressing the gender gap in IT. Adam, Griffiths, Keogh, Moore, Richardson & Tattersall, (2006) mention that the liberal feminism approach does not address underlying reasons for inequalities between men and women in IT and IS. Liberal feminism perspective views the technology as neutral and situates the problem as it does with the failure of women to engage with the IT and realize its potentials (Faulkner, 2000; Wajcman, 2007), rather than questioning the shaping of the sciences and technology as a masculine domain. Wajcman (2007, p .289) stated that 'feminists at that time pointed out that liberal feminist tradition located the problem in women (their socialization, their aspirations and values) and did not ask the broader questions of whether and in what way techoscience and its institutions could be reshaped to accommodate women. Women were being asked to exchange major aspects of their gender identity for a masculine version without prescribing a similar 'degendering' process for men'. Griffiths & Moore (2006, p. 832) believe that 'there is more to the women and computing problem than getting more women into the IT industry and into the high-paid, more prestigious jobs, although this is of course important'. Accordingly, they suggested to that the image of the IT industry needs to be improved and many aspects need to be changed before women can comfortably find a place within the IT industry. These are according to Griffiths & Moore (2006) the unsuitability of the IT workplace for women (e.g. long hours, presenteeism, negative perceptions of part-time workers), deeply ingrained masculine culture of the IT, the instability of the IT market, and other aspects in the context. Whilst liberal feminism sees of the problem as one of equality of access and opportunity, socialist and radical feminism in the 1980's analysed the gendered nature of technology and put the spotlight on artefacts themselves (Wajcman , 2007).

2.2.1.2 Socialist Feminism

The term *socialist feminism*, which has been used in the early 1970s, is based on the premise that women's oppression results from the social, political, and economic structures in the contexts which they live (Mills et al., 2010). In general, the socialist feminist perspective believes that the

class and gender have equal weight in determining the position and perspective of an individual in society (Rosser, 2005).

The socialist feminism combines radical and Marxist perspectives to conclude that woman's oppression results from gender-, class- and race-based inequalities. The radical feminism believes that the patriarchy is the root cause of women's oppression where the social interactions and relations are shaped by male power and privileges. The term 'patriarchy' is used to describe the 'masculinist projects of the domination and control of women and nature' (Wajcman, 1991, p.17). Radical feminism views 'women and men are fundamentally different and women's power, women's culture and women's pleasure are regarded as having been systematically controlled and dominated by men, operating through patriarchal institutions like medicine and militarism' (Wajcman, 2010, p. 146). Marxist feminism believes that women's oppression is rooted from the capitalist societies which shapes the class and gender relations in a way that situates men in the ruling class and women in the subordinate class. The Marxist feminists assume that 'men are the ruling class, and the dominant worldview is masculine' (Ratliff, 2006, p.335). Marxists feminists seek to have programmes that provide for a more balanced distribution of resources, and to help women to take advantages of these resources (Rosser, 2005).

Drawing upon the line of Marxist and radical thoughts, the *feminist standpoint theory*, has been developed in the late 1970's and early 1980's, and it serves as a way of analysis of the 'relations between the production of knowledge and practices of power' (Harding, 2004, p.1). The theory postulates that knowledge and varied experiences of women are based upon such factors as race and social class (Harding, 2004). Depending on the Marxist analysis of class and lives of working people, this theory holds 'that women's social development and experiences are different from men's, and these experiences, taken with the sexual division of labor and women's portion of this work, including mothering, homemaking, and other emotional and relational labor including nursing and social work (Hartsock, 1983, 2004), enable women to interpret the material world from a unique standpoint' (Ratliff, 2006, p. 335).

In gender and technology studies, the feminist standpoint approach has been utilised, during the 1980's, to analyse the link between women and technology. Unlike the liberal feminism, socialist feminists have shifted the focus of their analysis away from the technology access, to ways in which the technologies have gendered. The socialist and radical feminists have focused the analysis on the gendered nature of technoscientific knowledge, culture, and artefacts themselves (Wajcman, 2007). Feminists analysed the social factors that shape different technologies at different points in its development and consumption, especially the way technology reflects gender divisions and inequalities (Wajcman, 2007). They examined the very processes whereby technology is developed and used, as well as those whereby gender is constituted (Wajcman, 2010). This analysis has portrayed the technologies as inherently masculine and considered the ways in which women have been denied access to technical skills at home, in schools, military and workplace. Wajcman (2009) stated that, 'socialist feminist frameworks, then, saw masculinity as embedded in the machinery itself, highlighting the role of technology as a key source of male power (Cockburn, 1985; McNeil, 1987; Wajcman, 1991; Webster, 1989)' (p.147). For example, Cockburn (1985) and Brayton, (2006) have examined the technologies of production utilized in the capitalist public and paid workplace. Cockburn (1985) and Wajcman (1991), 'claim that the sexual division of labor under patriarchy and capitalism has given rise to particular gender roles and values that locate women in the private home sphere with children, and men in the public work sphere with technology' (Brayton, 2006, p. 760). Women's work under capitalism became restricted to domestic duties, food, and childcare, thus this had limited her access to technical skills needed in the workplace for productivity. Cockburn (1985, p. 203) viewed that under capitalism men are given more social power and status than women as they had the necessary technical skills for productivity, while women do not have such skills. She stated further that the construction of men as strong, manually able and technologically endowed, and women as physically and technically incompetent. Cockburn's analysis of technology and masculinity is limited as it only attends to those technologies which are utilised in the capitalist public and paid workplace, and valued under capitalist and patriarchal structural relations (Brayton, 2006).

Wajcman (1991, p. 159) has bordered her analysis to include the reproductive, domestic, and architectural technologies and she argued in her book, *Feminism Confronts Technology*, that

technology is more than a set of artefacts, but that 'technology is also a cultural product which is historically constituted by certain sorts of knowledge and social practices as well as other forms of representation'. Wajcman (1991) views that artefacts are not neutral or value-free, however social/gender relations are materialised in tools and techniques, whereby technology is socially shaped, but shaped by men to the exclusion of women. Wajcman (1991) is of view that the language, symbolism and culture of technology are shaped as masculine and incompatible with femininity. She has argued the determinism of technology and gender, whereby she viewed that the gender identity and the gender and IT relationship are re-shaped through the social interactions and the changing of the influences in the context. This does not mean 'that all women lack technological skills or that all men have technical expertise, but that women and men are both structurally located through norms of hegemonic gender roles' (Brayton, 2006, p. 760). According to Wajcman (1991, p. 159) gender is 'not just about difference but about power; this technical expertise is a source of men's actual or potential power over women. It is also an important part of women's experience of being less than, and dependent on, men'. This association of computing with masculinity goes back to the early experience with access to technological equipment in the home (family) and at school (education), the design of computer programs and games, and to 'childhood for many women, when girls often have more responsibilities at home, and girls' extracurricular activities are generally much more restricted than boys' (Wajcman, 1991, p. 154). Therefore, to enter the technology world, 'to learn its language, women have first to forsake their femininity' (Wajcman 1991, p. 19).

The socialist and liberal feminist perspectives were influential in the early studies of gender and information technology and it was a significant part of the intellectual history of this field. These feminist perspectives have contributed into changing our understanding of what the technology is, and 'broadening the concept to include not only artefacts but also the cultures and practices associated with technologies' (Wajcman, 2009, p.143). They have provided us with many writings on the socially constructed nature of gender characteristics (masculinity and femininity) and their association with technology (Trauth & Howcroft, 2005). However, in recent years, the feminist perspective has fallen out of favour in the research due to the emerging thoughts of the postmodernism feminists (or third-wave feminism)which emerged in the mid-1980s and viewed

that the feminist standpoint theory is no longer a viable position as it holds essentialist, reductive, dualistic, and deterministic thinking (Ratliff, 2006).

The feminist perspective believes that the patriarchy is the root cause of the gender division, and emphasised the role of technology in producing patriarchy. However, ‘the imposition of a strong notion of a universal “patriarchy” or “gender patterns” is problematic... ‘the reliance on patriarchy theory entails a vision of women’s oppression as an eternal features of society and falling prey to biological determinism and essentialism which universalizes the experience of women’. Consequently, they suggested to ‘avoid concentrating on women only as victims of patriarchy, thereby treating them as mere objects of history’ (Greenhill & Wilson, 2005, pp. 158-159).

Also, the feminist perspective has been criticized as ‘it tends to over generalise about men's and women's behaviour’, and also as it tends ‘to generalize about “women” as one group and does not account for differences among women’ (Ratliff, 2006, p. 338). This implies that not all men are competent with technology and not all women are incompetent with technology. In the 1980's and 1990's, some postmodern and post-structuralism feminists looked to women as one category with shared characteristics, however they view gender as performative (Ratliff, 2006). They challenged the notion of ‘gender categories as dual, oppositional, and fixed, arguing instead that sexuality and gender are shifting, fluid, multiple categories’ (Lorber, 2001, p. 32). They argued that ‘rather than thinking of feminism, we need to think of feminisms as multiple and dynamic, and in the process of ongoing transformation’ (Wajcman, 2009, p.147). Thus, the recent work of feminist researchers also concerns on the debates about differences between women rather than on equality, and they became conscious of the diversity of women’s experiences. The feminist writings in the second-wave feminism were drawn based on the industrial technology with patriarchal character, and they were pessimistic about the possibilities of redesigning technologies for gender equality (Wajcman, 2009). In contrast, the third-wave feminism (post-feminism) and recent cyberfeminist thoughts offer possibilities for destabilising gender differences. The feminist approaches of the third-wave feminism (1990s) and the digital age are positive and optimistic about the possibilities of information and communication

technologies to empower women, transform gender relations and liberating women (Wajcman, 2009) , as it will be discussed next.

2.2.1.3 Postmodernism Feminism

The postmodern feminism is an approach to feminist theory that incorporates post-structuralist and post-modern perspectives. Generally, this approach rejects having a universal theory and unitary truth, emphasizing instead situated knowledge and pluralistic discourses (Adam, 2002). It seeks to uncover the ways in which “reality” is constituted by language. The common notion among these perspectives is that women are not one fixed group, and there is no universal truth for all women, i.e. not all women share a common oppression (Ratliff, 2006). In the gender research, the postmodern feminists ‘examines the ways societies create beliefs about gender at any time with discourses embedded in cultural representations or texts’ (Lorber, 2005, p.269). Postmodernism feminism is often associated with the work of Judith Butler (1990, 1993) and is marked, in part, by the “linguistic turn” thought which view gender as a discursive construction and performance rather than a biological fact (Ratliff , 2006). The linguistic turn emphasises the role of *language* and discourse in constituting the knowledge and reality. The language is viewed ‘as the place where our sense of ourselves, our subjectivity, is constructed’ (Weedon, 1997, p. 21). In the Western culture, binary opposition such as man and woman, reason and emotion, culture and nature, hard and soft, have been productive of linguistic, social and political hierarchies, and such binaries in language have privileged masculinity over femininity (Wajcman, 2009).

One of the major voices in the post-structuralist feminism is Judith Butler (1990), who has connected the linguistic turn notions to the way of conceptualising gender and sexuality. She argued that gender proves to be performative, that is, constituting identity which is constructed and constituted by language. She defined gender as:

‘Gender is the repeated stylization of the body, a set of repeated acts within a highly rigid regulatory frame that congeal over time to produce the appearance of substance, of a natural sort of being. A political genealogy of gender ontologies, if it is successful, will deconstruct the substantive appearance of gender into its constitutive acts and locate and

account for those acts within the compulsory frames set by the various forces that police the social appearance of gender' (Butler, 1990, p. 33).

This conceptualisation of gender and sexuality as performative has led the postmodernism perspectives to 'reject a dualistic view of gender, heteronormativity, and biological determinism, pointing to the inseparability of the body from language and social norms' (Ratliff, 2006, p.1018). Consequently, within the postmodern feminist perspectives 'women are not one unified, coherent group with a singular identity; they are constantly creating new identities and subjectivities, freeing themselves from labels, cultural expectations, and norms' (Mills, Durepos & Wiebe., 2010, p. 711).

In the gender and technology studies, Donna Haraway's *A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism* in the 1980s (1985) was an influential work that tried to link the socialist feminism with a postmodern approach to language (Mills et al., 2010). Haraway (1985) introduced her metaphor of the 'cyborg' to make an original argument that in the hi-tech culture, the boundaries are no longer clear between human, animal, and machine. She argued that the old hierarchical dualisms of the Western culture such as man and woman, heterosexual and homosexual are no longer stable in the hi-tech culture (Ratliff, 2006). As such the feminist cyborg theory offers 'a new vision of technology and gender in which women and men can break free of the binary divisions allocated to gender, and take pleasure in rejecting wholeness and unity linked to identity' (Brayton, 2006, p. 761). The theory rejects the possibility that 'women' can be viewed as a category of analysis, and women seen as they are with different unique identities that are influenced by different factors, and that there is no behaviour that is universally associated with femininity.

In contrast to liberal feminism, the postmodernism feminist approaches to technology studies, avoids the technological determinism and gender essentialism. Instead they view that the gender-technology relationship is fluid and situated (Wajcman, 2010). They postulate that women's identities and reaction to the IT differ and vary; postmodern feminist approaches are of view that there are no universal solutions to fit all women. Thus, as Brayton (2006, p .761) states that 'this permits the reinterpretation of differences in society and the creations of new identities from

multiplicities where women are able to be fused with technology'. Also, this implies that 'no universal research agenda or application of technologies will be appropriate and that various women will have different reactions to technologies depending upon their own class, race, sexuality, country, and other factors' (Rosser, 2005, p.12). Therefore, the recent feminist work shifted 'away from a focus on equality to a focus on debates about differences between women' (Wajcman, 2009, p. 147), and suggests multiple strategies targeting as many barriers to women in IT as possible (Rosser, 2005).

In contrast to the liberal and socialist feminism which view the women as victims within a patriarchy or capitalism society, the current postmodern feminist approaches are optimistic about the possibilities of information technologies to transform gender relation and empower women. For example, the technofeminism perspective postulates that there is a mutual shaping of gender and technology, in which technology is conceptualised as both a source and consequence of gender relations (Wajcman, 2010). It sees that both of the gender relations and ICTs themselves are seen as subjects for transforming, changing and evolving over time (Wajcman, 2007), thus, 'gender power relations will influence the process of technological change, which in turn configure gender relations' (Wajcman, 2009, P. 149). Cyberfeminism, as another example, argue that the cyberspace and internet can be a means for dissolving the gender and sex differences and empower women in societies. This approach sees that the cyberspace, internet and the technological innovation are impacting on the culture and practices of everyday life, providing up new opportunities in which women are intertwined with technology. As such, the current postmodern feminist approaches moved beyond the social construction of technology as masculine, and became concerned about the potentials of the new ICTs and computers in eliminating the embodied bias for sex differences and empowering women in the digital age. They see that ICTs can be a potential means for making changes in the society required for liberating women (Wajcman, 2009).

Although the postmodern feminist approaches such as the feminist cyborg theory, cyberfeminism, and others have challenged the traditional construction of technology as inherently masculine, as in the liberal and socialist feminism, they are not without limitations (Brayton, 2006). Postmodern feminism has been criticized for its focus on the organic and

technological body, while the ‘materiality of the body “on the ground” gets lost in theorists’ preoccupation with discourse’ (Ratliff , 2006, p. 1019). Also, the postmodern feminist theorists who study science and technology, have been criticised for an overly utopian view of technology (Ratliff, 2006). Not all women in the world have the same level of access to the Internet and IT due to the differences in the education, economic power, infrastructures, and the dominance of English within cyberspace (Brayton, 2006). Brayton (2006, p. 762) stated that ‘they are challenged for being abstract and not connected to the socio-cultural inequalities that result in differing levels of access and interest by women to technologies and cyberspace’. Therefore, postmodern feminism is viewed as just another Western invention and imposition, and it seems out of place when considering the problems of women who are barely to eke out an existence (Nzomo, 2003).

In summary, the feminist theories of technology have come a long way over the last decades during the 20th century. The contributions of these feminist theories, ranging from liberal feminism through socialist feminism to postmodern feminism, have helped in understanding gender and information technology. The feminism theories were used to conceptualise the relationship among women, gender, and information technology. The debate on women and IT in the liberal feminism focused on the equality of access and opportunity, and thus provided recommendations to increase the likelihood for women entering, persisting and advancing in the IT field. The socialist feminism took the debate beyond the equal access to the IT field, focusing on ‘the gendered nature of technoscientific knowledge and culture, and put the spotlight on artefacts themselves’ (Wajcman, 2007, p. 289). The main contribution of socialist feminist perspective to the technologies studies was exploring the gendered character of technology itself. They have drawn the attention to the social and cultural context where technology is constituted, and arguing that the technologies are not just artefacts free of social values, but they are shaped as masculine or feminine by the social and cultural circumstances within the society. The liberal and socialist feminist perspectives saw that technology is simultaneously organized by the socially stratified systems of patriarchy and capitalism which assume men are the developers, producers, and primary users of technological products and processes (Brayton, 2006). Currently, there are not many explicit applications of the liberal and socialist feminism theories in the information system research. These feminist approaches of the 1980s (the second-wave

feminism) were challenged by the postmodern feminist approaches which challenged the traditional construction of technology as inherently masculine and shaped by men to the exclusion of women. The postmodern feminist approaches bring strong resistance to the essentialism, patriarchy and hierarchy, and they rejected the tendency of universalising women's experiences (e.g. Butler, 1990; D.J. Haraway, 1991; Harding, 1991; Trauth, 2002) (Adam, 2002). Mills et al., (2010, p. 878) noted that 'poststructuralist/postmodern feminists were critical of socialist feminism's approach to language and its failure to take into account the discursively produced nature of subjects,...and [to] the goal of a totalizing unified theory when, according to their perspective, only fragmentary and provisional truths are possible' (). Within postmodern feminist approaches women are not seen as one unified group with same identities; 'they are constantly creating new identities and subjectivities, freeing themselves from labels, cultural expectations, and norms' (Mills et al., 2010, p. 771). Moreover, the postmodern feminist approaches of the 1990's and today are much more positive about the possibilities of the technologies of the digital age to transform gender relations and empower women. Within the current approaches gender relations and technology and their relationship are changing over time. Haraway's work has opened up new possibilities for feminists to explore the ways in which women's lives are entwined with technologies and the prospects that ICTs can offer for women, rather than portraying women as victims of technological change as in the second-wave feminism (Wajcman, 2009). In the studies of women and information technology, each feminist approaches have had different contributions. The liberal feminist and postmodern feminist perspectives were used as a foundation to remedy the gender gap by providing the recommendations to increase the likelihood for women access to the IT world, whilst the social feminist perspectives were used to describe the barriers faced by women in IT. Next we see the impact of these feminist approaches in conceptualizing and analysing the gender and IT.

2.2.2 Theoretical Perspectives in Gender and IT Research

A fundamental concern when attempting to understand women's underrepresentation in the IT workforce and to reserve the gender imbalance is the choice and use of theories about gender and IT. Within the body of gender and IT studies, gender is a neglected area of investigation and lacks theorisations (Adam, et al., 2004; Trauth, 2002; Trauth, et al., 2004; Trauth, 2006; Adam et al., 2006; Trauth 2002; Trauth, et al., 2007). The dearth of gender and IT studies is obvious in the top MIS journals (Trauth, 2011). Adam, Howcroft, & Richardson (2004) conducted an investigation on gender research published in the top European MIS journals, and they found that only nineteen papers on gender were published during the period from 1993 to 2002. Kvasny, Greenhill, and Trauth (2005) conducted a similar investigation in the top American MIS journals, and they found that only 42 papers on gender were published during the period of 1976 to 2004. Adam et al., (2006) attribute the cause of this neglect and under-theorisation of gender in the IT literature to the development of IS as a discipline. The IT discipline is relatively recent and draws on a number of primary reference disciplines, including, computer science, management science, organisational science, cognitive science and economics (Robinson & Richardson, 1999). These disciplines from which IS has arisen have been primarily associated with the development and use of information systems in narrow technical terms, often disregarding their organisational and social context (Adam et al., 2006). As a consequence, the IT has emerged as a discipline and gender was not within the main parameters and discussions of this discipline (Adam et al., 2006).

Looking at the gender-theory-informed within gender and IT research, it usually refers to feminist studies and literatures on gender and technology which are mostly feminist in nature (Light, 2006). The undertheorisation of gender takes on different forms in gender and IT research according to Trauth (2006). Trauth has classified gender and IT research into three research types; *pre-theoretical*, *implicit-theoretical*, and *insufficient-theoretical research*. First, the pre-theoretical research has 'no theory in evidence to guide the conceptualization of the research project or to inform the data collection and analysis. Rather, the focus is typically on compiling and representing statistical data regarding the differences between men and women with respect

to technology adoption, use or involvement in the IT profession' (Trauth, 2006, p. 1154). Second, the implicit-theoretical research, which is 'not explicitly articulating a particular theory, nevertheless, is guided by a theory-in-use, for example, quite often the theory of inherent differences. This approach is considered to be a type of undertheorisation in that the lack of explicit discussion of theory makes it difficult for others to discuss, challenge or extend the research' (Trauth, 2006, p. 1154). Third, the insufficient-theoretical research, reflects explicit theory-in-use that has been seen that it does not fully account for the variation in men's and women's relationships to information technology and the IT field (Trauth, 2006).

Three dominant collections of theoretical perspectives are used in gender and IT research to understand women's under-representation in the IT field and data about gender and IT: *essentialism, social construction perspective, and individual differences of gender and IT*. Essentialist perspective based their assumption on the inherent differences between men and women. The social construction perspective focus on the social construction of IT as a male domain that is incompatible with the social construction of the female identity. The individual differences perspective focus on the variations among women in their experience with the IT field. Next is an overview of each of these three theoretical perspectives.

2.2.2.1 Essentialism in Gender and IT Research

Gender and IT research adopted the essentialist perspective, which embraces the notions of the liberal feminism, tend to problematise women rather than technology (Lohan & Faulkner, 2004). This type of research can be under the *implicit-theoretical research* as labelled by Trauth (2006), in that no particular gender theory is articulated, however, it is guided by the essentialist theorising of gender. Essentialism is 'the assertion of fixed, unified and opposed female and male nature' (Wajcman, 1991, p.9). *Essentialism* as defined by Adam, et al., (2004, p. 228) as 'the belief that there are essential, fixed, probably biological, male and female characteristics'. Based on this belief, gender and IT research who adopted the essentialist perspective 'focuses on the presumption of inherent differences between women and men to explain the perception of IT as a male domain, the differences in women and men relationship to IT, and the participation of women in the IT profession' (Trauth, 2002, p. 99). Within this perspective, researchers refer the

differences between males and females in the IT to inherited, fixed bio-psychological differences between males and females at group-level (Trauth, 2002). Researchers view gender as a fixed variable and more often employ positivist and quantitative research method in searching for and explaining the gender differences with regard to IT relying on stereotypical characteristics.

Gender and IT studies adopted the essentialist proposition have been criticized for several reasons (Cockburn, 1983, 1985; Wajcman, 1991, 2000). The studies presume gender essentialism and technological determinism as it sees gender and technology as fixed variables. Adam et al., (2004, p. 231) argue that ‘both gender and technology need to be problematised, to be seen as cultural product rather than as ‘givens’. These studies as Adam, et al., (2004, p. 224) noted ‘dichotomize male and female [as two groups with different or opposing inherent psychological characteristic] in searching for differences rather than looking at the ways in which particular roles and technologies may be seen as gendered’.

Essentialist research in women and IT profession tend to focus on the issue of low number of women and how to attract more of them, which is termed as the ‘shrinking pipelines’, rather than tackle the question of why women are absent in the IT. Thus, this research, which more often employs quantitative methods, is viewed as limited in scope. It has been criticized for solely examining the differences between males and females in IT, disregarding the context and the cultural influences. Trauth, et al., (2008, p. 17) view that these studies did ‘not consider context when concluding that the reasons for the underrepresentation of women can be found within women themselves’. Adam (2001, 2002) argued that the statistical research figures and statistics can be endlessly analysed, but the important requirement which is looking at deeper underlying reasons for women’s absence from technical disciplines, should not be postponed.

Recommendations of the essentialist research for addressing the gender imbalance in the IT field suggest that men and women be treated differently with regard to IT. Hence, this can be problematic in enacting policies as there are two different types of IT workforce: a female IT work force and a male IT workforce (Trauth, 2002). Thus, as Trauth (2002, p. 101) stated, within the essentialist research ‘the policies for addressing the gender imbalance would focus on assumed inherent differences between women and men and the equality issue would focus on

‘separate but equal’’. Today, research project inspired with the idea of ‘gender equity’ in IT seems to be disappeared (Adam, 2001).

2.2.2.2 Social Constructionism in Gender and IT Research

Social construction perspective is based on Berger & Luckmann’s (1966) book, *The Social Construction of Reality*, which views that ‘reality is socially constructed and the sociology of the knowledge must analyse the process in which this occurs’ (Berger & Luckmann, 1966, p. 1). Accordingly, gender and IT studies assume that the societal factors are the primary constructs that shape individuals and their relationship to IT (Marini, 1990). Gender and IT literature within this perspective dichotomize males and females as two separate groups with opposing set of socio-cultural characteristics which are affected by different sets of sociological influences, which subsequently affect their relationship with technology (Trauth and Quesenberry, 2007). Researchers view gender ‘as a social convention whereby social norms dictate acceptable attributes and behaviors for men and women, including their choice of careers’ (Gallivan, 2006, p. 223). In this sense, they view that the causes of gender imbalance in the IT workforce refer to social and cultural factors (Trauth, 2002), whereby, ‘the social shaping of information technology as masculine interacts with the social construction of femininity in such a way as to place IT outside the domain of women’ (Trauth, 2002, p. 101).

Early writings in gender and technology which adopted the social construction perspective are linked with the socialist feminism. For example, as previously mentioned Cockburn (1983, 1985) and Wajcman (1991) demonstrated how technology are gendered and shaped as men’s work by the social and cultural factors in a way as to place women away from technology. The primary idea of the authors is that the technology cannot be understood unproblematically as a neutral tool simply by obtaining the required set of skills, and they seek to understand why and how women are excluded from IT education and occupations (Tapia & Kvasny, 2004). Also, they provided strong evidences that women's absence or presence in a male-dominated domain is due to socio-cultural factors rather than bio-psychological forces. Empirical studies within this perspective examined the influence of the male-dominated culture of IT on women’s

participation and progress in IT careers, focusing on outcomes, such as salary, promotion rates, turnover, or career aspirations (Michie & Nelson, 2006).

Although the social construction theory is a robust perspective as it has dragged the attention to the influence of the context where women receive messages, it focus on monolithic messages, which makes it difficult to investigate the diversity of people (Trauth and Quesenberry, 2007). Research within this theory can be under the insufficient-theoretical type as Trauth (2006) labelled, which reflects theory-in-use that does not fully account for the variation in men's and women's relationships to information technology and the IT field (Trauth, 2006). As labelled Trauth (2002, p. 102), social construction theory can be problematic because 'the message is that women in the IT profession, as a group, are different from men, as a group, in the profession, albeit for sociological rather than biological or psychological reasons'. In addition, the social construction theory has been criticized as there is no universally male or female cultural traits, i.e. what is considered masculine in some societies might be feminine in others or vice versa (Wajcman, 1991). Hence, addressing the gender gap in IT workforce based on 'women's perspective' is problematic as gender differences exist differently in different societies (Wajcman, 1991). Moreover, the universalising tendency of this perspective is problematic as it 'typically emphasizes a single characteristic of gender while ignoring the effects of race, ethnicity, sexuality, and social class on the self-identity of women' (Tapia & Kvasny, 2004, p. 87).

A number of important recommendations have come from social construction research to address gender imbalance in the IT profession. According to Trauth (2002), these recommendations are based on two viewpoints. One is helping women to accommodate and "fitting in" the IT domain, for example, support structures such as mentors (e.g., Townsend, 2002) support groups (e.g., Ahuja, Robinson, Herring, & Ogan, 2004), role models (e.g., Cohoon, 2001, 2002), and positive societal messages about women working in IT (e.g., Joshi et al., 2003; von Hellens et al., 2001, 2000 - as cited in Trauth & Quesenberry, 2007). While the alternative is to focus on reconstructing the IT domain to "female domain" (Trauth, 2002), for example, focusing on the social shaping of female gender identity and the implication for women's relationship to workplace technologies (e.g., Webster, 1996; Wajcman, 2000), and the prospects offered by the

cyberspace and internet for women's empowerment (e.g., Spender, 1995) (as cited in Trauth & Quesenberry, 2007).

2.2.2.3 Individual Differences in Gender and IT research

Individual differences are the unique characteristics of an individual that significantly play a role in determining his/her behaviour and performance. At the forefront of gender and IT research that embraced the notion of individual differences is Trauth's studies of the individual differences theory of gender and IT (Trauth, 2002; Trauth et al., 2004; Trauth, 2006). The Individual Differences Theory of Gender and IT (IDTOGIT) is a framework for exploring the ways in which social shaping of gender and IT profession operates at an individual level (Trauth, 2002). Within this conceptual framework, women are viewed 'as individuals, experience a range of different socio-cultural influences which shapes their inclinations to participate in the IT profession in a variety of individual ways' (Trauth, 2002, p. 103). Thus, IDTOGIT investigates the varied individual responses to generalized socio-cultural influences (Trauth, 2006), and emphasizes that 'the subtle gender shaping of individuals and technology needs to be addressed at the individual levels' (Trauth, 2002, p. 115).

The IDTOGIT inhabits the middle ground between the essentialist and social constructivist perspectives, through investigating the combination of personal characteristics and environmental influences in order to understand the participation of women in the IT workforce (Trauth, 2002). The IDTOGIT rejects the essentialism and has added depth to the social construction by considering the individual variances among same gender group. Unlike the essentialist and social construction perspective, IDTOGIT focuses on differences *within* rather than *between* genders, and examines women as individuals who possess different abilities, talents and skills, and respond to social shaping in different and unique ways (Trauth & Quesenberry, 2007).

The IDTOGIT has theoretical linkages to a number of feminist approaches. According to Rosser's (2006) classification of feminist theories related to gender and technology, the theory

has linkages to: liberal feminism, socialist feminism, feminism standpoint theory, postmodern feminism, and post- structuralist feminism. Trauth (2011, p. 577) stated that

‘Consistent with liberal feminism, it is concerned with removing gender barriers to equal access. But it relates to socialist feminism’s recognition of gender along with class as societal factors that explain the social shaping of technology and technology professions. The recognition in the individual differences theory of gender and IT on individual characteristics and experiences aligns it with feminist standpoint theory (FST) which emphasizes the situated knowledge of marginalized individuals. The influence of postmodern and post-structuralist feminism are evidenced in the recognition that women do not all speak with a unified voice’.

Based on these feminist perspectives, Trauth (2002) introduced the IDTOGIT which consists of three general constructs that comprise the individual differences relevant to gender and IT, these are, the personal data, shaping and influencing factors, and environmental context (see table 5) (Trauth et al., 2004). Personal data includes: demographic data (such as age, race and ethnicity), lifestyle data (such as socio-economic class and parenting status), and workplace data (such as job title and technical level). Shaping and influencing factors include personal characteristics (such as educational background, personality traits, and abilities) and personal influences (such as mentors, role models, experiences with computing, and other significant life experiences). Environmental context includes cultural attitudes and values (such as attitudes about IT and/or women), geographic data (about the location of work) and economic and policy data (about the region in which a woman works). According to Trauth (2006, p. 1156), the theory posits that ‘collectively, these constructs account for the differences among men and women in the ways they experience and respond to characteristics of IT work, the IT workplace and societal messages about women and men and IT’. Hence, together, these constructs explain women's decision to participate, remain and progress in the IT profession.

Table 5: Individual Differences Theory of Gender and IT Constructs

High-Level Construct	Subcategory Construct
Personal data	Personal demographics(e.g., Age, Race, and Ethnicity) Lifestyle (e.g., Socioeconomic Class, Parental Background) Workplace (e.g., Job Title, Technical level).
Shaping and influencing factors	Personal characteristics(e.g., Educational Background, Personality Traits and Abilities) Personal influences (e.g., Mentors, Role Models, Experiences with Computing)
Environmental context	Cultural Attitudes and Values (e.g., Attitudes about IT and/or Women) Geographic Data (e.g., Location of Work) Economic and Policy Data (e.g., about the Region of Work)

Source: Trauth, E., Quesenberry, J., & Morgan, A. (2004).

To date, the individual differences theory of gender and IT are used to improve understating of the underrepresentation of women in the IT workforce. The major contribution of this theory is the assertion that not all women are the same and they experience different influences and react in different ways to the social shaping of IT. Hence, the recommendations that management practices toward women in the IT profession should not be generalize to a holistic view of women as a group, rather there should be awareness of diversity issues facing women in IT professions (Trauth, 2011).

In summary, a review of the literature found that there had been several gender and IT studies that applied the three aforementioned theoretical perspectives. The essentialist perspective relies on the biological differences between males and females to explain the difference in their relationship with IT, without considering the influence of the context. While the social construction perspective argues that focusing only on the biological differences is not enough to understand women's relationship with IT, rather the influence of the socio-cultural factors must be examined also. However, the social construction perspective under emphasises the role of individual differences among women. Both the essentialist and social construction perspectives have been criticized for several shortcomings with regard to the theoretical and analytical robustness of the perspective (Trauth & Quesenberry, 2007). They do not provide an analytical framework to fully understand women's participation in the IT workforce, and both of them view gender and technology as fixed variables, and treat the gender at group level of analysis (Trauth, 2002). In other words, they dichotomise men and women as two separate groups with opposing set of biological or psychological or sociological characteristics. This is in contrast with the postmodern thoughts of Haraway and Butler in that there is no "universal women" and women do not constitute a group with common characteristics, such as, background, values, behaviours, and etc., rather have come from a range of classes, races, sexual orientations, culture, and geographical location perspective (Trauth & Quesenberry, 2007). Accordingly, Trauth (2002) has introduced the individual differences theory of gender and IT based on several feminist thoughts as a new alternative theoretical foundation to explore the ways in which social shaping of gender and IT profession operates at an individual level. As such, within the individual differences perspective, women are seen, as individuals, experience different socio-cultural influences that shape their participation in the IT field in varying ways. Thus, the individual differences theory of gender and IT served as a new theoretical perspective for investigating the IT gender gap (Trauth & Quesenberry, 2007).

2.2.3 The Rational for Theory Choice

Selecting and using the appropriate theory is critical in order to understand the factors influencing women's participation in IT and formulating recommendations to address the gender gap. The role of theories about women and the IT profession is to guide the conceptualisation of

the research problem, the methods of data collection, the basis for analysis, and the conclusions that are drawn (Trauth, 2006). The essentialist and social construction theories do not provide an analytical framework to fully understand women's participation in the IT workforce as discussed before. Hence, the Individual Differences Theory of Gender and IT (IDTOGIT) (Trauth, 2002; Trauth et al., 2004; Quesenberry & Trauth, 2007) was selected as a theoretical foundation and conceptual framework to guide the research process in this study for a number of reasons.

First, the IDTOGIT conceptualise women as individuals rather than categorising them as a single homogenous group. The theory focuses on the differences within rather than between the sexes, and moved away from the essentialist view to gender which dichotomise all males and all females as two gender groups that each have shared set of characteristics and interests, as in the essentialist and social construction perspectives. Thus, the theory enables conceptualising the relation between gender and IT at two different levels; one, treats women at group level of analysis (i.e., gender), and the second one treats women at an individual level of analysis (women as individuals).

Second, in line with the postmodern thoughts, the IDTOGIT accounts for the variation of the demographics, personal experiences and reactions to IT shaping among women in IT and does not generalize about women's problems. The three constructs of the theory enable investigating the individual identity, individual influences and environmental influences in order to understand and explain the participation of the individuals in the IT workforce. Collectively, these constructs enable explaining the different variances among women in their relationship to the IT field.

Third, the IDTOGIT accounts for the role of women's agency (or the ability of women to exert power over them), which is a theoretical need in the gender research as is argued by Adam et al., (2002). In contrast to the essentialist and social construction perspectives which view women as having no control or power to react to the influences in the context, the IDTOGIT views women as individuals with ability to exert power over themselves in shaping their position and reacting to the IT shaping as masculine domain and the IT gendered discourse (Trauth & Quesenberry, 2007). Furthermore, Adam & Richardson (2001) argue that gender research should emphasise the making of knowledge through the lived experiences of women's lives. In this sense, the

IDTOGIT is a useful approach as it enables the creation of knowledge through the lived experiences of women work in IT, by investigating the influence of the organisational settings on their positions in IT.

2.3 Women in the IT Workforce

There is a small but growing body of literature on women's participation in computer science and information technology work (Demaister & Adams 2009). Gender and IT workforce has evolved as an area of study in the late 1990s (Trauth & Quesenberry 2007). As Burger et al., (2007, p. 265) stated, 'since information technology has only recently become a discipline in its own right, [it is not surprising that] there are few studies about recruitment and retention of women into IT'. Generally, studies in women in the IT workforce seek to understand why women avoid IT, or if they enter, why they struggle to advance in the field. The IT field is male-dominated and the gender segregation is prominent in education and workforce at all levels.

Although the IT field has become a potent force for transforming social, economic and political life in the globalize world, 'a large number of women tend to be concentrated in the end user, lower skilled jobs and comprise of a very small number in managerial, maintenance and design personnel' (Pande, 2012, p.289). The question come in the mind is "Why?" A number of researches studies have been conducted to investigate the barriers women face in the IT field and attempted to understand the reasons behind it, in order to find ways to help women overcome these barriers. Next follows an overview of what is known about the barriers or factors faced by women in the IT workforce, followed by the empirical studies that examined their career advancement in the IT field.

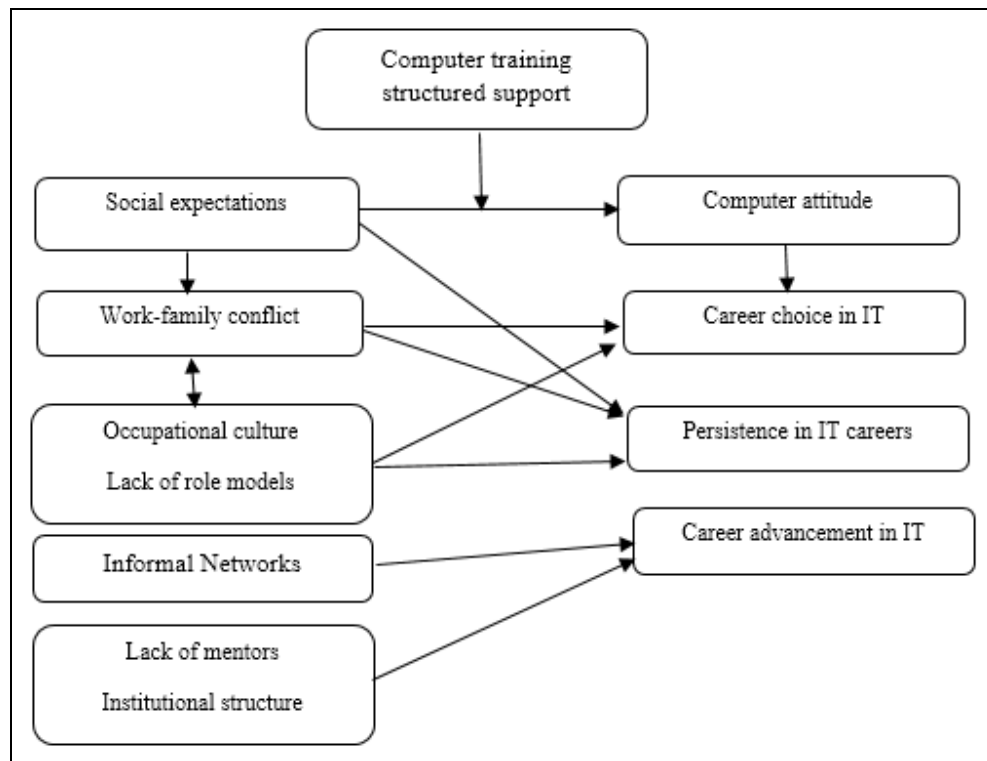
2.3.1 Factors Influence Women in the Information Technology Career

Literature on women and IT careers has identified a number of interrelated factors that influence women's choice to study IT or enter, persist and progress an IT career. Ahuja (2002) has proposed a model of barriers faced by women in the field of IT that constrains women's entry, persistence and advancement in the IT field. It is a life-cycle model of social and structural

factors that influence women's professional careers in IT throughout three dependent stages; career choice, career persistence, and career advancement (see Figure 7):

1. Career choice in IT stage made during university education and entry-level jobs. It is defined as the 'likelihood that a woman will choose IT as a career' (Ahuja, 2002, p.22). Ahuja (2002) proposed that the main social barriers to the stage of career choice in IT are social expectations and work-family conflict, while the career advancement in IT stage is affected by the informal networks.
2. Career persistence in IT stage during the time when a woman is faced with issues related to starting and raising a family. It is defined as 'the likelihood of not dropping out of the work force' (Ahuja, 2002, p.22).
3. The career advancement in IT stage during 'when the job status and salary become yardsticks of one's overall career performance. It is the likelihood that a woman will advance in her career in the field of IT' (Ahuja, 2002, p.22-23).

Figure 7: A Model of Social and Structural Factors Determinants of Women' Career Choice, Persistence, and Advancement in IT



Source: Ahuja, M. (2002).

The model proposed by Ahuja (2002) categorised factors influencing women's role in IT into two groups; social and structural factors, which may act as barriers to women during the three career stages (choice, persistence and advancement) in the model. The social factors defined by Ahuja (2002, p. 22) is the 'social and cultural biases "or values" that incorporate both the internal view that women have of themselves (self-expectations) and the external view of women (stereotyping, for example) that is held by society in general'. As seen in the Ahuja's model, the main social barriers to the three career stages are the social expectations, work-family conflict and informal networks. The structural factors are the other type of the factors in Ahuja's (2002) model, which are the structure of institutes that can work to limit the opportunities. The main structural factors of Ahuja' model are (1) lack of role models and mentors, occupational culture, demographic composition and institutional structures. The effects of each of these factors are presented in table 6. Table 6 summarizes the effects of the structural and social factors proposed by Ahuja (2002) and their interaction on women's career choice, persistence, and career advancement in the field of IT.

Table 6: The Effects of the Structural and Social Factors

Independent variables	Proposition
<i>Social factors</i>	
Social expectations	Social expectations will negatively influence attitudes towards computers and their use by women.
	Attitudes formed regarding computers and their use will negatively influence the choice of IT as a career for women.
	Social expectations will negatively influence women's' persistence in IT careers.
Work–family conflict	Work–family conflict will negatively influence the choice of IT as a career by women.
	Work–family conflict will negatively influence women's' persistence in IT

	careers.
	Female IT workers will experience higher levels of work-family conflict than male IT workers.
Informal network	During the career advancement stage, a lack of female-friendly informal networks will negatively influence women's advancement in the field of IT.
<i>Structural factors</i>	
Occupational culture	The perception of occupational culture will negatively influence women's choice of IT as a career.
	The perception of occupational culture will negatively influence women's persistence in IT careers.
Lack of role models	A lack of role models will negatively influence women's choice of IT as a career.
	A lack of role models will negatively influence women's persistence in IT careers.
Mentoring	A lack of mentors will negatively influence women's career advancement in the field of IT.
Organisational/ institutional structure	Institutional structures will negatively influence women's career advancement in the field of IT.
<i>Interaction of social and structural factors</i>	
The relationship between social and structural barriers at career persistence stage is likely to be recursive.	
Computer training and structured support will reduce the negative effect of social expectations on attitudes towards computers in women.	
Computer training and structured support will reduce the negative effect of social expectations on attitudes towards computers in women.	
The relationship between social and structural barriers at career advancement stage is likely to be	

recursive.

Source: Based on Ahuja's (2002) model of social and structural determinants of women's career choice, persistence and advancement in the IT field.

Ahuja's (2002) model presents a general framework of barriers to women's entry, persistence and advancement in the IT field. She has proposed recursive relationships between the social and structural factors, and she called for longitudinal studies to test these relationships and the influence of these factors on women's retention and advancement in the IT field. As this study aims to understand women's under-representation in senior IT management positions, studies and research in women's career advancement in the IT are reviewed in order to identify the key barriers faced by women that were found in the previous works. Next, an overview of these studies is provided focusing on the factors that play a key role in women's career advancement in the IT field.

2.3.2 Factors Influencing Women's Advancement in the Management in the IT Field

Career advancement is usually 'conceived of as promotions in managerial ranks and attainment of high managerial levels and pay' (Tharenou, 1997, p.19). Worldwide, the managerial ranks in many industries are gendered by nature (Aaltio, 2006a), and 'the relative failure of women [to be promoted and advance] into the ranks of senior management both in private and public sector organisations in all developed countries is well documented in western literature' (Aaltio & Huang, 2006, p.227). Tharenou (1997) has summarized the factors that assist or reduce women's advancement in management found in the literature. According to Tharenou (1997), there are three major categories of influences that have been identified in the literature: organisational, social and individual factors. The organisational factors comprise organisational opportunity structures (size, promotion ladders, occupation types), the social factors comprise male hierarchies/gender similarity, informal networks, mentors, career encouragement, discrimination, affirmative action/equal opportunity programs, and the individual factors comprise training and development, education, work experience, relocation, managerial skills, job performance. Other factors may be considered as those brought to the work situation, comprising both individual

(personality) and family factors (marriage, children, and spousal support) (Tharenou, 1997 - as cited in Burke & Mattis, 2005, p. 33).

In the IT field, although there has been some improvement in women's representation in the IT during the last years, women remain significantly under-represented at management level in IT. In addition to the aforementioned factors influencing women's progression to senior management levels, women in the IT field also face cultural challenges and barriers related to the masculine culture of the IT field and the nature of the IT work which is conflicting with women's gender role and social expectations. The major factors to women's career advancement in the IT field reflected in the literatures are: the male dominance of the IT culture (feminine work styles, limited women's access to the informal social networks and mentoring, stereotypical image of IT professionals and managers), and work-life conflict.

2.3.2.1 The Male Dominance of the IT Culture.

One key problem to women work in IT is the masculine culture of IT and the need to adjust to this culture (Hazzan & Levy, 2006). The masculine culture of IT is a significant barrier to women in IT and one of the contributing forces leading to the glass ceiling (Hayens, 2006). The male dominance of the IT workforce, and specially the high technical, managerial, status and pay positions enhances the perception of the IT workplaces as with masculine work types and inhospitable and unfriendly work culture to women. Hence, this conception about the IT workplaces and work culture may impact on career access and success potential of women in the field. Many scholars have demonstrated that women in the IT organisations often face a "hostile" cultural climate that seems to see the man as the ideal candidate for IT jobs and privilege men regardless of the competencies possessed by women (Ahuja, 2002; Margolis & Fisher, 2002; Roldan, Soe, & Yakura, 2004; Woodfield, 2002; Bagilhole, Powell, Barnard, & Dainty, 2008; Nelson & Veltri, 2011). There are different ways in which the masculine culture of IT workplaces may impact on women in IT and creating a glass ceiling.

2.3.2.2 Devaluing the Feminine Work Styles.

Working within a masculine organisational culture, women find themselves isolated and excluded as the work styles that are perceived as feminine, are not valued as highly as those viewed as strong masculine (Hayens, 2006). Because women are in the lower-level positions in IT, and the lack of a balanced representation of women in IT careers, this may lead to new technologies reflecting male values and styles of doing IT work even more (Burger et al., 2007). The masculine work style and language, which are predominant and required in the culture of IT, may contribute to feelings of exclusion, isolation to intimidation and harassment for women (Major & Germano, 2006; Hayens, 2006). On the other hand, women who try to cope and perform masculine work styles will be punished as she broke the gender stereotypes (Hayens, 2006). Women who have succeeded at the 'male' work are seen as violating the normative prescriptions for women, thus they are penalised through negative social sanctions, which negatively impact on women's successful advancement to management' (Heilman, 2001) (as cited in Burke & Mattis, 2005, p 41).

2.3.2.3 Limited Women's Access to the Informal Social Networks and Mentoring.

The male dominance of networking is a challenge for women working in IT jobs (Ahuja, 2002; Hayens, 2006). Men and women tend to cluster with others like themselves, and in the workplaces where males disproportionately occupy positions of power, this propensity disadvantages women, reducing their access to the influential and informal social networks and ability to gain social capital (Hayens, 2006). The *social capital* is defined as 'the ability of actors to secure benefits by virtue of membership in social networks or other social structures' (Portes, 1998, p. 6). The social capital includes the informal social networks, mentors and sponsors, and women who have access to the informal network and have been mentored and sponsored have greater opportunities for job promotions and career advancement. The social networks are considered as a key facilitator for promotions in the career and achieving senior management, executive and CEO/president levels in the IT field (Woodfield, 2006, p. 32). As Ragins, Townsend & Mattis (1998) stated that the 'influential male mentors, with pre-established networks and credibility, can sponsor their female protégés into senior management circles, and

provide inside information usually obtained in the Old Boys networks'. Mentors may provide the support, help, advices, coaching and networking, and serve as a friend providing a psychological support especially during the negative forces or challenging and changing policies in the work (Shakeshaft et al., 2007). Social networks are significant to gain the important information, mentoring and opportunities in the work, and they 'are important to gain knowledge and understand the technical, cultural and emphasizes organisational issues relevant to the work environment and also they lead to informal mentoring, which promote advancement' (Hayens, 2006, p.733). However, the social networks are male-dominated and women in IT jobs don't have the luxury to create such social networks (gender-exclusive) as they are tokens rather than the majority (Kaplan & Niederman, 2006; Hayens, 2006).

2.3.2.4 Stereotypical Image of IT Professionals and Managers: The broader Culture and Social Expectations

People use stereotypes to predict individuals' character, behaviour and orientations, and creating expectations that acts as cognitive shortcuts (Rudman & Glick, 2012). The segregation of work in society is based on the classical prescriptive gender role stereotypes, which is defined as 'the norms about how men and women should behave or should like rather than do behave or are like' (Heilman, 2001 - as cited in Burke & Mattis, 2005, p.46). Worldwide, men are seen as being oriented towards technical and industrial works, and expected to have 'masculine' characteristics (for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, prone to act as a leader) (Eagly and Karau, 2002; Williams et al., 1999) (as cited in Burke & Mattis, 2005, p.46), whereas women are seen as being oriented toward occupations need caring ability, welfare of other people and social integration, such as teachers and nurses (Aaltio, 2006a), and expected to have feminine characteristics (for example, helpful, kind, affectionate, sympathetic, nurturing, interpersonally, sensitive, gentle) (Burke & Mattis, 2005, p. 46). The stereotypical image of the IS/IT professional is a white middle-aged male work alone and with no discernible domestic commitments etc. '(Clarke et al., 2002; Faulkner, 2002; Massey, Quintas, & Wield, 1992; Millar & Jagger, 2001; Woodfield, 2002)' (Woodfield, 2006, p. 1241). The early stereotype of an IS/IT professional was a middle-class white man with short hair, white shirt, and dark tie, and this image eventually became more relaxed images of IS/IT

professional, but they were still men and still white (Ferratt & Trauth, 2014). Thus, the stereotypical image of the technical work and the IT professional may deter girls from becoming interested in the IT field, while attracting boys.

Further, the gender composition of the IT workforce reflects the stereotypical images that people hold about what is the women's and men's role, and what upper management jobs in the IT field entail (Woodfield, 2006). Men in the IT field are stereotyped as 'line' people, risk takers, innovators and designers, whereas women are stereotyped as just a staff (Aaltio, 2006). Accordingly, there are different works for men and women in IT that have been identified based on these stereotypes associated with women's and men's role in the field. The evidences in the literature show that women's work is not as valuable as men's work in the IT field. For example, men, more often, are given the professional and managerial jobs in the IT, whereas women are given technical and services jobs such as computer operators, data entry clerk, programmers, systems or web developer. Moreover, the stereotypical image of the people in the IT management disadvantage women's career advancement to senior management levels in the field, and considered as a challenge to women working in IT (Aaltio, 2006a). For example, when we picture an individual in a position of authority and management in the IT, our mental model for the individual is more often that of a man as the commonly held stereotype of IT authority is often associated with the masculinity (Haynes, 2006), and usually people do expect men, rather than women, in the senior management positions in the IT field.

2.3.2.5 Work-life Conflict

The balancing between professional and private life is a very challenging factor for men and women in the IT profession due to the nature of the IT work (Liu & Wilson, 2001; Ahuja, 2002; Webster, 2006; Haynes, 2006; Hazzan & Levy, 2006; Major & Germano, 2006; Hoonakker et al., 2006; Aaltio & Heilmann, 2006). Specifically, women in IT 'can experience significant social pressure to fulfil traditional role expectations with regard to child rearing and child bearing which are conflicting with the nature of IT work (Haynes, 2006). Much of the IT work is managed as projects or unpredictable work project based on clients' demands and often involve tight deadlines and long working hours. Thus, working in the IT profession requires the ability to

work for long hours and at any time the employers or clients need to. As Webster (2006, p. 847) stated, 'long working hours particularly affect people in technical roles, who have to be available to their employers and their clients, and those in senior management'. It is very common for IT professionals to work for long hours even at the unsocial working hours or weekends, like in evening, and arrive and leave the work according to his/her own preference, like late at night after children are in bed, or very early at weekends (Webster, 2006). It is also common for the IT workers to spend their time outside the work in reading to update their knowledge and information in IT and keeping up with the new technological development (Haynes, 2006). Given these kind of working patterns, working time arrangements are challenging for women with family and childcare responsibilities. Women with family responsibilities or domestic commitments find it very difficult to be available to work at any time in the day, or commit some time outside the normal work to read, learn and train themselves (Webster, 2006). Therefore, some women in IT find it too difficult to reconcile between their work and personal life, which causes stress for them and makes them leave the IT field (Hazzan & Levy, 2006, p.8). Moreover, working long hours is an essential factor for career advancement to senior management positions. In all companies, even with the strong equality programmes, the ability and willingness to work long hours is very necessary for career advancement and promotions into senior positions. Hence, this discourages especially women who are unable to work for long hours from pursuing promotion possibilities in their organisations (Webster, 2006).

2.3.3 Prior Research on Women's Career Advancement in the IT Field.

An electronic research has been conducted for research and studies on women's career advancement in the IT career from 1995 to 2012. A number of papers have been found in different journals and research areas, e.g., information system, management, career studies and others - see table 7. These papers have similarities in which they seek to understand the influence of factors that may exist as barriers to women's career advancement in the IT field, and the strategies used by those women who have overcome these barriers and achieved high managerial positions. Most of the research found, used qualitative research methods and interviews with women in senior positions in the IT field to investigate and understand the phenomena. This research have revealed insights for interventions to remedy the gender gap in IT management,

and all of them called for future research to discover in-depth the factors influencing career advancement of women in the IT field. Next, an overview of each research paper has been listed in table 7 is provided according chronologically by the year of publishing.

Table 7: Prior Studies in Women’s Career Advancement in the IT Field

Author (Year)	Title	Journal
Liu and Wilson (2001)	Developing women in a digital world.	<i>Women In Management Review</i>
Cross & Linehan (2006)	Barriers to advancing female careers in the high-tech sector: empirical evidence from Ireland	<i>Women in management review</i>
Wilson-Kovacs et al., (2006)	The glass-cliff: women's career paths in the UK Private IT sector.	<i>Equal Opportunities International</i>
Armstrong et al., (2007)	Advancement, voluntary turnover and women in IT: A cognitive study of work–family conflict.	<i>Information & Management</i>
Aaltio & Huang (2007)	Women managers' careers in information technology in China: high flyers with emotional costs?	<i>Journal of Organisational Change Management</i>
Wentling & Thomas (2007)	The career development of women executives in information technology.	<i>Journal of Information Technology Management</i>
Xian & Woodhams (2008)	Managing careers: the experiences of women working in the Chinese IT industry.	<i>Gender in Management: An International Journal</i>
Demaiter et al., (2009)	I really didn't have any problem with the male-female thing until": Women in IT Organisations.	<i>The Canadian Journal of Sociology</i>

Wentling & Thomas (2009)	Workplace Culture that Hinders and Assists the Career Development of Women in Information Technology.	<i>Information Technology, Learning, and Performance Journal</i>
Appelbaum et al.,(2011)	Is the glass ceiling cracked in information technology? A qualitative analysis: part 1.	<i>Industrial and Commercial Training</i>
	Is the glass ceiling cracked in information technology? A qualitative analysis:(part .2)	<i>Industrial and Commercial Training</i>

Liu & Wilson (2001)

The research of Liu & Wilson (2001) casting light on four identified issues affecting women's development in technology, these are, (1) gender stereotypes and attitudes; (2) family responsibility; (3) working time constraints; and (4) lack of confidence. They have collected data from 46 women enrolled in IT intensive training programme at Middlesex University using a structured questionnaire consisting of 17 open-ended questions to elicit their responses focusing on the identified issues, followed by four focus group meetings, comprising of 11 to 12 women. Also they conducted interviews with 17 female managers from various sectors and industries to solidify the findings of their research. Liu & Wilson (2001) found that the four examined factors are hindering the development and can negatively affect career progression of women in the IT field. The research participants expressed some needs necessary to empower women working in IT:

- They 'believed there needs to be a paradigm shift in traditional thinking towards women working in IT, in order to change the mind set of those who believe in "men's" jobs and "women's" jobs'.
- They need more positive female role models to help promote society's awareness of women's potential to excel to the highest ranks in IT.
- They need as women, greater access to specialist or advance training in management, and technical skills which help to boost their confidence.
- They need improving their family-friendly policies.
- They need identifying who held power and could empower women work in the IT field (Liu & Wilson, 2001, p. 413-414).

Liu & Wilson (2001) provided empirical evidence that adds to prior gender and IT research. However, the impact of the factors affects women's career advancement need to be explored in greater depth. Their research focused on a small number of pre-identified factors rather than exploring the whole picture of the participants' experiences which may show other interrelated factors that might have a significant effect on women's IT career advancement. Also, making interviews with female managers working in IT who lived the experience and more familiar with barriers in the IT field can solidify the findings more than with managers working in non-IT field.

Cross & Linehan (2006)

The IT industry was recognised as one of the leading growth and important sectors to the Irish economy, and it is perceived to offer many opportunities and positions that are free from "sex-typing" (Cross & Linehan, 2006). Cross & Linehan, (2006) saw that the number of females is increasing in higher-level education in Ireland, hence women are expected to enter and advance more in the professional and managerial careers in the IT field. However, there was a scarcity of female managers in the IT field in Ireland, and the majority of management and technical positions are held by men. Cross & Linehan (2006) have examined the experiences of a group of Irish female managers in the IT field in order to get a better understanding of why there was a relative scarcity of females in senior IT managers in Ireland. They had conducted interviews with 20 junior or middle female managers from different companies across Ireland, guided by broad concept of the barriers to women's progression into senior management found in the literatures. They found in their research four themes grounded in the interviews with the participants, these were, (1) organisational policies, (2) networking, (3) mentoring, and (4) a self-imposed glass ceiling. The findings in the Cross & Linehan's (2006, p. 33) study suggested that organisational policies such as recruitment and selection policies, promotions policies, work-life balance and mentoring policies can have a negative impact on women's advancement to the senior management positions. Women in their study discussed the lack of fairness and transparency of the promotion procedures in the work. The participants believed that 'promotion decisions for top management positions involve subjective appraisals as to the suitability of the candidate in terms of "fit" with the incumbent senior management team'. Also, the participants believed that working long hours is a barrier to their progression due to the lack of family support policies.

Hence, Cross & Linehan (2006) suggested that the organisations need to introduce family-friendly policies, and ensure that the organisational culture let the employees feel able to avail these policies.

Cross & Linehan (2006, p. 34) found that all the participants have emphasised the importance of networking and mentoring for reaching senior management positions. They stated that all the participants 'believed that the informal networking is a vital route to senior management levels, as the key benefits associated with it include access to visibility, support and upward mobility, increased career satisfaction, and greater respect and recognition'. They believed that women in IT who lack access to the informal networks means they lack access to contacts, opportunities and political information, which in turn increases the feeling of exclusion in the work. In addition, Cross & Linehan (2006) found that all the participants who were guided and supported by mentors in the work believed this had a positive impact in their performance and experience. They believed that having a powerful mentor at work is useful for building women's self-confidence and provide them the needed psychological support. But, they believed that due to women's exclusion from the informal network, it is not easy for them to access a mentoring relationship and attract the attention of powerful "organisational players". The last theme in Cross & Linehan (2006, p. 37) research was the self-imposed glass ceiling which is a primary individual factor that might negatively impact women's advancement to senior management levels in the IT field. The majority of the participants made their career choices based on their need for harmony and balance between the career success and marriage and children. They stated that the participants 'were not dismissing their career aspirations, rather attempting to undertake a cost-benefit analysis, based on achieving a particular quality of life, in making their decision'.

Wilson-Kovacs, Ryan & Haslam (2006)

Wilson-Kovacs, Ryan & Haslam, (2006) believed that there is a need for research into the reason for women's continuous under-representation at senior levels and their work experiences, especially as there was an increase in women's representation in the science, engineering and technology domain. They noted that knowing about the numbers of those who join or leave the IT field is not enough, but there is a need to explore in-depth the challenges facing women professionals that hinder the advancement to the top-rank positions in the IT. Therefore, they

have attempted in their research to explore and explain what happens to women as they advanced to senior positions. Wilson-Kovacs et al., (2006) have conducted in-depth ethnographic interviews with two case studies of women in leadership positions in a leading multinational IT company in the UK private sector. Analysing the interviews have revealed some individual factors that facilitated women's career advancement and some obstacles they are facing in their senior positions women and the ways in which they sought to overcome them. The findings show that the two women have a good understanding of career advancement and displayed considerable knowledge of how important the relationship between the employee and the first line manager is for career progression from the early stage of the career. They also have problem solving skills, a great sense of work satisfaction, and strong work ethics. They stressed the importance of networking and mentoring as they may serve as a listening ear and cultivate awareness of and abilities for the new career level (Wilson-Kovacs et al., 2006).

The findings showed that the professional positions in IT is fraught with challenges and can hide non-anticipated obstacles for women that may damage women's careers, and the organisational provisions that help women deal with these challenges are non-existent. For example, the difficulties that make it difficult to navigate in professional positions illustrated in the interviews are 'lack of clarity over one's new position, unclear boundaries, lack of support and of acknowledgment of one's successes, together with unacceptable behaviour from male peers' (Wilson-Kovacs et al., 2006, p. 684). Moreover, women lack access to the informal networks which is a big challenge for women in the senior position. Hence, as Wilson-Kovacs et al., (2006, p. 682) stated that 'the lack of support, information and resources in dealing with day-to-day tasks demonstrates the fragility of the two women's management positions'.

However, women have accepted the difficulties and the risky situation, and have considered their job position as a challenge and a way of proving oneself. They showed that women have to be aware and adjust to the culture of the corporate life, and select the right tools for their career advancement. They showed that they were aware of and accepted that their career progression depend on the wellness and strength of the relationship with their first-line manager, and they showed the willingness to adapt their strategies according to their manager's attitude even though this can damage their emotional well-being and self-esteem. They also have provided

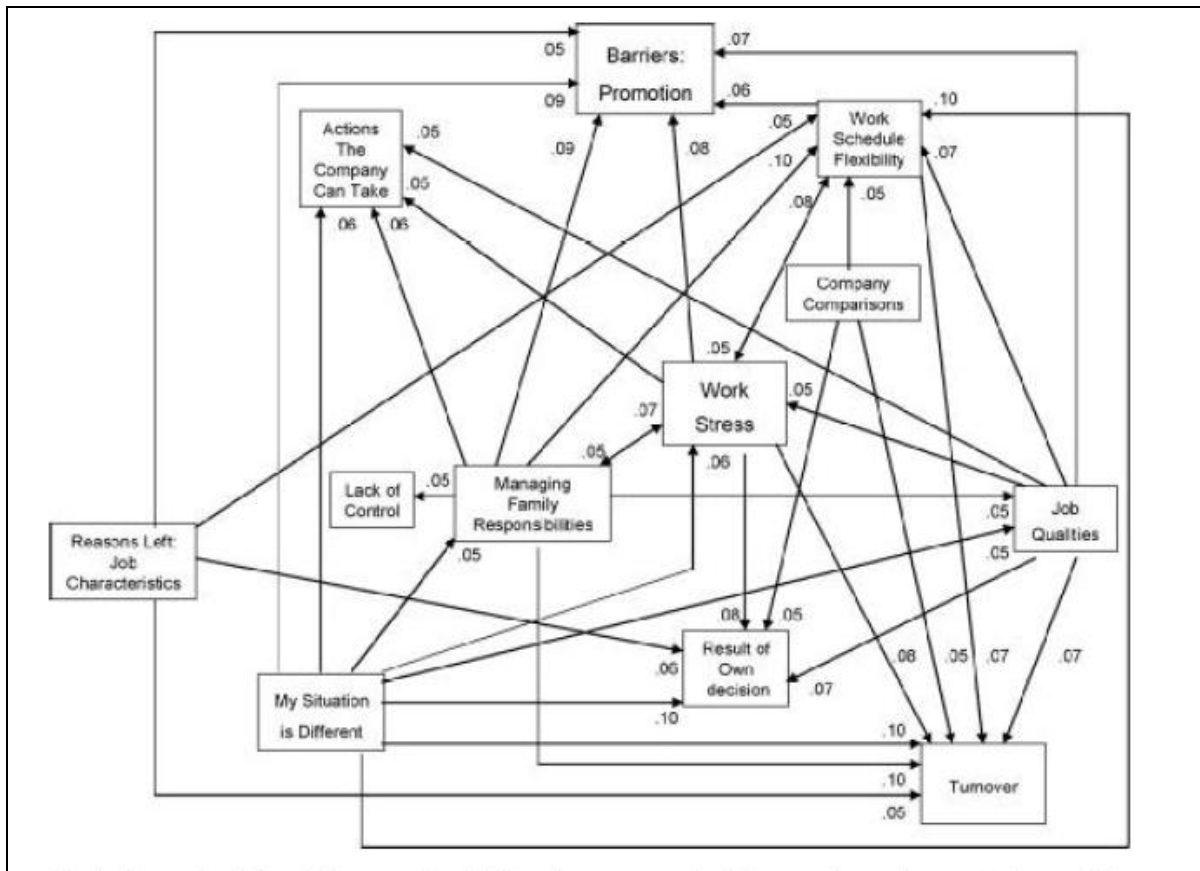
advices for women focused 'on building confidence to self-promotion, which is part of displaying the right professional demeanour' (Wilson-Kovacs et al., 2006, p. 682).

The research of Wilson-Kovacs et al., (2006, p. 684) stressed the importance of understanding women's underrepresentation at senior levels in the IT field by investigating the reasons in-depth rather than just knowing the reasons and the numbers of those who leave or join these sectors. Thus, they suggested that future research must identify, address and document in greater detail the organisational and cultural factors that may lead to glass-cliff situations, and examine in closer detail the strategies individuals employ in overcoming barriers at the senior level. They viewed that 'only by doing so we can fully understand the extent of problems faced and envisage solutions to overcome them in the IT industry and the SET domain'. The research findings of Wilson-Kovacs et al., (2006) reflected the contexts in which the two cases work, thus it is not necessarily that everyone may encounter the organisational and cultural factors that have been found in their research. They relied in their research on only two cases of senior females working in IT companies, which restricted the generalisability of the research findings.

Armstrong, Riemenschneider, Allen & Rei, (2007)

The study of Armstrong, Riemenschneider, Allen & Rei, (2007) examined female IT professionals' cognition about balancing work and family issues within the context of advancement and voluntary turnover. The study from Armstrong et al., (2007) aimed to answer two research questions: (1) how do women in IT perceive the interaction of work and family responsibilities? And (2) if there is an interaction, how do these women see it affecting advancement and voluntary turnover? They have gathered narratives from 39 women working in the IT field in an U.S fortune 500 manufacturing organisation through six focus groups, using open-ended interviews. They have used quality of work life theory and the causal mapping method to evoke the concepts and linkages regarding work and family. Armstrong et al., (2007) found four major concepts impacting on each other, and directly and indirectly influencing women's advancement opportunities and voluntary turnover. They found that managing family responsibilities, work stress, job qualities, work schedule flexibility play a major role in the work-family conflict for women in IT (see figure 8).

Figure 8: Concept Level Casual Map



Source Armstrong et al., (2007)

Armstrong et al., (2007) suggested that the conflict between managing family responsibilities (e.g. sick children day-care) and work stress (e.g. meeting deadline, competition, long hours and working overtime), could be eased through work schedule flexibility (e.g., flexitime, part time). They found that work schedule flexibility was perceived by women in their study as the bridge between family and work role, and it could have helped them in balancing between their work and family roles and lower family role stress. Also, they found that ‘the flexible work schedules have been associated with high organisational commitment and job satisfaction for women’ (Armstrong et al. 2007, p. 149). On the other hand, the flexible work schedule may ease the stress of family role but not the stress of work role especially of woman who is looking to advance within the organisation. The participants perceived that the flexible work schedule

might negatively affect women's advancement. Females working with flexible or reduced work schedules are seen as having less career motivation, and there is a less likelihood to be promoted (Armstrong et al. 2007).

Armstrong et al. (2007) also found that job qualities, which contained learning, using intelligence, putting forth and time, and self-reliance, are very important for women and men working in IT. The rapid technology changes in the IT field require continuous updating of IT worker's skills and learning. Therefore, the willingness to update the technical skills might be stressful for mothers who work in the IT field. As Armstrong et al. (2007, p. 150) stated 'mothers face the fear of their skills becoming obsolete, causing work related stress, which interact with the challenge of managing family responsibility'. Thus, the findings of the study of Armstrong et al. (2007) have provided useful insights for the organisations to rethink about their policies of training and work schedule for women work in the IT field.

Aaltio & Huang (2007)

The study of Aaltio & Huang (2007) aimed to understand women career advancement within the IT industry in China. They viewed that there were several gender and management studies focus on the "glass ceiling" phenomena in the western literature, however there was little about Chinese women managers in the literature. Their study was seeking to answer five research questions: '(1) How do Chinese women managers frame the subjective experience of "career"? (2)What can be learned about cultural, institutional and organisational values and priorities from the subjective expression of individually experienced lives? (3)What are the barriers handicapping women from entering senior managerial jobs? (4) How do women managers balance work and life? (5) What is the cultural framing of an "ideal woman"? (Aaltio & Huang 2007, p. 231). They have conducted in-depth interviews with 21 Chinese women managers in the IT industry and asked them questions related to their managerial identities, careers, work-life balance, and attitudes about the organisational culture and national culture.

Aaltio & Huang (2007) found two dominant career scripts for Chinese women managers in their study, which have very much in common: high future expectations and strong belief in own capacity. Women managers in this study described career as "an arena for self-development and

a ladder to climb and make a fortune. They saw the career as a way to advance to top managerial positions, which means economic independence, high social status and self-fulfilment that could not to be found in the family. This is contradicting with the traditional Chinese culture which ‘emphasizes women’s roles and responsibilities in the family and their position below men’ (Aaltio & Huang, 2007, p. 238). Moreover, Aaltio & Huang (2007) found these women depended on their individual excellence and accepted the specific characteristics of the IT industry which require working long hours, ‘well-educated and innovative staff who can devote themselves to their work to cope with the fierce competition in the industry’ (Aaltio & Huang, 2007, p. 237).

No matter what their specific career script, women managers in this study showed that the work and career development has a higher priority for them than the family and personal life. For these women, ‘work and career development was a priority when everything was going well in the personal sphere. If there were negative aspects to their personal life, then issues of work and career were perceived as less important’ (Aaltio & Huang, 2007, p. 236). They have managed to overcome the difficulty of balancing the work and family responsibilities by getting the help and support through many ways, for example, the ‘support from parents or parents-in-law; hired a tutor for a child’s homework; employed a domestic helper to fill the roles of nanny, cleaning lady, cook and shopper; and shared the family responsibilities with their husband’ (Aaltio & Huang, 2007, p.237). Moreover, they ‘seldom turned to their work organisations for support or asked them to adopt policies and practices to ease their role conflicts. They thought they themselves should solve any work-family conflicts’ (Aaltio & Huang, 2007, p.237).

The findings of the study have added to the understanding of women’s careers advancement in the IT overall and especially in China. A limited number of women were interviewed in Aaltio & Huang’s (2007) study, however they can serve as a role model of successful Chinese women managers in the IT field. Any woman joining the IT field can learn from their experience, and their strategies and ways they have used to overcome the challenges in their work to be successful in the career.

Wentling & Thomas (2007)

The purpose of the study of Wentling & Thomas (2007) was to develop an in-depth understanding of career development of women in executive levels positions in information technology. They saw that despite the increase of women in the IT workforce in the US, women hold only 10% of upper-level managerial jobs in the computer field. They stated that the 'IT field is male dominated at the executive level position. In addition, it is affected by the shrinking number of women pursuing academic study in computer science and engineering, both at the undergraduate and advanced degree levels' (p.33). Thus, they have attempted to understand the dynamics underlying women's career development, and analysed the sequences of events leading to the women's career choice, adjustment, and progress.

Wentling & Thomas (2007) have built a conceptual framework for examining the factors that might hindered or assisted women's advancement to senior management positions in the IT field, using five career development theories and models that are specific relevant to women: (1) Hackett and Betz's (1981) self-efficacy approach, (2) Farmer's (1985) model of career and achievement motivation; (3) Astin's (1984) sociopsychology model; (4) Gottfredson's (1981) theory of career aspirations; and (5) Brook's (1988) expectancy valence theory. They collected the data of the study by conducting semi-structured interviews with twenty-five women in executive level positions in information technology from across the United States. Their research was guided by the following five research questions:

1. What is the educational background of women in executive positions in information technology?
2. What is the work history and development of women in executive positions in information technology?
3. What life experiences have impacted the career development/progression of women in executive positions in information technology?
4. What are the barriers and obstacles that hindered the career development of women in executive positions in information technology?
5. What factors have assisted the career development/progression of women in executive positions in information technology?

Wentling & Thomas (2007) have found a number of factors effecting the career development of women in their study, these are education and training, management and interpersonal skills, mentor, role models, and personal/family lives. Education and training was one of the most important factors to the career progression of these women. Half of them had master's degrees in a technical area (e.g., computer science, engineering) or business, and all of them have continued to pursue additional training and education. Hence, Wentling & Thomas (2007) showed that women who aspire long-term success in the IT field need to attain adequate technical skills and knowledge through education and learning. They stated that 'education and training was a major way that [they] learned new things, stayed current in their fields, and remained adaptable to change' (Wentling & Thomas, 2007, p. 44). Also, they found that both technical and management knowledge are essential for career development in the IT field. Women have pointed that having technical knowledge only was not enough for advancing in the IT field, but management knowledge (e.g. finance, project management and management development) and a range of skills (e.g., leadership, management, communication and interpersonal skills) were also required to assist in the IT career advancement.

Women in the study also showed that having a mentor in the work was a positive factor during their professional careers. Wentling & Thomas (2007, p. 45) defined *Mentor* as 'someone who has already gained the prerequisite experience and status needed to support and promote the career of less experienced individuals'. All the participants had an average of four mentors throughout their course of career, and most of them were a male at senior level executive, manager, or boss/supervisor. They showed that 'their mentors were the people they considered to have most significantly influenced their career development, and they reported that their mentors had provided them with substantial help, and without them their career progress may have been hindered or made considerably more difficult' (Wentling & Thomas, 2007, p.450). They believed that mentors provided the participants in their study 'job opportunities/challenges to demonstrate skills and abilities, suggested strategies for advancing participants careers, believed in their potential, encouraged participants to take risks, shared his/her expertise with the participants, and gave participants useful career advice'.

The study participants indicated that having a role model is useful for career development. However, female role models are difficult to find in the IT field. Most of them stated that they did not have role models during the time they chose their careers. While the participants who did have role models indicated five frequent ways in which role models influenced their career choice. These included the following: shared their expertise with them, gave them useful career advice, encouraged them to meet high performance standards, oriented them to job/career opportunities, and believed in their potential (Wentling & Thomas, 2007).

The study participants indicated that the work-life balance is an obstacle that may have a negative impact on career development. The three most frequent personal/family life events reported in the study were, difficult balancing work and family responsibilities, having children, and marriage difficulties (Wentling & Thomas, 2007). For the career, the participants had to work in the time of family (spouse, children), personal/free time, and social time/friendships, and too much travelling for work. Moreover, some of them saw this as personal choices they took, rather than sacrifices they made for their career. On the other hand, some of the participants indicated that the family/life events in their personal life have helped in their career development. For example, supportive and encouraging parents, supportive and encouraging spouses, learning the value of hard work and good work ethics from parents, parenting and raising children, and supportive children (Wentling & Thomas, 2007).

The study participants indicated six factors that are considered to have been the most important to their career advancement and success in the IT field. These were, competency on the job (produced high quality work), hard work, and willingness to take risks, mentors, educational credentials, and continuous learning/training/development (Wentling & Thomas, 2007). In addition, other factors that were frequently mentioned as important to their career advancement and success in the IT field included: being flexible/adaptable to change, interpersonal/people skills, focused on success/delivery of results, and depth and breadth of knowledge about IT/business (Wentling & Thomas, 2007). Also, for many study participants the organisation plays a key role in career development of women in executive positions in IT. The organisation can create environments where women have the opportunity to develop different skills by

training and education, advancement/promotional opportunities, mentors, supportive work/life balance policies.

The findings of the study of Wentling & Thomas (2007) provided useful insights for making strategies to attract and retain talented women, and strengthen their career development in the IT field. Wentling & Thomas (2007) viewed that the literature has discussed broader issues concerning the barriers and opportunities faced by women in the IT field. Hence, they suggested to examine in-depth the influence of the personal and work environment factors on women's career development in IT, and investigating in how the obstacles to their growth can be removed in order to further their upward mobility and increase productivity. Also, they suggested for future research to identify and understand women's needs and concerns, to address the difficulties they are facing, and to initiate an honest and straightforward analysis of how these problems can be resolved.

Xian & Woodhams (2008)

Xian & Woodhams (2008) have examined in their research the career experiences of seven women who have developed successful careers in the Chinese information technology IT industry. They also sought to explore how far western theories may be suitable for guiding research in women's career experiences in the Chinese information technology IT industry. The research questions of their study were:

1. To what extent do successful women in the Chinese IT industry use traditional processes of setting career goals and using career strategies?
2. How do they make sense of their internal beliefs of career and gender roles within this context? (p.413)

Xian & Woodhams (2008, p. 422) have conducted loosely structured interviews with seven Chinese women working in a prosperous organisation and receiving high compensation. They have found that western theory development provides a useful theoretical framework to guide research in non-western societies, but there were important features of stories that may not easily be explained through western approaches. They believed that 'western models of career theory

require critical adoption and modification to account for contextual and social factors' in the other places of the world.

They found that the study participants 'had a familiar open and flexible approach to career goals and using strategies to achieve those goals' (p.415). At the early stages of their career, all of them had goals in a loose rather than operational manner in their mind, and they had a direction to focus on them, such as following and focusing on certain areas of IT work within their first 2-3 working years. Xian & Woodhams (2008, p. 416) stated that, 'all seven interviewees had career goals that may have been embryonic and unsure in the first few years but that show evidence of rationality and realism in the later years'.

The study participants indicated that they were prepared to work in the IT field which requires acceptance of masculinity norms and criteria. Also, in order to manage their IT career, they accepted long working hours, work stressors and managed the combination of work and home. Also, they indicated that they were facing cultural challenges related to the social expectations and values related to women and their career activity, which affect the internal career beliefs of the women. For example, women are expected to be humble, nurturing, submissive and unassertive, and considering the family responsibilities as more important than their career prospects (Xian & Woodhams, 2008). In their cultural system, women's work are perceived less value than men's work, hence women in IT are 'not only required to scythe a path through socially-bound value systems that serve to oppress the career activity of women at work, but they also have to deal with potential conflict within their own internal culturally-bound value system' (Xian & Woodhams, 2008, p. 420). The study participants had used training, learning and self-development strategies to overcome the discrimination resulted from these cultural values. The study of Xian & Woodhams (2008) provides implications for career research and suggests a stronger emphasis on internal and social values. Also their research contains practical implications, in which, 'the career experiences of these women could provide role-modelling to other women who are also pursuing careers in the IT industry in China' (p.409).

Demaiter & Adams (2009)

Demaiter & Adams (2009) believe that the masculine culture and image of the IT field may limit and condition women's participation. They sought in their study to explore women's perceptions of IT work and the barriers and opportunities in the IT field hold for women. They had examined the experiences of eleven successful women in IT in middle or upper positional levels within in eight organisations across Canada. They used semi-structured interviews to explore participants' career history and their experiences in the IT sector. Demaiter & Adams (2009) found that although women in their study had provided evidences on the masculine culture in IT, such the old boys' network issue and the difficulties with some male colleagues, and the cultural mindset that acts against women, they were overwhelmingly optimistic and felt they are equal to men in the IT workplace. They acknowledged that the gender bias was not evident in IT and denied any awareness of gender-related problems. Thus, they saw that women in the study were unable to recognize the ways in which gendered organisational cultures limit their career development and opportunities for advancement. For example, as Demaiter & Adams (2009) stated, 'they tend to blame the masculine image or stereotype of IT for turning young women away' and then they argued that this image was a false one' (Demaiter & Adams, 2009, p. 52). In addition, women in the study were asked about whether having children had any impact on their career. Most of them believe that having children negatively affecting a woman's IT career. The rapid changes in the IT field needs continuous skills updating and learning, and a need for long working hours, are not combined with maternity leaves and childcare responsibilities. This finding contradicts the women's comments that gender was not irrelevant. Demaiter & Adams (2009, p. 33) argued that 'this refusal to acknowledge the significance of gender, combined with the technical nature of their field, may have facilitated their success, even as these factors serve as barriers for other women'. They believed that such an attitude of denying the significance of gender in the organisational culture enable women to work like men in the IT field and their interaction with the men in the work. Also, they argued that the study participants 'may have downplayed the significance of gender because the context in which they worked provided opportunities for promotion'.

Demaiter & Adams (2009, pp. 49-50) viewed that their research has provided insight to the factors encouraging and discouraging the advancement of successful women in the IT field. However, the small sample size and the uniqueness of study participants limited the generalization of the findings to other women in the IT field. They suggested that future research should explore more closely women's strategies for adapting to the IT occupational culture, and how these strategies may foster or hinder policies aimed at facilitating the employment and advancement of women in the IT. In addition, 'future research needs to explore more closely how the recent industry volatility and the greater reliance on formal education and credentials shape women's entrance and advancement in the IT field'.

Wentling & Thomas (2009)

Wentling & Thomas (2009) have examined the impact of the workplace in the career development of women in IT. The purpose of their study was to understand the characteristics of the IT workplace culture, and in particular, the workplace environmental factors that hinder or assist the career development of women in IT. They viewed the workplace culture is 'the deep structure of organisations, which is rooted in the values, beliefs, attitudes, practices, norms, customs, and assumptions held by organisational members and that characterize a workplace environment (Denison, 1996; McLean, 2003)' (as cited in Wentling & Thomas, 2009, p.27). As Wentling & Thomas (2009) stated that, the IT culture is described in the literature 'as largely White, male-dominated, antisocial, individualistic, competitive, all-encompassing and non physical'. This culture has the potential to exclude women and minorities if they do not conform'. Thus, the IT culture is perceived by women as a not welcoming workplace environment to women and they are nearly three times as likely as men to leave the IT workforce (Wentling & Thomas, 2009).

The study of Wentling & Thomas (2009) was guided by the following four research questions:

1. What is the current workplace culture for women in IT?
2. What workplace culture characteristics have hindered the career development of women in IT?
3. What workplace culture characteristics have assisted the career development of women in IT?

4. How satisfied are women in IT with their career development?

Wentling & Thomas (2009) used the social construction as conceptual framework for the study and for collecting and analysing the data. They have conducted in-depth semi-structured interviews with 25 women in IT from across the U.S. They found that the workplace culture has played a negative role in the career development of the women in the study. Women in the study felt that their workplace culture is male dominated, which is difficult for them to feel that they are accepted. Instead, they felt like outsiders and this feeling affects their self-confidence at work. Also, they reported that they were excluded from the top level positions and not being supported or encouraged for these positions, and it is difficult for them, especially those with families, to get sympathy for their challenges. Conversely, Wentling & Thomas (2009) found that the training and development programmes, resources, mentoring, and challenging work opportunities, provided by the organisation to the participants, have a positive impact on their career development. Also, the employee-oriented and the collaborative and teamwork-oriented aspects of the workplace environment had positive effects on the participants' career. As Wentling & Thomas (2009, p. 37) stated, that 'the collaborative and teamwork-oriented aspect of their workplace environment, working together on projects and building close relationships with colleagues, benefited the study participants in their career development'.

Wentling & Thomas (2009, p. 45) concluded that organisations play a key role in the career development of women in IT. Thus, they have provided some suggestions for the organisations to attract and retain talented women in their IT workforce. They believe that organisations must have an understanding of the personal and workplace environment factors that affect women's career development in IT. Organisations need to work on creating 'workplace environments where women have the opportunity to advance, receive equal treatment and access to information and opportunities, remove barriers such as the glass ceiling that might hinder their development, and provide support through role models and mentors in the work environment'. Also, they need to take initiatives to ease the work-life balance by providing programmes such as flexible work schedules, day-care centres, and family leave.

Appelbaum, Asham & Argheyd, (2011)

The purpose of Appelbaum, Asham & Argheyd, (2011) research was to study the effect of balancing work and family life on the presence of the glass ceiling and on career choices and advancements for women working in the IT sector. They viewed that even ‘women who have the knowledge required for hi-tech industries end up dropping out or changing careers in order to advance?’ (p.355). Thus, they conducted a case study to test three different hypotheses related to work-family balance, promotion, and the glass ceiling in the IT field, these were:

- Women working in the IT sector who are intrinsically motivated at maintaining a work-family balance experience higher stress than those who are not.
- Women working in the IT sector for more than seven years without any promotion lose any aspiration of getting promoted.
- Women working in the IT sector do not feel any presence of a glass ceiling hindering them from getting promoted.

For testing these hypotheses, Appelbaum et al., (2011, pp. 452-453) have designed an online survey consisted of 11 questions to identify seven effects: ‘(1) the effect of participants’ age on the presence of the glass ceiling and preference of younger employees, (2) the effect of marriage and family life on job related stress and reaching managerial positions, (3) the presence of children and work-family balance, (4) seniority and promotion, (5) role of self-image and male colleague perception on upward mobility, (5) timely evaluations and promotions, (6) effect of female role models in higher positions’. They obtained responses on the survey from 41 female employees working in an IT department of an international company headquartered in Montreal.

Appelbaum et al., (2011) found that there is a glass ceiling hindering promotions for women in the IT field, and that the presence of the glass ceiling is time-bounded. The participants aged less than 40 years were very motivated and optimistic regarding their careers as contrasted to their older counterparts. They stated that the collected data were not enough to approve or disapprove if women working in the IT field have not got any promotions for seven years, she loses any hope of getting promoted. However, they were able to hint from the collected data that after ten years of not being promoted, women lose the aspiration of getting promoted. Appelbaum et al.,

(2011) also showed that the findings of the study indicated married professional women with children experience higher stress than those unmarried or without children, which in turn negatively impacting on their performance and self-perceptions. They stated, that professional women experience stress due to the work-life balance, and such stress ‘can have a negative effect on professional women’s job performance, “self-image”, and the perception of male colleagues which in turn imposes a glass ceiling for an upward mobility’ (Appelbaum et al., 2011, p. 456). Hence, Appelbaum et al., (2011) suggested that employers have to give female employees more opportunities for more valued positions where they can utilize their talents and increase their probability of career advancement. Also, they suggested that the employers can create strategies that ease the balancing of work-family responsibilities, such as flex-times and telecommuting.

The study of Appelbaum et al., (2011) approved the presence of the glass ceiling for women in the IT field. However, it needs further qualitative studies to investigate the phenomenon of the glass ceiling for women in the IT field, and how some women have already cracked this glass ceiling. Thus, there is still a need for deep understanding of this phenomenon, which helps the employers in providing effective solutions that help women’s advancement in the IT field.

2.4 Summary and Conclusion

In summary, this chapter provided an overview of the theoretical literature on gender and technology, research on women work in IT careers, and previous studies on women’s advancement in the IT field. Based on the survey of the theoretical literatures, three theoretical perspectives were used in the gender and IT research to understand women's underrepresentation in the IT field, i.e. essentialism, social constructionism, and individual differences. The Individual Differences Theory of Gender and IT (IDTOGIT) (Trauth, 2002; Trauth et al., 2004; Quesenberry & Trauth, 2007) was selected as a conceptual framework to the research problem and as analytical framework to understand women’s participation in the IT workforce as discussed in details in the chapter. Main reason of choosing IDTOGIT was it views women and men as individuals who have distinct personalities, possess different characteristics and technical talents, and respond to the social shaping of gender and IT in unique and particular ways that vary across cultures. Based on this, the IDTOGIT will be the used as an analytical framework for

analysing the data of this research, and understanding and interpreting the findings of the study as will be seen in the chapters of methodology, data analysis, and findings and discussions.

The findings from the literature review revealed that there is a small but growing body of literature on women's participation in computer science and information technology work. Focusing on the career advancement in the IT field, although there has been some improvement in women's representation in IT during the past years, women remain significantly under-represented at management level in IT. The major factors to women's career advancement in the IT field reflected in the literatures were the male dominance of the IT culture (feminine work styles, limited women's access to the informal social networks and mentoring, stereotypical image of IT professionals and managers), and work-life conflict.

Literature review revealed that prior research on women's career advancement in the IT field aim to develop an in-depth understanding of career development of women in executive levels positions in information technology. In most of the research reviewed, researchers attempt to explore factors impacting women's career advancement in the IT field within certain context, or study the effect of predefined factors, using qualitative research methods and in-depth interviews with a limited number of successful women in senior positions in the IT field, in order to investigate and get better understanding of the phenomena of women's underrepresentation in the upper managerial positions in the IT field. Based on this finding of literature review, the researcher selected qualitative research approaches to gain better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field, using interview methodology to explore and investigate work experiences of a group of successful Bahraini women in senior or upper managerial level in the IT field, to build an in-depth understanding of their experiences from their own perspectives on the career advancement in the IT field.

The prior research uncover certain factors that can act as barriers or facilitators to women's career advancement in the IT field, however the impact of each of these factors need to be examined, tested and measured in further research over a number of conditions like different women in different career stages, workplaces and/or cultures. The literature review revealed a lack of significant literature on women's career advancement in the IT field, and especially in the Kingdom of Bahrain and the MENA region. To date, no significant work has considered

women's underrepresentation and career advancement in the IT field in the context of the kingdom of Bahrain. This PhD study is the first of its kind in the Kingdom of Bahrain that aims to investigate and gain a better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field. As this study is based on Bahraini women in IT careers, the next chapter will provide an overview of the economic, political, social and cultural aspects of the context of the Kingdom of Bahrain, the IT sector, and women in the education, employment in Bahrain.

Chapter Three: Bahrain: a Muslim and Arabic Kingdom

3.1 Introduction

As this study is in an Arabic Islamic culture, it is necessary to provide an overview of the economic, political, social and cultural aspects of the context. As this study is based on Bahraini women in the IT in the Kingdom of Bahrain, this chapter will provide a brief background about Bahrain. This chapter will begin with a description of the geography and people, religious and culture, and economy. It will then provide an overview on the IT sector in Bahrain. Finally, it will then examine the education, employment and laws in Bahrain, focusing in particular on the position of women.

3.2 Context: Geography and People, Religion and Culture, and Economy

Geography and people

The kingdom of Bahrain (name changed from State of Bahrain, February 14, 2002) is an archipelago made up of 33 islands located in the Arabian Gulf between the Kingdom of Saudi Arabia and Qatar. Bahrain is part of the Gulf Co-operation Council (GCC), which comprises six countries sharing similar cultures and language: the Kingdom of Saudi Arabia, the United Arab Emirates, the Kingdom of Bahrain, the State of Kuwait, the Sultanate of Oman and the State of Qatar. Bahrain's total area size is 760 Sq.Km (The World Bank, 2014), and it has a total population of nearly 1,332,000 (The World Bank, 2013), of which 614, 830 are Bahraini (312945 males, 301885 females), and 638,361 are Non-Bahraini (475,436 males, 162,925 females) (CIO, 2013).

At present, 'the indigenous people -66% of the population- are from the Arabian Peninsula and Iran. The most numerous minorities are Europeans and South and East Asians' (International Business Publications, 2013, p.20). Bahrain includes residents from Iran, India, Pakistan, the Philippines, Britain, and the United States, as well as citizens from a number of nations (MOFA,

2014). Bahrain is a dry hot desert land with a small scale of agriculture lands developed with the groundwater wells over the country. Summer in Bahrain is hot, and the winter is relatively cool. The temperatures in August range from minimum 37c to a maximum 44c; the January minimum is 14 c, the maximum 20c.

Religion and culture

Bahrain has a rich history of thousands of years of civilization. The earliest human settlement in Bahrain's islands dates back almost 4,000 years. Over that time, it was inhabited by a series of different civilizations, starting with Dilmun, then Tylos, and finally the Islamic period (Bahrain Authority for culture & antiquities, 2014). Since the late 18th century (1783), Bahrain has been governed by the Al Khalifa family, which is Arabic and Muslim, after nearly two centuries of Persian rule (Human Rights Watch, 1997). Islam is the official religion and it 'is the prevailing belief held by those in the government, military, and corporate sectors. Roman Catholic and Protestant churches as well as a tiny indigenous Jewish community, also exist in Bahrain' (International Business Publications., 2013, p. 20).

Bahrain is an Arabic country and one of the GCC countries that share the same cultural and social norms, values and core beliefs. The national culture and social norms are predominantly based on Islam. Bahrain is a relatively liberal and modern country, but the society is conservative and sex segregated, and certain social cultural norms are still expected to be observed by locals and foreigners (Oxford Business Group, 2011). The effects of culture weight heavily on gender's role, and they place higher premiums on the rights and preferences of men, thus women tend to be treated unequally and their power remains limited in society and life (Ahmed, 2010). Men are expected to work, earn money, taking decision and heading the family, which is the basis of the society, whereas women are expected to be caregivers for infants and small children and in charge of the household and family matters. A woman must secure her husband's permission before she goes outside, decides to study, travels, or takes major decisions in her life. Unmarried women typically live with their parents or with a male relative if the parents are no longer living (Ahmed, 2010). Women in Bahrain are educated, can speak English and they have the freedom to have a job or stay at home. Mothers, who work, depend on the family in taking care of their children until they reached the age of school. Also, they depend on house maids in cleaning and

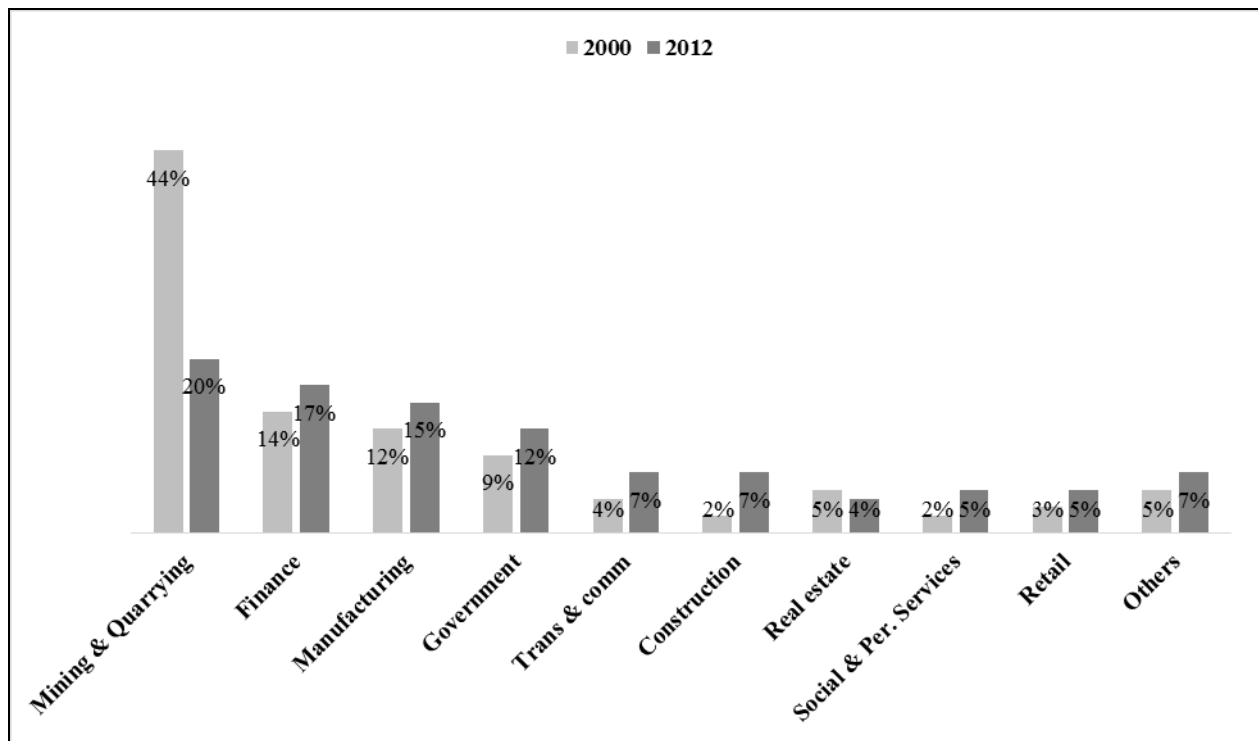
cooking and other work at home. These maids are the cheaper way for women to be able to go out of home and have a job (McCarthy, 2004). Outside the home, women are expected to dress according to religious custom, which means that they should wear loose clothes and cover their hair. However, not all Bahraini women are covering their hair but they dress conservatively. The local culture also controls the relationship between men and women. It is expected that a woman must not have friendship or social relationships or unnecessary chatting with men not from close relatives. In the workplace, also women must not have unnecessary meetings with men, talking relationships, and needed to behave conservatively.

Economy

Although Bahrain is a relatively small area and has a small population size, it has achieved high levels of economic and social development since the 1980s (Quaddus & Siddique, 2011). Historically, Bahrain's economy depended on trade, pearl diving and agriculture. However, the discovery of oil on 1932 changed that. Bahrain was the first country in the Middle East to discover oil. The economy of Bahrain is mainly based on oil and gas, which provides about 60% of government revenue (International Business Publications, 2013). Bahrain currently produces more than 190,000 b/d of crude oil from two fields: Bahrain Field (situated in the southern part of the island) and the offshore Abu Sa'afa Field (located to the north) (EDB, 2013). The government has used the oil and gas revenues, and benefited from region's economic boom during the 1970s and 1980s in building an advance infrastructure in transportation and telecommunications, and developing projects to improve the standard of living; health, education, housing, electricity, water, and roads all received attention (International Business Publications, 2013).

Since the 1970s, Bahrain has planned to diversify its economic base and has extended it to other non-oil economy sectors. The gross domestic product (GDP) in Bahrain was \$32.89 billion in 2013 (The World Bank, 2013). In 2012, Bahrain's non-oil goods exports totalled \$ 6,734,236,042; non-oil goods imports totalled \$10,891,368,673 (CIO, 2012). Therefore, in 2012, the oil and gas sector contributed 19% to real gross domestic product (GDP) compared to 44% in 2000 (EDB, 2013), see figure 9.

Figure 9: Comparison of Sectorial Contributions to Real GDP (2000 and 2013)



Source: Central Informatics Organisation (as cited in EDB, 2013).

Bahrain's economy is supported by non-oil sectors contributing to the GDP, like financial services, manufacturing, government, telecommunications and transport, real estate and constructions, trade, insurance, government services, social and personal services, tourism and other. Bahrain is growing economically and transforming itself into a modern industrial, business, and service centre (Quaddus & Siddique, 2011). Bahrain's financial centre has been the most widely heralded aspect of its diversification effort (International Business Publications, 2013). It contributes significantly to the GDP (17 per cent at 2013) (EDB, 2013), see figure 9. Bahrain became a regional financial and business center, that has 124 institutions in the banking sector, 167 firms in the insurance sector, and 48 investment business firms (GlobalEDGE, 2008) (as cited in Quaddus & Siddique, 2011).

3.3 ICT Sector in Bahrain

In terms of ICT, Bahrain is rightly considered to be a pioneer in the Middle East. From 1978 through mid-1990s it was considered the centre of IT in the region (Oxford Business Group, 2008). Bahrain's government has installed its first computer in 1978, making it the first country in the region to do so (Oxford Business Group, 2008). At the beginning of the 2000s, the government of Bahrain has sought to provide the infrastructure necessary for reinforcing the ICT sector and liberating the telecoms market. Accordingly, the Telecommunication Regulatory Authority (TRA), which was established in 2002, has taken rapid steps to end the monopoly in the telecommunication sector in order to attract domestic and foreign capital and investments. Since market liberalization in 2003, the information technology and communication sector in Bahrain has become significant and represented about 4% of GDP (TRA, 2014). By the end of 2010, there are 567 active business entities currently operating ICT related activities (the Ministry of Industry and Commerce (as cited in ESCWA, 2011, p. 28). The telecom market has become very competitive over the past few years. At present, it has nineteen competitive telecommunication companies that provide telephone, mobile, internet, broadband, and digital TV services – see table 8.

Table 8: Services Offered by Active Operators

Operator Name	National Fixed	International calls	Mobile	Internet	Lease line	Other services
2Connect	√	√		√	√	√
Ascentech Telecom		√				
Batelco	√	√	√	√	√	√
BT Solution LTD					√	√
Business Communication Networks		√				
Elephant Talk		√				
EQUANT EGN BV					√	√
Etisalatcom	√	√		√	√	√
Kalaam Telecom	√	√		√	√	
Kulacom Communication S.P.C		√		√		
Light Speed	√	√		√	√	
Mena Telecom	√	√		√	√	√
Northstar		√		√	√	
Nuetel Communications		√		√	√	
Orbit				√		
Rawabl Telecommunications & Software		√				
Vlacloud		√			√	
VIVA		√	√	√		
Zain (Bahrain)	√	√	√	√		

Source: (TRA, 2012).

Such improvement in the ICT sector lead to growth in the revenues, increased numbers of employees working in the sector, and high rates of telecoms and internet service penetration.

Revenues of the telecom sector reached BD 423 million in 2013 compared to BD 409 million in 2012 (3.4% growth between 2012 and 2013) (TRA, 2014). By the end of 2013, about 3,000 employees were working in the telecommunications sector, of which 27% of employees are female (TRA, 2014). In most of the MENA countries at the end of 2012, penetration of mobile broadband exceeded 25 percent of the population, but only in Bahrain did the penetration rate exceeded 70% of the population (The World Bank, 2013). By the end 2013, 82% of households in Bahrain had Internet access while more than 90% had computers – making the country one of the world’s most connected nations (ITU, 2014). There were approximately 251,000 fixed lines, 2,210,190 mobile telephone and 1,464,929 mobile broadband subscribers at the end of 2013 – see table 9.

Table 9: Communication Service Statistics

	Total number of customers
Fixed telephone lines	251,000
Mobile Telephone	2,210,190
Fixed Broadband	175,796
Mobile Broadband	1,464,929

Source: Author’s collection based on (CIO, 2013a).

The most noteworthy about Bahrain’s achievements in the IT field over the past few years is the e-government programme. In 2005, the government - CIO and later the E-Government Agency (EGA) - have started to develop the infrastructure for a national e-government portal that incorporates all the ministries. In 2007, the e-government portal has been launched with 24 services available through the system (Oxford Business Group, 2008). By 2010, the portal offered 167 services including, ‘birth and death certificate issuance, school and university registration, work permits, pension payments, access to health records, housing permits, real estate listings, debt collection, contravention, legal services, social assistance, driving license issuance, vehicle registration, business registration, banking services, tax payments public grant applications and environmental compliance records, among others’ (Oxford Business Group, 2008, p. 161). For this e-government’s achievement, Bahrain is ranked among the top 20 in the

UN e-Government 2014 and it is the only state within the Middle East that is recognised by the United Nations among 13 states in the ranking categories (UN, 2014; EGA, 2014). Within the GCC countries, Bahrain ranks 18th globally, followed by the United Arab Emirates, Saudi Arabia, Qatar and Oman (UN, 2014) see table 10.

Table 10: e-Government Development of Gulf Cooperation Council (GCC)

Country name	EGDI 2014	2014 Rank	2012 Rank	Change in Rank
Bahrain	0.8089	18	36	↑18
United Arab Emirates	0.7136	32	28	↓4
Saudi Arabia	0.6900	36	41	↑5
Qatar	0.6362	44	48	↑4
Oman	0.6273	48	64	↑16
Kuwait	0.6268	49	63	↑14
Regional average	0.6838			
World Average	0.4712			

Source: Author's collection based on (UN, 2014).

The government pays great attention to the ICT sector as it is significant for providing the necessary environment for economic development and attracting business and investments. Bahrain's consideration to the sector and its infrastructure are widely recognised. It is ranked in the top 30 countries worldwide for the fifth consecutive year in the global information technology report, and first in the region for networked readiness (EDB, 2014). The report also ranks Bahrain fourteenth in the world for the use and development of ICT and tenth for the number of Internet users (World Economic Forum, 2014) (as cited in EDB, 2014).

3.4 Women in Bahrain: Education, Employment and Culture

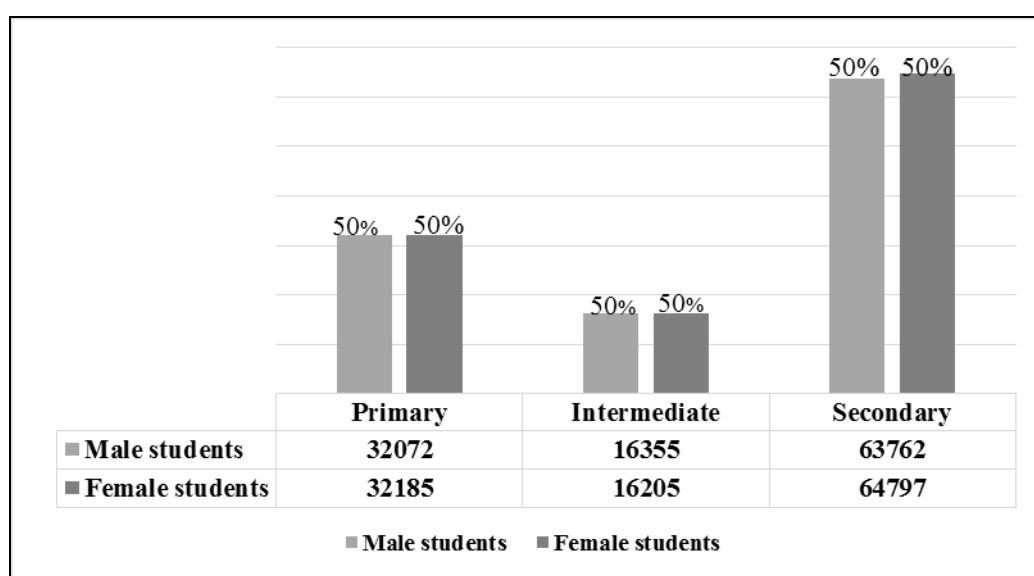
Bahrain has significant achievements that have been made in empowering women and developing their participation in the society. Today, women are major contributors to the development in Bahrain. They have participated and achieved significantly in many fields of education, and many fields of specializations. They are competing equally with men in the workplaces and they are represented in positions of leadership and decision making in the political arena. Also, Bahrain's constitution and legislation emphasising the concept of equality between male and female, and they seek to support the economic and social empowerment of women. Despite the progress and improvements made in the role and status of women in Bahrain, there are still some social obstacles and challenges encountered by women that prevent their representation in some fields. Next, an overview of Bahraini women in education, employment, political arena, and culture will be provided.

3.4.1 Education

Bahrain was the first country in the GCC to open a public education system (1919) and start education for females. The first official school, for girls, named Al Hedaya Al Khalifia, opened in 1928 (EDB, 2013a), and the first secondary girls school was in 1950 (SCW, 2013). By 2008, Bahrain ranked 51st in the world in the Education for All Development Index (EDI), and second in the region after 46th-ranked UAE (UNESCO, 2011). Basic education is provided free for Bahraini and non-Bahraini, and it extends for nine years followed by three years diversified tracks in secondary education (ILO, n.d.). The majority of boys and girls attend segregated government schools; however there are private mixed schools as well. In 2013, the total number of girls government school was 102, and boys schools was 104 (Ministry of Education (MOE), 2013), which indicates that girls and boys in Bahrain have equal opportunities in education. For the year 2013 -2014 the total number of girls studying in government education was 64,979 and the boys is 63,762 (MOE, 2013a). While the total number of girls studying in non-government education is 24,273 and the boys is 8,775 (MOE, 2013b). 'The percentage of girls in primary and

secondary schools reached 50% during the academic year 2012 – 2013 ‘(SCW, 2013, p.15) - see Figure 10.

Figure 10: Numeric & Percentile Distribution of Students at the Compulsory School Age in the Kingdom of Bahrain (2012 – 2013)



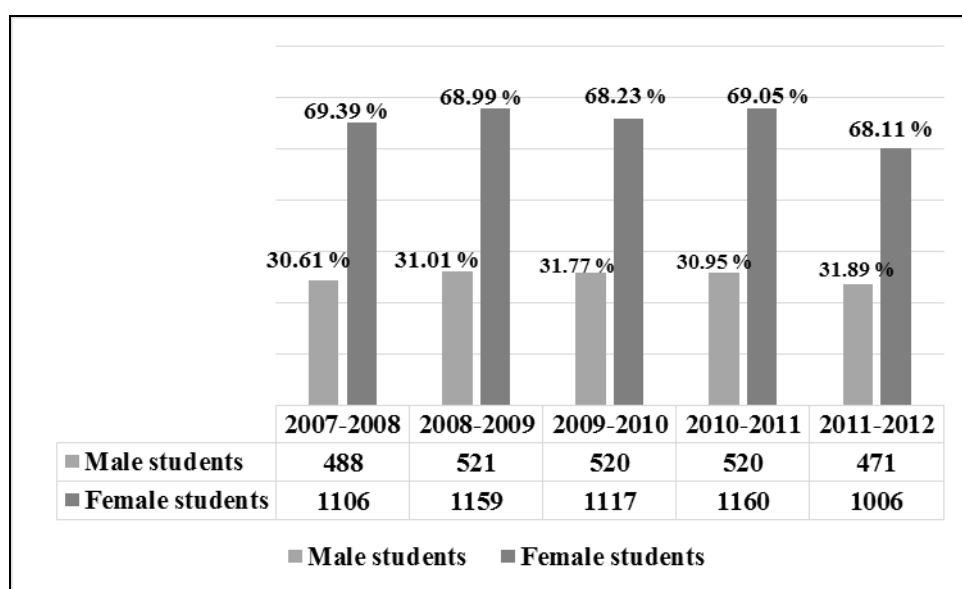
Source: (SCW, 2013, p16)

The Higher Education in Bahrain includes universities, colleges and other institutions. There is one national university (The University of Bahrain); one regional university, which is the Arabian Gulf University (sponsored by the GCC); and two public higher education associations: the College of Health Sciences (affiliated to the Ministry of Health) and the Bahrain Training Institute (affiliated to the Ministry of Labour) (Khalili, 2008). In addition, there are eleven private universities which have been licensed and credited by the Secretariat General of the Higher Education Council in Bahrain. For the academic year 2011 – 2012, the total number of females in higher education levels is 19,564, and males is 12,763, according to the statistics of the Secretariat General of the Higher Education Council (2012). Thus, as the SCW (2013, p. 16) reported that, ‘the percentage of female students in higher education institutions in the Bahrain amounted to 61%, outperforming the number of male students which in number which was 39% - a gap of 21% between the genders’. The lower percentage of males in the universities might be justified by that the labour market in Bahrain offers to males a wide variety of possibilities for

working after graduation from school in the field of craftsman, manufacturing, transportation, agriculture and other. Mostly, the offered work opportunities require a certain level of local practical training in a short time. For example, carpenters, electric technician, machines operators, vehicles drivers and workers. Other types of jobs are also offered like clerical, selling, and agriculture work. Moreover, males can voluntarily enter the military service in Bahrain at age 15.

Moreover, as early as the 1950s, Bahrain's government has started to provide scholarships for women in the country to study abroad in Lebanon (Al Gharaibeh, 2011) (as cited in Ridge, 2014). Since then, female's participation in higher education has continued to increase and it outnumbered males in the undergraduate programs. According to SCW (2013) the female students significantly outperformed the male students academically and were able to attain a higher percentage of educational scholarships and grants. The percentage of female students receiving scholarships and grants reached 68.11% for the academic year 2011-2012 compared to 31.89% only for male students (SCW, 2013) – see Figure 11.

Figure 11: Numeric & Percentile Distribution of Scholarships Obtained from the Ministry of Education According to Gender (2007-2012).



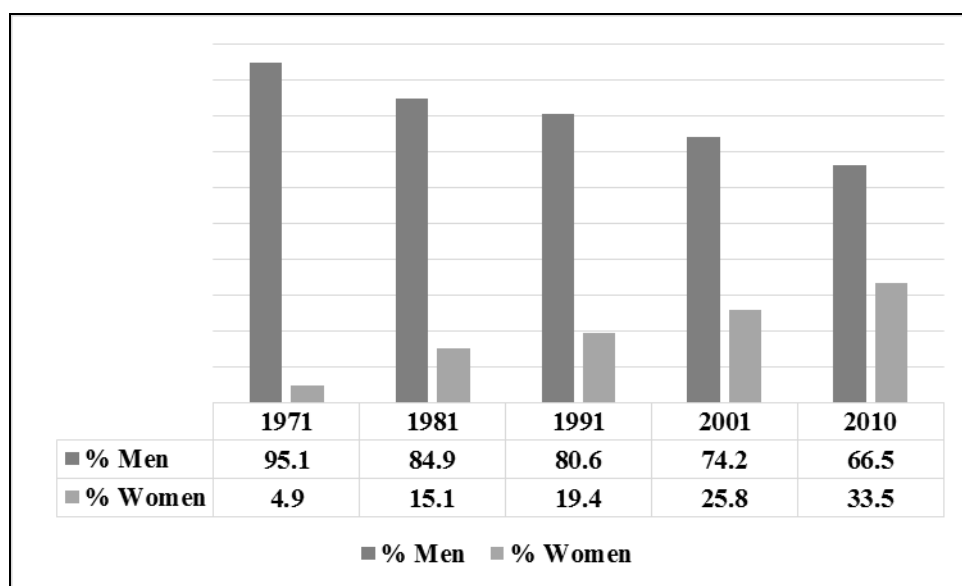
Source: (SCW, 2013, p18)

Figure 11 shows that female students remain the higher receivers of grants and scholarships, in which the average gap between the genders was 37.51% throughout the academic years 2007-2012 (SCW, 2013). However, despite this progress and achievements of women in education, they do not have an equal access to all fields of study in secondary schools, and there are some fields in the higher education that are segregated by gender. Bahrain removes the options for girls to major in technical and religious studies in the secondary schools, and textile classes are limited only to girls (Ahmed, 2010). This segregation reflects social biases and affects the future career choices and job opportunities. For example, women remain underrepresented in areas such as engineering and overrepresented in education and health care (Ahmed, 2010).

3.4.2 Employment

The high levels of female education and Bahrain's development in economic and social aspects after the oil boom is translated into increase of jobs, and women's employment and participation in economic activity. In the 1950s, women in Bahrain entered the field of banking, and in 1960s they started to own commercial registrations and opened private businesses (SCW, 2013). The percentage of female workers in the public sector out of the total number of Bahraini workers increased from 4.9% to 33.5% during the period 1971- 2010 (SCW, 2013) – see figure 12. However, women's gain in the education in Bahrain is not matched by gains in the workforce participation. By 2014, the total number of employed Bahrainis is 54,429 (LMRA, 2014) and women represent only 35% of the labour force of Bahrain (EDB, 2013a) - see figure 12.

Figure 12: Ratio of Bahraini Workforce (above the age 15) According to Gender (1971-2010)



Source: (SCW, 2013, p.25)

Since the 1970s, Bahrain's labour market is segmented between Bahraini and foreign workers. Bahraini workers accounted for 89 % of the public sector workforce in 2014, while 52 % of workers in the private sector are Non-Bahraini – see table 11. Most of the Non-Bahraini workers work in the sector of construction, manufacturing wholesale and retail trade, manufacturing, hotels and restaurants and others.

Table 11: Numeric and Percentile Distribution of Bahraini and Non-Bahraini in the Workforce

	Total employment		Public sector employment		Private sector employment	
	Bahraini	Non-Bahraini	Bahraini	Non-Bahraini	Bahraini	Non-Bahraini
	54,429	98,894	26,778	3,342	27,651	30,383
Percentage	35.5%	64.5%	88%	12%	48%	52%
Total	153,323		30,120		58,034	

Source: Author's collection based on (LMRA, 2014).

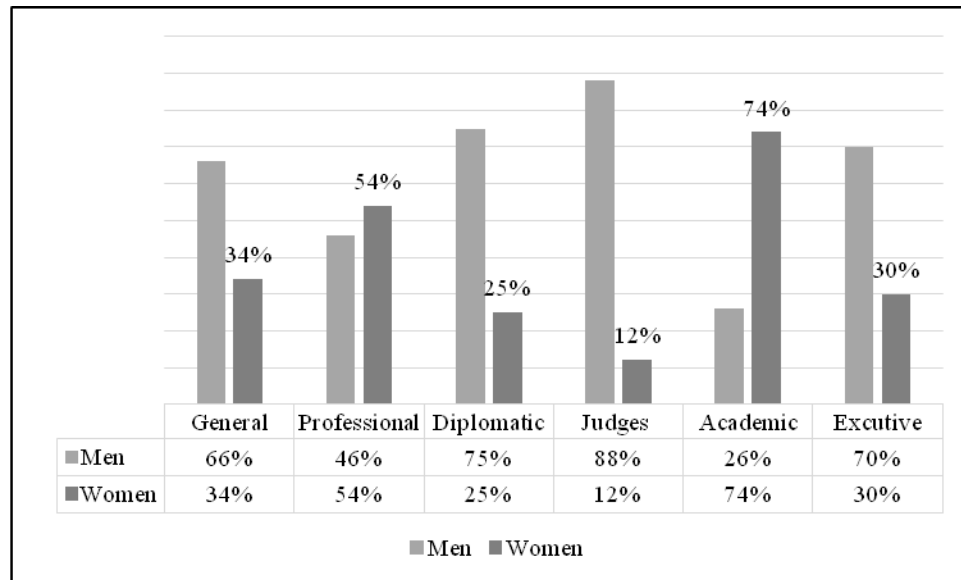
While Bahrain is providing equal opportunity to education for males and female at all levels, the country's labour market is also segmented along gender lines, with women concentrated in a narrow range of occupations (ILO, n.d.). The Labour Act (Decree No. 23 of 1976, changed by Labour Law 63 of 2012) provides equal rights and opportunities to all employees, 'however in the context of patriarchy women tend to be discriminated in the labor market with regards to remuneration as well as promotion opportunities. The gender pay gap is a sanctioned by gendered norms which assume that men ought to earn more since they are primary breadwinners for the family and women's job is a secondary source of income' (Karolak, 2011, p. 11). In the early 2000's, more than half of the Bahraini female labour force was in the public sector, mainly in health and education (ILO, n.d.). By 2010, women's representation ratio increased in the educational and specialised jobs in the public sector; and in the private sector increased in the field of office work, business, sales and trade, the field of professional technical and scientific operations, and administrative and supervisory fields – see table 12. In contrast, during 2011, men's representation increased in the executive, judicial and general roles (SCW, 2013) – see figure 13.

Table 12: Percentile Distribution of Women & Men in the Private Sector (2010)

Occupation	2010	
	Female %	Male %
Trainee	21.90%	78.10%
Clerical Occupations	46.03%	53.97%
Sales & Business	39.58%	60.42%
Services, Sports and Leisure Sector Occupations	27.52%	72.48%
Agricultural and Fishery Occupations	6.99%	93.01%
Technical & Scientific Field	37.25%	62.75%
Administrative and Supervisory Occupations	33.67%	66.33%
Productivity, Craft, Transport & Communications Occupations	12.57%	87.43%
Other	25.93%	74.07%
Total	30.09%	69.91%

Source: (SCW, 2013, p27)

Figure 13: Numeric and Percentile Distribution of Women and Men in the Public and Private Sector



Source: (SCW, 2013, p26)

Men, as a group, earn more than women in the workforce of the public and private sector in Bahrain. In 2012, the average monthly salary for women is BD757 in the public sector and BD477 in the private sector. In contrast, the average monthly salary of males is BD769 in the public sector and BD716 in the private sector during the same year (SCW, 2013). The gender gap in the private sector wage is more evident: women earn 38% less than men.

The labour law of Bahrain, which has been enacted in 1976, and then modified in 2012 to meet the new political reforms and the international standard, have protected the rights of women in the public or private sector, in reconciling family duties with professional responsibilities, such as those related to maternity leave, childcare (breast-feeding), and bereavement right, and it have called for elimination of all form of discrimination. At present, the Labour Law provides female worker, in the both sectors, a maternity leave on full pay for sixty 60 days (Labour Law, No. 63 of 2012, article 32). Female workers in the public sector shall be entitled to two childcare hours each day until the child reaches two years. While female worker in the private sector shall be entitled to the same two hours for only the first six months from the child's birth, then it reduced to one hour for the next six months (Private Labour Law No.63 of 2012, article 35). Also, the Labour Law provides bereavement leave for Muslim female worker in the event of the death of

her husband. Muslim woman has to stay at home after her husband's death for four months and ten days (it is called 'Uddah' i.e. the waiting period prescribed under the Islamic Shariah). According to the Labour Law of public sector, she is entitled to this period of time with full pay. But in the private sector she has the right to take one month leave with full pay, and for the remaining three months and ten she shall have the right to take them from her annual leave, and if she has no balance, to take leave without pay (Labour Law No. 63 of 2012, article 63).

Moreover, the Labour Law prohibits gender discrimination in pay and employment contracts termination. It calls for equal pay and opportunities for all employees, and considers an employer's termination of the contract of employment as illegal act for any of these reasons; sex, colour, religion, belief, social status, family responsibilities, a female worker's pregnancy, child birth or suckling her infant (Labour Law No. 63 of 2012, article 104).

3.4.3 Political Empowerment

The political and social reforms initiated by Bahrain's government during the last decade have created new prospects for women empowerment and positively reflected in representation of women in the political arena. For example, the Constitution, National Action Charter in 2001, acceding the Convention on the Elimination of Discrimination Against Women (CEDAW) in 2002, and initiating the Supreme Council for Women (SCW). These initiatives have emphasised the principle of equality between men and women in rights and duties. Under the National Action Charter, all citizens are equal before the law in terms of rights and duties, without discrimination. Also the Council for Women (SCW) has played a significant role in empowering women in a variety of fields such as political, economy, work and society in Bahrain. The SCW was established in 2001, under the authority of His Majesty the King, upon Amiri order no. 44. Her Royal Highness Princess Sabeeka Bint Ibrahim Al Khalifa chairs the council, which aims to promote the status of women in Bahrain and their participation in the process of development by promoting their inclusion in decision making positions, improving their skills and capabilities, raise their awareness, creating job opportunities, and ensure their fair rights are protected and safeguarded in all spheres.

SCW has played a significant role in empowering Bahrain women in the political arena. Bahraini women are granted political rights, including the right to participate and voted in parliamentary and municipal elections. Such an initiative has enabled Bahraini women to participate in the political life in Bahrain, and allowed them to be representative and municipal councillors and the parliament. Moreover it change the common social attitudes and stereotypes of women in Bahrain. According to EDB (2013), ‘Bahraini women were the first in the GCC to participate in the national elections, both in the voting booth and as candidates, and the country was the first to elect a female MP’ (p.2). In 2006, Ms. Latifa Al Gaoud was the first female parliamentarian elected in Bahrain (SCW, 2013). By 2013, the females’ participation increased up to four members of the Council of Representatives – see table 13. Also, in 2010, Mrs. Fatima Salman was the first elected female as a member of the Municipal Council (SCW, 2013).

Table 13: Women in Leadership Positions (2005-2013)

Position	2005	2006	2007	2008	2009	2010	2011	2012	2013
Minister or Equivalent	3	3	3	3	3	3	4	4	4
Undersecretary or Equivalent	1	2	2	2	3	3	4	4	5
Assistant Undersecretary or Equivalent	6	10	12	14	11	11	13	11	12
Council of Representatives Member		1	1	1	1	1	4	4	4
Shura Council Member	6	10	11	10	10	11	11	11	11
Ambassador	1		1	2	2	2	3	3	3
University President	1	1							
Chief Executive Officer (CEO)					1	1	1	1	1
Municipal Council Member						1	1	1	1

Source: (SCW, 2013, p.35)

Furthermore, Bahrain’s government have appointed women in prominent public offices. In 1999 first female Shaikha Haya bint Rashid Al-Khalifa became a Bahraini ambassador and first Muslim female to head the General Assembly of the united Nation (SCW, 2013). During 2005 to 2013 the female ambassadors representing Bahrain’s government became three – see table 13. Also during the same time period, the cabinets included three to four women as minister of health, minister of social affairs, and minister of culture and information, and minister of state for

information affairs. Women were also appointed in the Shura Council and judiciary branch. Also, six to eleven women were appointed as member of Shura Council, the upper chamber of the Parliament – see table 13. In 2006, the government also have started to appoint women in the judiciary branch. Mona al-Kawari was the first Bahraini female judge in the high Civil Court (SCW, 2013). A second, Dhouha al-Zayani, was appointed to the Constitutional Court in 2007, and Fatima Hubail was appointed in 2008 as a lower Criminal Court judge. According to (Ahmed, 2010), all women who have been appointed in the Judiciary are in the ‘the Sharia’s courts, which hear the cases that most often and most directly affect women. Although a variety of views exist on the matter, most Islamic scholars in Bahrain believe that women may not act as judges in Shari’a courts. Some, however, suggest that women could be appointed in cases related to women’s issues’ (p.78). By 2013, the total number of women has reached up to 13 female judges (SCW, 2013). Overall, Bahraini women have achieved leadership positions as ministers and members in the Representative and Municipal Council and the parliament, however, the gap between women and men in this aspect is still quite large.

3.5 Summary and Conclusion

The aim of this chapter was to provide the background information of the context where the study is conducted. As this study is based on Bahraini women in the IT in the Kingdom of Bahrain, the chapter provided an overview of the geography and people, religion and culture, economy, ICT sector of Bahrain. Then it also provided an overview about Bahraini women in the education, employment and political field. In summary, the kingdom of Bahrain is located in the Arabian Gulf between the Kingdom of Saudi Arabia and Qatar. Bahrain is part of the GCC, which comprises six countries sharing similar cultures and language. Although, Bahrain is a relatively small area and has a small population size, it has achieved high levels of economic and social development since the 1980s. Bahrain, one of the leading countries in ICT development, and had the most successful ICT implementations and digital access in the MENA region. In 2002, the government has begun to pay attention to provide the infrastructure necessary for reinforcing and improving the ICT sector. Improvements in the ICT sector lead to growth in the foreign and local ICT investment and revenues, increased numbers of employees working in the sector, and high rates of telecoms and internet service penetration.

Most of Bahraini women are educated and have reached higher level of education. Bahrain was the first country in the GCC to start education for females (1919). Now, government's statistics show that the total number of girls schools equals the number of boys schools, which indicates that girls and boys have equal opportunities in education in Bahrain. Also, Bahrain has sought to provide equal opportunities to higher levels of education. As seen in this chapter, women have made significant achievements in various academic field, and their percentage amounted to 61%, outperforming the number of male students, in the high education institutions in Bahrain.

Women's gain in the education in Bahrain is not matched by gains in the workforce participation. Although women in Bahrain are educated and able to work, they only represent 35% of the Bahraini labour force, and they are concentrated in a narrow range of occupations. Women's representation ratio increased in the educational and specialised jobs in the public sector; and in the private sector increased in the field of office work, business, sales and trade, the field of professional technical and scientific operations, and administrative and supervisory fields. Although the labour law of Bahrain, protects the rights of women in the public or private sector, and provides equal rights and opportunities to all employees, however women tend to be discriminated against in the labor market with regards to remuneration as well as promotion opportunities. Men, as a group, earn more than women in the workforce of public and private sectors in Bahrain, and also they comprise 70 % of the executive workforce in Bahrain.

In Bahrain, the effects of culture weighs heavily on gender's role, and places higher premiums on the rights of men, thus women's power remains limited in society and life. Women in Bahrain, as in other GCC countries, allotted cultural expectations based on the social traditions, norms, and religious beliefs. Bahraini society is Arabic, Muslim and conservative, and the culture, which predominantly based on Islam, plays an important role in women's and men's rights, beliefs, behaviours and relationships inside the work and in society. As shown in chapter two, women in the IT field face cultural challenges and barriers resulted by the masculine culture of the IT field and the nature of the IT work which is conflicting with women's gender role and social expectations. Thus, this study will look at how the context of Bahrain can affect women in IT workforce. It will investigate how the culture manifests itself in the IT field and how it can affect women's behaviours, attitudes and development in the IT career. The research will help in understanding how the culture impacts women in the IT workforce, and helps in raising the

awareness about the cultural impact in the career development and advancement of women in the IT field in Bahrain. The next chapter will present the methodological assumptions that underpin this study, research approach and method, and how the research data were constructed, analysed, and validated.

Chapter Four: Research Methodology

4.1 Introduction

This purpose of this chapter is to present the research philosophy underpinning this research, as well as the research strategy and techniques applied. It outlines the methodology used to achieve the purpose of the research, which is defined as ‘a theory and analysis of how research should proceed’ (Harding, 1987, p. 2). According to Strauss & Corbin (1998, p. 3) methodology is ‘a way of thinking about and studying social reality’. The key components of this chapter are: (a) the research purpose and questions, (b) research epistemology, (c) research approach, (d) research strategy, (e) research method, (f) data analysis, (g) research validity, and (h) code of ethics. The epistemology part describes the application of both interpretive and critical epistemology as a research philosophy in this research. The research approach part describes the application of the inductive approach in this research. The research strategy part describes the rational of application case study methodology in this research. The research method part describes the details of cases selection, data collection and management in this study. The data analysis part describes the application of the constructive grounded theory analysis approach in this study. The research validity part describes the construct and external validity, as well as the reliability of this research. Finally, the last part of this chapter describes the code of ethics in this research.

4.2 Research Purpose and Questions

The primary purpose of this research is to gain better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field. More specifically, the following research questions are addressed:

1. What are the factors that act as barriers or facilitators for the career advancement to upper managerial levels of women in the IT field in Bahrain?

2. How do those factors influence the career advancement to upper managerial levels of senior IT women managers in Bahrain?
3. How have senior IT women managers in Bahrain overcome the barriers that hinder their career advancement?

4.3 Research Epistemology

Epistemology is ‘the study of the nature of knowledge and justification’ (Schwandt, 2001, p. 71), and epistemological issues are ‘issues about an adequate theory of knowledge or justificatory strategy’ (Harding, 1987, p. 2). Three epistemology approaches (“paradigms”) are typically utilised in IS research, namely, predication (positivism), understanding (interpretive), and change (critical) (Orlikowski & Baroudi, 1991; Braa & Vidgen, 2001). Trauth & Howcroft (2006) address the motivation of using each of the three epistemology approaches in the topic of gender and IT:

1. When gender and IT topic is viewed by the positive epistemology, the research objective is typically to discover *whether* and *where* there are gender differences (Trauth & Howcroft, 2006). This research - which invokes essentialist theory - aims to ‘uncover gender distinctions, not to explain or theorize why these distinctions have arisen and continue to exist’ (Trauth & Howcroft, 2006, p. 273).
2. Interpretive studies of gender and IT ‘focus on understanding *how* these gender differences have come about’ (Trauth & Howcroft, 2006, p. 273); in order to better understand the social influences underlying inequality between genders in relation to the IT workforce (Howcroft & Trauth, 2004). This research adds context to the relationship between gender and IT, and more likely to invoke theories of social construction or individual differences (Howcroft & Trauth, 2004).
3. Critical studies of gender and IT are to investigate why gender inequality exists using for example, the critical social theory, postmodernism, and feminist theory. The motivation is to understand and challenge power relations that reproduce inequality (Kvasny & Trauth, 2002).

The epistemological stance underpinning this study is both of the interpretive and critical epistemologies. The choice of epistemology should be selected according to its appropriateness to the research question and nature of the phenomenon of interest (Klein & Myers, 1999; Orlikowski & Baroudi, 1991). First, the interpretive epistemology is selected as the research questions are directed at *understanding* the influential factors in women's career advancement in the IT workforce. Interpretive epistemology is 'concerned with the approaches to the understanding of reality and asserting that all such knowledge is necessarily a social construction and thus subjective' (Walsham, 1993, p. 5). It assumes that reality is socially and specifically constructed (Guba & Lincoln, 1994) 'by humans through their action and interaction' (Orlikowski & Baroudi, 1991, p. 14), and '*understanding* social reality requires understanding how practices and meanings are formed and informed by the language and tacit norms shared by humans working towards some shared goal' (Orlikowski & Baroudi, 1991, p. 14). Thus, the interpretive methods allow an in-depth examination and building an understanding of the study participants' experience. As Orlikowski & Baroudi (1991, p. 5) explained interpretive research are 'directed at understanding the deeper structure of a phenomenon within its cultural context by exploring the subjective and inter-subjective meanings that people create as they interact with the world around them'. It assumes that knowledge can only be created and understood from the point of view of the individuals who are directly involved in this world. Thus, an interpretive examination might help in understanding the influential factor in women's career advancement in the IT field by understanding the point of view of senior female IT managers in this study, and explore what practices and meanings are formed by them. The interpretive epistemology provides a deep insight into 'the complex world of lived experience from the point of view of those who live it' (Schwandt, 1994, p. 118). Accordingly, this study examines the world of lived experience from the point of view of female senior IT managers and explores how they adjust to advancement, the processes they engaged into when advancing to higher levels, the context they live and work in, what factors hinder or facilitate their career advancement, and how they think about their work in the field of IT. According to Trauth & Howcroft (2006, p. 142), the 'limitation of the interpretive approach is that the focus is on *understanding* the social influences, not *questioning* them'. Thus, the critical epistemology is adopted in this study, by going one step further to enrich the understanding by asking *why*.

Second, the critical epistemology underpins this study as complementary to the interpretive epistemology. The critical epistemology assumes that social reality is historically constituted and that it is produced and reproduced by people (Myers, 2013). It also assumes that the human ability to change the existing conditions and improve on them is constrained by contextual factors (Myers, 2003; Trauth, Kvasny & Greenhill, 2005). Myers (2013, p. 43) stated, that ‘although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination’. Thus, the critical epistemology considers the wider systems of repression at work, and the structural and cultural nature that may frame the experiences that hold women back and serve to reproduce the inequality (Trauth, 2011). The critical research in IT sees how the social constructing of women identity is seen as being incompatible with IT, focusing on the structures of oppression that prevent women from equal participation and what maintains the existing power structure (Howcroft & Trauth, 2008). Adopting both interpretive and critical stances allows investigating the individual experiences of women in the study with consideration to the structures that exist in the broader cultural and organisational systems. Also, the critical research results help in identifying and evaluating interventions directed at both women and social, cultural, economic and political context (Howcroft & Trauth, 2008).

4.4 Research Approach

The choice of the research approach relies on the research purpose. Two broad types of research approaches can be used and they are the inductive and deductive. The inductive reasoning defined as “a type of thinking that involves identifying patterns in a data set to reach conclusions and build theories” (Hair Jr, et al., 2015, p.276). When inductive approach is used, a theory or conceptual framework is developed from the collected data. In contrast, the deductive approach, researchers start with a theory before data collection and analysis, and focus on testing hypotheses (Hair Jr, et al., 2015).

The inductive approach provides opportunities to make discoveries, investigate issues without structuring them within the framework of prior definitions, and help to generate new theoretical insights into the research topic (Altinay & Paraskevas, 2009). Hence, as the purpose of this study

is to gain better understanding of the factors that influence women's career advancement in the IT field in Bahrain, an inductive research approach is adopted as a reasoning approach. The inductive approach, based on interpretive procedures, will allow the researcher to investigate and obtain much of the details of women's experiences living in the context of this study. This will enable the researcher to build an in-depth understanding of the interviewees' experiences from their own perspectives on the career advancement in the IT field. Thus, the role of IDTOGIT and findings of the prior studies on women's career advancement in the IT field presented in chapter two is to guide the research, and help in constructing explanation of what has been observed, what data has been collected, and interpreting the data findings of this research.

4.5 Research Strategy

This interpretive study used a qualitative research approach as it is suitable for answering the research questions of the study. The qualitative research approach is useful to develop interpretive understanding of the social reality of people living the experience, and to understand their behaviours, feelings and attitude that resulted from their lived experience. In this study, the qualitative approach is used in order to develop interpretive understanding of the subjective reality of women work in IT careers, and to be able to make sense of and understand their motives, actions, behaviours, and intentions in a way that is meaningful for these women.

The direct personal contact between the researcher and these women will enable the researcher to understand the feelings, experiences, and views of women. Accordingly, the researcher used an interview methodology in this study for in-depth investigation of the female senior IT managers' experiences within their social and cultural context, focusing on the influential factors in their career advancement in the IT field. The role of researcher in this study involves continuous engagement in the process of constructing, interpreting and reconstructing of meanings based on data given by women interviewed in this study. The interview methodology helps to construct explanations, insights, and understandings of the examined phenomenon, from the most knowledgeable people who live in the context. It offers insights on "social process that unfolds between persons participating in the process, people's values, expectations, opinions, perceptions, resources, controversies and behaviour. Thus, the interview methodology enable the

researcher to get a more complete picture of what happened in the participants' career advancement in the IT field, "how" and "why" they become in high managerial positions in the IT field, what barriers they have faced and how these barriers influenced their career advancement, how they overcome these barriers, and what strategies they used for their career advancement.

4.6 Research Method

Methods are defined as 'a set of procedures and techniques for gathering and analysing data' (Strauss & Corbin, 1998, p. 3). As this study needs rich and deep data, the qualitative approach was used for exploring the experience of women in this study and to achieve the study purpose. In the following, the cases selection, data collection technique is described.

4.6.1 Cases Selection

A case is defined as 'one can learn a great deal about issues of critical importance to the purpose of the inquiry' (Patton, 2002, p. 230). It is 'a phenomenon of some sort of occurring in a bounded context. The case, in effect, is your unit of analysis' (Miles & Huberman, 1994, p. 25). Because the aim of this study is to understand how and why Bahraini women are underrepresented in the upper managerial levels in the IT field, the selection of cases is limited to those women at the middle/senior and upper managerial level in the IT field. Senior female IT managers (Bahraini only) will be chosen from governmental, semi-governmental or private organisations in the Kingdom of Bahrain. Cases have to be Bahraini in order to facilitate more focused socio-cultural analysis.

This PhD research used a purposeful sampling as a strategy for selecting cases, which is defined as the selection of participants who have experience in the area of the study. Cases will be selected based on one type of purposeful sampling strategy, which is, the critical sampling. *Critical sampling* is defined as a 'strategy to study a critical sample because it is an exceptional case and the researcher can learn much about the phenomenon' (Creswell, 2008, p. 216). The power of this strategy lies in the ability of 'selecting *information-rich* cases strategically and

purposefully' (Patton, 2002, p. 243). Female middle/senior IT managers, in the context of their social (work, family, culture) settings are selected as cases for this research because they should be yield the insights and most information directly linked to the research topic, and will best enable the researcher to answer the research questions.

Cases selection in this study follows a 'replication logic' (Yin, 1989), rather than a sampling logic. Therefore, cases are carefully selected either because they predicated to display the same results (literal replication) or because they are predicated to produce contrasting results (theoretical replication).

Cases for this research were found in four ways; (1) a list of female senior IT managers in the governmental and semi-governmental organisation was requested from Bahrain Civil Service Bureau (Memo sent on 27 Feb 2012 to Head of IT department), (2) a list of female senior IT managers in the private organisation was requested from Social Insurance Organisation (Memo sent to Application manager) in Bahrain, (3) as the researcher is working in the field of IT, she personally contacted senior female IT managers, which she had worked with or met them before, (4) asking the participants for references of other potential participants sharing the sample characteristics of this study (snowballing).

There are no specific guidelines and role for the sample size for qualitative research (Kvale, 1996; Patton, 2002) as the sample size depends on the purpose of the research. Patton (2002, p. 230) believes that 'the qualitative inquiry typically focuses in depth on relatively small samples, even single cases (N=1), selected purposefully'. However, Patton (2002, p. 246) recommended to 'specify *minimum samples* based on expected reasonable coverage of the phenomenon given the purpose of the study and stakeholder interests'. Purposeful samples should be judged according 'to the purpose and rational of the study' (Patton, 2002, p. 245), therefore the minimum number could be changed when additional cases fail to add value in the research, or when additional cases are needed to answer the research questions. Following Eisenhardt (1989), who suggests a sample size between four and ten cases, the sample size in this study will be in between ten to twelve. Also, this number is chosen based on the average of sample numbers (15

women) found in the earlier qualitative research papers in the topic of this research, taking in account the smaller population of Bahrain (population of 1,332,000) (The World Bank, 2013).

There were two limitations regarding the selection of cases. First, the sample is very small because cases are restricted to those women at a middle/senior management rank in the IT field, while, in Bahrain, most of women work in the IT field are at a lower level. Second, the unwillingness of the Bahrain Civil Service Bureau (CSB) and the Social Insurance Organisation to provide the requested information about the number and position of women work in the IT field in the public and private sectors in Bahrain. The Bahrain Civil Service Bureau (CSB) provided a list of the total numbers of males and females working in the IT in the public sector, categorised by the place of work. However, it was without any information relating to their job title or position. While, the Social Insurance Organisation has not sent any feedback on the information request, despite the several reminder emails and phone calls by the researcher.

4.6.2 Data Collection

The focus of this study is to better understand the experience of senior IT women managers in Bahrain by focusing upon the three research questions: (a) What are the factors that act as barriers or facilitators for their career advancement to upper managerial levels in the IT field, (b) how do those factors influence their career advancement to upper managerial levels, and (c) how have they overcome the barriers that hinder their career advancement? This study employs interviews as an instrument for data collection, in order to obtain in-depth information relating to these research questions. The qualitative research interview is ‘one of the most important sources of case study information’ (Yin, 1994, p. 48), and used to ‘understand the world from the subject’ point of view, to unfold the meaning of people’s experiences, to uncover their lived world prior to scientific explanations’ (Kvale, 1996, p. 1). In fact, in-depth interviews allowed the researcher to investigate the issues comprehensively and in an insightful manner (Creswell, 1998).

The interview is to be semi-structured and open-ended nature, which is defined by Kvale (1996) as ‘interview whose purpose is to obtain descriptions of the life world of the interviewee with respect to interpreting meaning of the described phenomenon’ (Kvale, 1996, pp. 5-6). A semi-

structured interview is appropriate for data collection in this study, in which ‘the participants can best voice their experiences unconstrained (and create their opinion) by perspectives of the researcher or past researcher findings ‘(Creswell, 2008, p. 225).

The interview consisted of two levels of questions as shown in Table 14. The first level consists of eleven essential questions are designed to serve the stated purpose of the research and investigate woman’s experience and the influential factors, whilst the second level is designed to shed further understanding upon the essential questions.

Table 14: Interview Questions

First level questions:	Second level question:
1. What is your job title? How many subordinates do you have and what is their gender? How many people you are reporting to and how they are?	
2. Please tell me about your educational background and work experience especially in relation to your current position.	
3. Tell me about your abilities that influence your work.	
4. What things do you feel have a negative impact on your career progress?	a. Describe your exposure to work in IT field.
5. How have you overcome them?	b. How have the training courses assisted your work experience? (number, frequency)
6. What things do you feel have a positive impact on your career progression and help you to become a senior IT manager?	c. Describe your involvement in the informal networks in the workplace (person’s positions, nature, level of contact, closeness, help, emotional support, length of time they know each other, and etc.).
	d. Whose persons (mentors, role models, parents, other) have influenced your career development? (by closeness, direction for help, emotional support, length of time they know each other, etc.) (Parents, family,

	<p>friends, work peers)</p> <p>e. Describe the nature of the relationship with your male peers in the workplace (nature, level of contact, closeness, help, emotional support, length of time they know each other, etc).</p> <p>f. What events in your life have influenced your career development? How?</p> <p>g. If married, how many children you have and how do you manage the work-life conflict?</p>
7. What is your attitude towards the role of women (in general)?	
8. What is your attitude towards women in IT?	
9. What is your workplace attitude towards women in general and IT?	
10. What is your opinion about the IT occupational culture? (Challenges and opportunities).	
11. What are your recommendations to enhance women's status/position in the IT field?	
12. Demographic section: age, nationality, place of birth and grow, and place of study.	

Moreover, as this study adopted the critical stance, further questions in the interview such as “why”, “tell me more”, “can you give me some examples”, “how did that make you feel”, and etc., need to be asked depending on what the interviewee says. The critical research goes beyond simply being an empathetic observer of the participant's life, however it goes to investigate ‘the broader context of power constrains and repression, social asymmetries, and technological determinism’ (Howcroft & Trauth, 2008, p. 22). Thus, ‘in a critically-oriented interview situation the researcher would use [the responses of the interviewer] as an opportunity to explore the

contradictions about structural inequality that was reflected in this response. [Whereas], in the interpretive interview, the researcher simply nodded and said nothing' while listening to the interviewer (Howcroft & Trauth, 2008, p. 22).

The interview follows a set of procedures, as shown in the case study or interview protocol (see appendix A), which is defined as 'a form designed by researcher that contains instructions for the process of the interview, the questions to be asked, and space to take notes of responses from the interviewee' (Creswell, 2008, p. 233). Having the interview protocol is important because it guides the researcher in carrying out the case study, especially the multiple-case study, and increase the reliability of the research (Yin, 1994).

The interview protocol were reviewed three times by experts for validation, first by Dr Maha Al-Rashed (PhD holder on "*An Investigation of Leadership Styles of Bahraini Women Top Managers*" from University of Salford) – (Assistant Professor at Dep. Of Mass Communication, Tourism & Fine Arts at University of Bahrain), secondly by Dr Ali Zulait - (Assistant Professor, Dept. of Information Technology at University of Bahrain), and thirdly by two members of the interim assessment panel. The interview questions have been reviewed and modified based on their comments.

A pilot test was conducting before the actual study started, with two female low-level IT managers in their workplace, in order to evaluate the interview protocol. The pilot study 'helps investigators to refine their data collection plans with respect to both content of the data and the procedures to be followed' (Yin, 1994, p. 74). During the pilot test, the interview questions were asked as in the interview protocol. Some improvements have been made for the interview protocol as a result of the pilot testing, such as changing the interview time from 90 to 60 minutes, asking for the email of the participant in the consent form, adding more questions related to their current position in the descriptive data section, and rephrasing some questions.

During this phase a number of difficulties were faced by the researcher. For example, in two interviews, the participants stated that the audio recorder limits their freedom of speech and expression in some questions; the researcher has been asked to pause it to some answers. In one

of the interviews also, the recorder was not working, so the notes were hand written to the degree where the researcher could capture the participant's answers. Some interviews were interrupted by people at work or the participants received phone calls on their cellular or office phones.

The collected data have been organized and prepared for analysis. Each interview audio file was stored on the computer and then transcribed using MS word. In-site memos and notes were scanned and stored on the computer as well. To assist in data organisation, a folder was created for each case where all related files and documents are stored, which facilitated the individual case analysis.

Data management has taken a long period especially in transcribing the interviews. Every ten minutes of the interview audio file took approximately one hour to be transcribed. A total of 159 pages of transcription were produced. The gathered data was approximately 166 pages of transcripts from interviews and field notes from observations.

4.7 Data Analysis

The interpretive nature of this study relies on the researcher's interpretation and understanding of the data for meaningful analysis. Congruent with the interpretive and social construction perspectives used in this study, the *constructive grounded theory analysis* (Charmaz, 2006) was used for the data analysis. Analysing qualitative data 'requires understanding how to make sense of text and images so that you can form answers to your research questions' (Creswell, 2005, p.230). Peter Swanborn (as cited in Mills, et al., 2009) distinguishes three traditions in the qualitative analysis in the research: (1) the Yin tradition, (2) the Miles and Huberman tradition; and (3) the qualitative, interpretive tradition. With regard to the qualitative tradition, the grounded theory approach has been most influential and widely used, though not always in the way as originally intended by Barney Glaser and Anselm Strauss (Mills, et al., 2010). According to Creswell (2003) the grounded theory approach is where the researcher attempts to derive a generalist, abstract theory of a process, action, or interaction grounded in the views of participants in a study.

The data analysis using the *constructive grounded theory* (Charmaz, 2006) *approach* was guided by the research questions: (a) What are the factors that act as barriers or facilitators for their career advancement to upper managerial levels in the IT field, (b) how do those factors influence their career advancement to upper managerial levels, and (c) how have they overcome the barriers that hinder their career advancement?

In this study, the data analysis went through two stages of analysis: within each case, and cross cases. Individual or within case data analysis aims to understand the lived experiences of each case as a whole. The importance of within-case analysis is driven by ‘one of realities of case study research: a staggering volume of data’ (Huberman & Miles, 2002, p. 17), and also it is appropriate to do the cross-cases analysis only after a picture of each case has been constructed (Yin 1989; Stake 1994). While cross-case data analysis aims to identify both common and unique patterns in the data. Huberman & Miles (2002) view that ‘the idea behind these cross-case searching tactics is to force investigator to go beyond initial impressions’, and ‘enhance the probability that the investigators will capture the novel findings which may exist in the data’ (Huberman & Miles, 2002, p.19). According to Yin (2003), cross-cases analysis provides a logic chain of evidence for the relationships studied on the basis of the framework and required for the generalization.

4.7.1 Stage One Individual Case Analysis

Informed by the interpretive epistemology, the data analysis started with coding the interviews in order to facilitate identifying emerging themes in the later stage. Each case was analysed and written up individually, focusing on the description and interpretation. The five strategies of the constructivist grounded theory analysis (Charmaz, 2006) were followed:

1. **Line-by-Line open coding.** Coding is the first step of data analysis and defined as ‘naming segments of data with a label that simultaneously categorises, summarizes, and accounts for each piece of data’ (Charmaz, 2006, p. 43). Each interview was reviewed and analysed word by word and line by line. A list of all the identified codes and related quotes was created for each case. This initial stage of coding aims to explore the data and obtain a general sense of the data (Creswell, 2008). After careful reading of the entire text

of the transcripts, the researcher constructed a comprehensive list of the most significant and/or frequent initial codes discovered in the data. Sixty one (61) codes were identified at the end of the open coding step.

2. **Focused coding.** After conducting the initial coding, the researcher assessed the relationship between them and identified the categories. Charmaz (2006) mentioned that the focused coding means that the most significant and/or frequent initial codes are used to sift through remaining data. The focused coding involved re-arranging the initial codes in a way to help identify the common themes.
3. **Memo-writing.** ‘Memos catch your thoughts, capture the comparisons and connections you make, and crystallize questions and directions for you pursue’ (Charmaz, 2006, p.72). Memos were written directly after conducting and coding each interview summarizing key ideas, potential relations and emerging codes or category that required further exploration.
4. **Diagramming and memo sorting.** Resulting categories and links between them were illustrated by basic diagrams. All the founded factors that influenced the career advancement were diagrammed for each case. Comparing these diagrams to each other helped in further sorting and grouping similar codes, and aided in identifying the main categories (themes).
5. **Development of core categories.** The researcher identified the central categories, which encapsulated the integration and interrelationships of the categories resulted after data coding. These core categories explained most of what is going on, and formed a general structure for the comparisons between the cases. Five main categories and six sub-categories were developed after the data analysis as presented later in this report.

4.7.2 Stage Two Cross-Case Analysis

The individual cases analysis is followed by a cross-case analysis in order to identify the recurring core categories (themes) across the individual cases and form the basis for generalizing the findings and conclusions. In the stage of cross-case analysis, a comparison of similarities and differences across the individual cases were conducted using the individual case diagrams and

memos. This cross-case analysis led to the re-examination of the data, explored how different contexts and process varied across, and providing insight into the phenomenon being studied.

4.8 Research Validity

In the qualitative research the ‘validity’ concept – a common label “trustworthiness”- refers to the extent to which the findings are “true” from the perspective of the research participant (Creswell & Miller, 2000). Validity of this research was established based on the philosophical assumptions (interpretive) underlying the research, and relies on whether the findings are valid, reliable, and they can be generalized. Next, the criterion construct validity, reliability, and if external validity of this research are presented.

4.8.1 Construct Validity

This criterion in the qualitative research means ‘assessing whether the information obtained through the qualitative data collection is accurate’ (Creswell & Clark, 2010, p. 211). Thus, since this research aims in ‘understanding’ and investigating the subjective reality (internal to the individual) of the female senior IT managers, the internal validity will be addressed by conducting ‘member-check’ which ‘is a frequently used approach, in which the investigator takes summaries of the findings (e.g., case studies, major themes, theoretical model) back to key participants in the study and asks them whether the findings are an accurate reflection of their experiences’ (Creswell & Clark, 2010, p. 211). Member-check is a tactic ‘to have the draft case study report reviewed by key informants’ (Yin, 1994, p. 35). Because human beings ‘are the primary instrument of data collection and analysis in qualitative research’, member-check makes us “closer” to the reality than if a data collection had been interjected between the researcher and participants (Merriam, 2009, p. 214). A copy of the summary of the results was sent to the participants, and they were asked to provide feedback. None of the participants have provided a feedback that needs a change in the results. Moreover, the findings were viewed and discussed in terms of the existing literature to increase the credibility of the research and reduce unintentional bias or subjectivity of the researcher as bias can exist in any interpretive research.

4.8.2 External Validity

In qualitative research, external validity – also called generalisability or transferability - refers to ‘the extent to which the findings of a qualitative study can be generalized or trusted to other situations’ (Merriam, 2009, p. 234). Yin (1994) argue that case studies should focus on analytical generalization – rather than on the statistical generalisability, which is built on the replication logic and defined as a ‘method of generalisability in which a previously developed theory is used as a template with which to compare the empirical results of the case study’ (Yin, 1994, p. 31). Yin’s concept of *analytical generalisability* has received attention and approval from a prominent interpretive IS researcher, Walsham (1995) and many other IS researchers (as cited in Lee & Baskerville, 2003).

In this study, generalisability will be achieved through the use of replication logic in the multiple-case interview design. The cross-case analysis studies of ten case in this study can provide a sound basis for analytical generalisation. Moreover, the study includes a ‘rich’ description of the case study and rational for the case study selection, and details on the study case context, to allow other researchers to replicate the study in different contexts. Also, the research findings will be viewed and discussed in terms of the existing theory and literatures in women and IT.

4.8.3 Reliability

This criterion refers to ‘the extent to which there is consistency in the findings’ (Merriam, 2009, p. 234). Reliability of a case study demonstrates that ‘a study can be repeated with the same results’ (Yin, 2003, p. 34). Reliability in this research will be addressed by providing sufficient details about the research methodology, data collection and analysis, and by using a case study protocol, ‘so the findings could be sustained without contradiction if the study was replicated’ (Yin, 1994, p. 34).

4.9 Code of Ethics

Addressing the research question of this study requires asking the participants about details of their life experiences in specific times. Thus, ensuring the use of the ethical practice in data gathering and storing in this research, is part of the research role. The following procedures were used to ensure ethical practice in this research:

1. Before interviews began, the interview protocol was submitted to the College of Science and Technology Research Ethics Panel (CST) for ethical approval. The purpose of the ethical approval was to ensure that the process of collecting, using and sharing data in this research respects ethical and legal obligations. One of the requirements of this ethical approval was the development of a consent form (see appendix C).
2. Each participant signed a consent form which is developed in order to gain the agreement of the participants. The informed consent form presents the purpose of the study. It also includes a statement indicating that the participant is able to withdraw from the interview at any time and with no questions asked. The informed consent form presented the purpose of the study. It also includes a statement indicating that the participant is able to withdraw from the interview at any time and with no questions asked. Participants were asked if they would be willing to (1) sign the form, (2) be audio taped and (3) participate with real or false name. After signing the form, the digital audio recorder was turned on to record the interview.
3. Consideration was given to the confidentiality and anonymity of the participants and their collected data sensitivity.
4. The researcher showed concern and importance to the participants.
5. Participants were not coerced to participate informed that she was free to withdraw any time.

4.10 Summary and Conclusion

This chapter presented the rationale for selecting the research methodology, epistemology, strategy employed in this study. It also described the procedures of case selection, data

collection, data analysis. Followed research validity was discussed and the techniques employed to ensure trustworthiness. Lastly, the chapter has provided the code of ethics used in this study. The purpose of this research is to gain better understanding of the factors that influence women's career advancement in the IT field in Bahrain. Qualitative inductive research approach was selected as it is suitable for the research questions and purpose of the study. The epistemological stance underpinning this study is both of the interpretive and critical epistemologies. An interview method was used for investigating the work experience of a group of ten Bahraini women in a senior or middle management position in the IT field. The interview method helps to gain in-depth understanding of what happened during their career advancement, and how they achieved high managerial positions in the IT field. Semi-structured face-to-face interviews were conducted and analysed using the constructive grounded theory analysis (Charmaz, 2006) through two stages; individual case and cross-case analysis. The next chapter will provide the background profile and demographic data of cases participated in this study.

Chapter Five: Data Analysis

5.1 Introduction

This chapter aims to present the analysis of the personal data of the ten women who participated in this study, in order to understand the uniqueness of each case, since the conceptual framework (IDTOGT) of this study takes in account the personal differences among women in the IT workforce. Analysing women's personal data is important to set the scene and understand the complete picture of factors contributing to their career advancement in the IT field. The chapter starts with a background profile of each woman who participated in the study, then provides a summary of the demographic data.

5.2 Background Profile of the Cases

A brief background profile for each case is provided below, followed by a summary of their demographic data. For reasons of confidentiality, the names of the participants are presented anonymously.

Case one

Case one is a 33-year-old married Bahraini woman, and she has two children aged 5 and 2. At the beginning of her life, she lived in Qatar as her parents were working there. At the age of sixteen, she returned to live in Bahrain which is her parents' country of origin. In 2001, she received the BSc degree in computer sciences from a local university, and she worked as a systems developer in the IT department at the same university. Currently, she is also a Master's candidate in Information Technology (MIT) at a local university.

Case two

Case two is a 40-year-old married Bahraini woman, occupying the position of IT manager in a Saudi telecommunication group which was established in March 2010 to launch commercial services in Bahrain. In 1998, she received the BSc degree in the computer sciences from a local

university. She believes that the minor in accounting, which was part of the curriculum of the computer sciences, has helped her a lot in her career, and she views that it is necessary at a certain career level where having business knowledge beside the IT knowledge is required for the work. After her graduation in 1998, she worked as a system administrator in a national financial company that provides services and support to the banking community in Bahrain and the GCC. In 2005, she was promoted to the position of head of development section, heading up a team of five employees, and reporting to the chief executive. After ten years of working in this company, she looked for a better job opportunity, so she changed her job and worked as an assistant project manager in a local telecommunications company operating across 16 markets in the MENA region and internationally. Then she worked for a short time as a head of IT in an organisation in the public sector. She did not like the work in the public sector and she left after less than three months and returned to the private sector.

Case three

Case three is a 37-year-old married Bahraini woman, and she has two boys aged 8 and 12. In 1997, she received the BSc degree in computer sciences from University of Kuwait. She began her career in 1998 in a financial organisation as a systems developer in the IT department. This financial organisation was established in 1989, and then it has been re-established as a shareholding company in 2010. Since its establishment in 1989, the trading is being conducted manually through a system used by the brokers and investors. In 1999, it has implemented an automated trading system to carry out all its transactions electronically, replacing the old manual system. Case three was a contemporary of this transformation of the work process of the organisation, which had contributed into building her work experience and knowledge. After long years of work, case three has been promoted to the head of IT in April 2008 in the same organisation, heading six subordinates and reporting to the Director and Deputy Director. Besides her work, she is also doing some other work in the organisation, for example, she is a member of the committee of recruiting and health insurance in the organisation.

Case four

Case four is a 50-year-old divorced Bahraini woman, occupying the position of Vice President ICT at an airport company since 2008. Presently, she is heading up a team of sixteen employees

(15 male and 1 female), and reporting to the Chief Executive of the company. In 1987, she received the BSc degree in the computer sciences with a minor in mathematical statistics, from University of Kuwait. In 1992, she received the MBA degree from University of Virginia, U.S.A, and a mini MBA degree from Darden School of Business Administration, U.S.A University. After her graduation and return from Kuwait, she worked in the Ministry of Finance for 22 years. She started there as a systems developer in the IT department then worked her way up to become the head of IT department, and she was the first female head in the Ministry of Finance. After the Ministry, she worked in the Supreme Council for Women for one year. Mainly, her work was formulating the national strategy for the advancement of Bahraini women. Later, she joined *Tamkeen* which was established in August 2006 for fostering the creation and development of enterprises, and providing support to enhance the productivity and growth of enterprises and individuals in Bahrain. She used to work in formulating the strategy of *Tamkeen*. In 2008, she joined the airport company which was in the establishment phase. Most of her work at that time was with the top management team in developing the strategies and plans of the company, and this has made her more interested in the work of strategies development. However, after the establishment phase, the top management recommended that because of the rich IT experience of case four, she has to be the head of the IT department of the company.

Case five

Case five is a 32-year-old divorced (disengaged) Bahraini woman. In 2002, she received the BSc degree in Computer Sciences from University of Bahrain. Then, she worked for a year in the Sciences Centre, managing training courses. In 2004, she worked as a programmer in a public legislative organisation, and made her way to become the head of development section in the IT department in 2007. Case five believes that this legislative organisation has played a key role in building her work experience and knowledge, and it had supported her through many IT and management training. This organisation had sent case five to many courses, such as MCSD, .Net and PMP, and others. Also, she was sent to complete a Diploma in Management from Bahrain Training Institute (BTI). In 2007, she became the head of IT department of a public organisation (semi-government) aims to empower Bahraini women in the work arena, ensure her family's stability, and enhance the standards of her life through legislations and policies. She is heading a

team of three males and one female, and reporting to the General Manager, General Secretary, and Assistance General Secretary.

Case six

Case six is a 38-year-old married Bahrain woman that has 4 children aged 12, 10, 7 and 4. Her father was a businessman, and her mother a housewife. She worked as an IT administrator in a British navigation firm located in Bahrain for seven years. In the last three years for her at this firm she was occupying the position of the IT manger. In 2008, she joined a local university and works as the head of IT support.

Case seven

Case seven is a 34-year-old single Bahraini woman, and she worked as the head of IT in an environmental organisation. She received the BSc degree in Computer Sciences from the University of Bahrain in 2002, and then she worked as a developer in the Ministry of Education in the IT department for seven years. During her work there, the Ministry sponsored her MSc study in Brunel *University* (UK), and she also became an Oracle certified professional. In 2009, she has accepted the job offer to work as head of IT in an environmental organisation in the public sector. She works there till today, heading seven subordinates, and reporting to the Undersecretary and the Chairman.

Case eight

Case eight is a 40-year-old married Bahraini woman, and she has four children aged 8, 10, 14 and 15. In 1999, she went to Qatar to study Computer Sciences at the University of Qatar, and after four years she received the BSc degree, and also later the MSc degree in Information Systems from a university in Bahrain in 2013. In 2003, she began her career at a local university as a developer in the enrolment and registration section. She spent four years at the university, then she joined a legislative organisation in 2007 as a director of IT. Presently, she is heading seventeen employees, and reporting to an Assistant General Secretary, General Secretary, and the Chairman.

Case nine

Case nine is the head of software development, and acting head of IT in an aviation organisation. She is a 45-year-old married Bahraini woman, and she has four children. Three of them are students in the university, while the youngest one is still in school. Her father was a kind, open-minded hardworking man who moved from one place to another for his career, so she spent her childhood in Dubai where her father was working. After she finished secondary school, she got a scholarship for studying Computer Sciences in the American University in Washington DC. In 1988, she received the BSc degree and came back to live in Bahrain with her parents and brothers. Also later she received the MSc degree in business management. In 1988, she began her career at the IT department as a systems analyst in a petroleum company. Then in 1999 she

has joined the aviation organisation and in 2001 she became the head of software development there. Presently, she is the acting head of IT, reporting to the Director, Undersecretary and Assistant Undersecretary, and heading nine people (6 female and 3 male).

Case ten

Case ten is the head of IT in a quality assurance organisation in the public sector, she is a 35-year-old married Bahraini woman, and she has two daughters aged 4 and 10 years. In 2001, she received the BSc degree in Computer Sciences from University of Bahrain, and she received the MSc degree in Application Development from a local university in 2006. After her graduation, she began her career in the Ministry of Housing. She spent eight years in the ministry and she made her way to the position of senior system analyst. In 2009, she joined a quality assurance organisation as a head of IT, heading three foreign male subordinates, and reporting to the Director of operation and the Director of the organisation.

5.3 Summary of Demographic Data

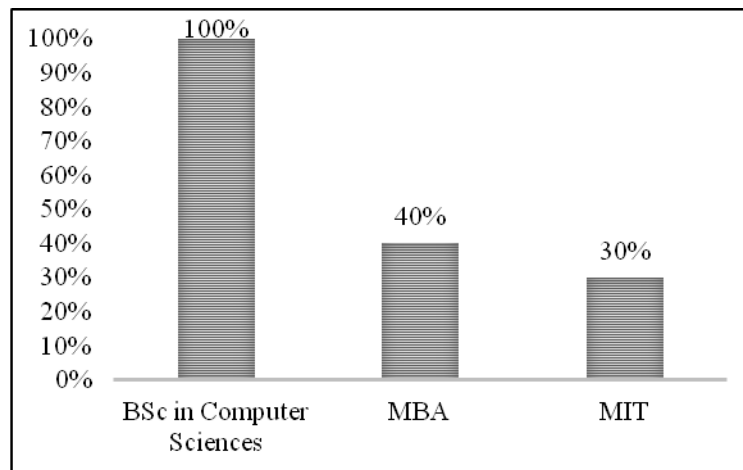
In summary, all cases were Bahraini Muslims women working in IT. They were born and raised in Bahrain, except two cases that where one was raised in Qatar (case one) and one in the UAE (case nine). The age of those ten women ranged from 32- above 45 years (Mean, 37.9); five of them are in their thirties while the others are in their forties (see table 15). Seven of them are married, two are divorced and one is a single woman. Eight of them are mothers and have a total of two to four children aged between 4 – 30 years. Table 15 summarizes the demographic data of the cases.

Table 15: Demographic Data of the Cases

Participant	Age	Marital status	Number of Children	Age of children (years)
Case 1	33	Married	2	2
Case 2	40	Married	4	9- 22
Case 3	37	Married	2	8-12
Case 4	45-50	Divorced	2	20- 30
Case 5	32	Divorced	-	-
Case 6	38	Married	4	4-12
Case 7	34	Single	-	-
Case 8	40	Married	4	4-16
Case 9	45-50	Married	4	20-30
Case 10	35	Married	2	4-10

Most of them have an MSc degree in the IT or Business Administration (70%), while all of them have a BSc in Computer Sciences as presented in figure 14. Two women have taken their BSc in Kuwait, one in Qatar, one in Washington DC, and the remaining in Bahrain.

Figure 14: The Percentage of the BSc and MSc Degrees Gained by the Cases

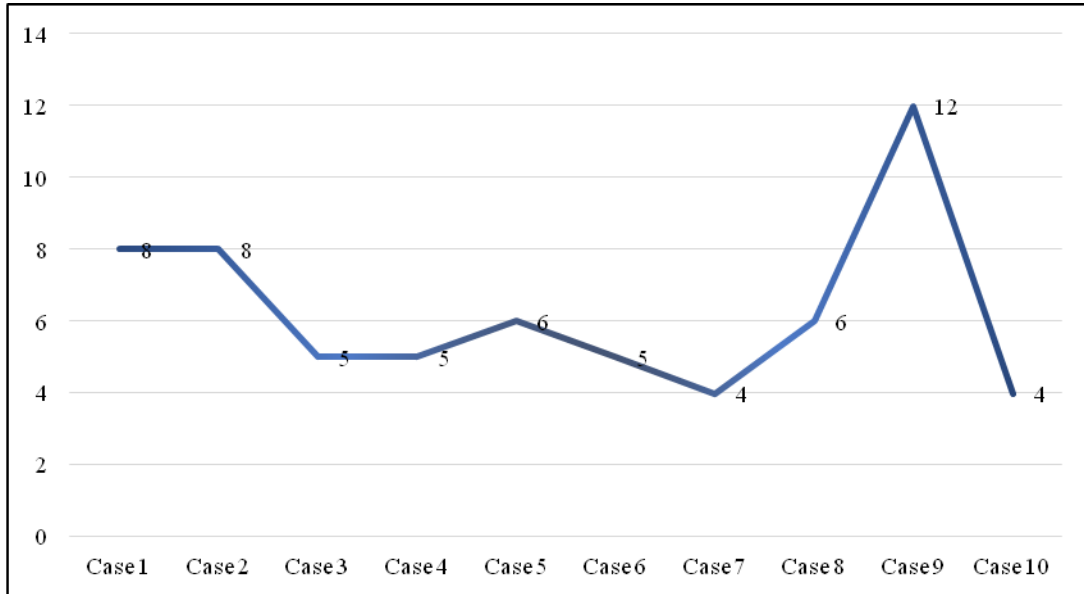


Their work experience ranged from 9-28 years (Mean, 16.4) in the IT field. Four of them work in the private sector and the remaining work in the public sector. Table 15 presents the participant's job title, work experience, number of subordinates and the type of sector they work in. All of them are head of IT directorates except two cases; case 1 head of development section and case 6 head of IT support section in the IT directorate. Their experience in managing the IT ranged from 4-12 Years (see figure 15), and the number of subordinates they currently managing ranged from 3-17 (see table 16).

Table 16: Work Experience of the Cases

Participant	Job title	Work experience (year)	No. years at the last position	No. subordinates	Work sector
Case 1	Head of development	11 (Since 2001)	8 (Since 2005)	7	Semi-government
Case 2	IT Manager	15 (Since 1998)	8 Since 2005)	5	Private
Case 3	Head of IT	15 (since 1998)	5 (Since 2008)	6	Private
Case 4	Vice President - ICT	28 Since late of 80s	5 (Since 2008)	16	Private
Case 5	Head of IT	9 (Since 2004)	6 (Since 2007)	4	Semi -government
Case 6	Head of IT support	12 (Since 2001)	5 (Since 2008)	4	Private
Case 7	Head of IT	12 (Since 2001)	4 (Since 2009)	3	Semi government
Case 8	Director of IT	10 (Since 2003)	6 (Since 2007)	17	Semi government
Case 9	Head of IT	25 (Since 1988)	12 (Since 2001)	15	Private then government
Case 10	Head of IT	12 (Since 2001)	4 (Since 2009)	4	Government then semi government

Figure 15: Experience of IT Management (years)



Demographic information of the cases is summarised in table 17.

Table 17: Summary of the Demographic Information of all the Cases in this Study

Demographic information	No. of women	% of women
Age		
at 30s	6	60%
at 40s	4	40%
Education level		
BSc	10	100%
MSc	7	70%
Marital status		
Single	1	10%
Married	7	70%

Demographic information	No. of women	% of women
Divorced	2	20%
Motherhood status		
Two children	4	50%
Four children	4	50%
Type of Sector		
Private	4	40%
Public	6	60%
Work experience		
9 years	1	10%
10 years	1	10%
11 years	1	10%
12 years	3	30%
15 years	2	20%
25 years	1	10%
28 years	1	10%
Managing IT experience		
4 years	2	20%
5 years	3	30%
6 years	2	20%
8 years	2	20%
12 years	1	10%

5.4 Summary and Conclusion

This chapter presented a background profile and demographic data of all women participated in the study. This chapter provided a summary of their personal data such as job title, years of IT work experience, work sector, age, education level, marital status, and motherhood status. As mentioned in chapter four, the analytical framework of this study is the Individual Differences

Theory of Gender and IT (IDTOGT), which views women as individuals, having distinct personal factors, influences and experiences, and takes in account differences among women and their response to the IT workforce. The personal data is one of the three constructs of IDTOGT that used in analysing and understanding the differences among women in the ways they experience the IT workforce. Therefore, the analysis of personal data was important to understand the uniqueness of each case. In the next chapter the researcher provides the key themes emerged from the cross-case analysis of interviews conducted with these women to capture their stories and understand their career advancement in the IT field.

Chapter Six: Findings and Discussions

6.1 Introduction

This chapter aims to present key themes discovered in the interview transcripts. The chapter starts by presenting key themes grounded in the interviews according to the research questions. Then, a summary of findings and discussion are provided with a model integrates factors influenced the advancement to senior IT management positions of women participated in this study.

The primary purpose of this study is to gain better understanding of the factors that influence Bahraini women in their career advancement to upper managerial levels in the IT field.

The research interviews aimed to capture the stories of ten Bahraini women's career advancement in the IT field. The analysis of interviews was guided by the research questions:

1. What are the factors that hinder or facilitate the career advancement of women to upper managerial levels in the IT field in Bahrain?
2. How do those factors influence the career advancement of women to upper managerial levels in the IT field in Bahrain?
3. How have senior IT women managers in Bahrain overcome the factors that hinder their career advancement?

Since both of the researcher and participants in this study speak Arabic language, the interviews were conducted in Arabic. In order to avoid issues associated with analysing and interpreting a translated version of data, the interviews were analysed in the original language. First, the interviews were transcribed and analysed in the original language. Analytic codes, categories, memos and notes were labelled in the original language. Also, transcription was included information about non-linguistic features such as pauses, interruptions, and incomplete sentences, laughter, repetitions, and so on.

Then, after the researcher gained an understanding of the meanings of the data and the analytic themes emerged from the analysis of original text, these themes were translated into English.

Also, the original quotations of women related to key themes were translated into English in order to be used in the presentation of the findings in this chapter. The phase of translation of women's quotes was a challenge, because it isn't easy to translate some cultural metaphor in the transcript. Some vocabularies used by women were difficult to translate using equivalent words in English or other language, because beside the linguistic equivalence it needs also to ensure cultural equivalence and congruent values, and sometimes the exact equivalence do not exist in other languages or cultures.

It is worthwhile noting that transforming of the spoken word into a written word in the qualitative research is an interpretative act. Many writers have shown there is no final translation or one truth or meaning, and there is a number of choices can be made (Kvale, 1996). In the translation, alternative of terms and concepts can be chosen for the same narrative. For this, every effort was made by the researcher to capture as much detail as possible of the original utterance and to choose the exact words to preserve the meaning of the interviewees' responses.

6.2 Findings

The main findings of the study as derived from interviews with the ten Bahraini women in IT management positions, are presented below. First, the main themes grounded in the interviews according to the research questions are presented. Followed by recommendations given by the women in this study about women's career advancement in the IT field.

Research question 1: What are the factors that hinder or facilitate the career advancement to upper managerial levels of women in the IT field in Bahrain?

The data analysis showed that there are 14 factors have influenced the career advancement of women in this study. These factors grouped in four main themes as enumerated in Table 18: (1) the individual characteristics influencing the career, (2) organisational context, (3) IT work field characteristics (4) the work-life balance. The last three former themes are grouped in a category named the environmental influences.

Table 18: Summary of Findings

	Theme	Code	Illustrative Quotations
	1. Individual characteristics influencing the career	Level of performance and productivity.	<p>‘I have known and enhanced these systems in a record time, I have learned how to work with all of the systems in four years, so it was wow!’ (Case 1).</p> <p>‘I have built this system by myself, alone, without a team, I remember, when I started gathering the requirements, I worked in the Chairman's office, I sat with the staff of the Chairman's office for three months, in order to see where and when the organisation work starts, and where it goes’ (Case 5).</p>
		Work competencies	<p>‘I think I have proved some different managerial and leadership skills. In general, I think boys are good in implementation, but they are always in need for direction’ (Case 3).</p> <p>‘I feel my personal communication style with people is the main reason why I am in this job position today’ (Case 6).</p>
		Commitment and motivation to the organisation.	<p>‘If they want to advance to a high position, they have to be committed to the work! They have to feel that their work is like their child, they have to take care of it and develop it’ (Case 2).</p> <p>‘I like my work too much, and I like to be honest and fair at my work’ (Case 7).</p>
		Determination, challenge and ambition.	<p>‘I have a strong insistence and persistence that I never give up, and I always try over and over again till I get what I seek’ (Case 4).</p> <p>‘Since the beginning, I know that I don’t want to stop at this place, as I said, still I don’t feel that I have reached what I aim for, still I need more and I feel there is more to be achieved’ (Case 4).</p>
		Interest in the IT work.	<p>‘I will never leave the IT field, because it is a profession in my hand’</p>

			<p>(Case 6).</p> <p>‘I feel little bit that I don’t want to do more IT works. The problem of this field is it takes long time to do the work, and you always have to be up to date’ (Case 10).</p>
Environmental influences	2. Organisational context	Management support.	<p>‘I believe one of the positive things in my career was that I had a good manager before he left’ (Case 3).</p> <p>‘When I joined the legislative organisation, my manger was very supportive, he trusted my work abilities, he taught me, he suggested all the training courses I took, he invited me to participate in work meetings’ (Case 5).</p>
		Relation with peers.	<p>‘A lot of problems have happened to me because of my success, like jealousy and, you know?! A jealousy from the existing people in the section and have no work output’ Case 8).</p> <p>‘We were a nice group in the ministry, all of them were using their knowledge skillfully, thus, this was motivating everyone to be up to their level and to be even better and to work hard’.’ Case 10).</p>
		Training.	<p>‘The firm was concerned a lot with the training and qualifications of employees, they were encouraged to develop their work abilities by going on training courses. The management used to offer the most recent training courses inside and outside Bahrain regardless of the cost and time needed’ (Case 5).</p> <p>‘I have decided to pay for these courses, because it is very important to have a benchmark to make sure that you are following the international IT standards’ (Case 10).</p>
		Organisation structure and rules.	<p>‘In our university, it is hard to be promoted to the position of director because it needs a Master or PhD degree. According to the work law of the university, the position of IT director must be occupied by someone that has a PhD degree’</p>

			<p>(Case 6).</p> <p>‘This organisational mergers have corrected the IT position in our organisation, because the IT was a division under a department.... We became a department, and our policies are being applied to everyone’ (Case 9).</p>
	3. IT work field	Understanding the IT role.	<p>‘People here have no awareness about what IT can do for the organisation, I mean, you don’t get the budget for IT projects easily like the other departments, we are a supporting department, so it is hard to get enough budget for our projects’ (Case 7).</p> <p>‘When I read it, I have realised that it entirely depends on the IT. But they said ‘no the project is related to some other departments’ work’ (Case 7).</p>
		Cultural impact on women in the IT field	<p>‘Boys are better in the technical work or in the work that needs a lot of movement. The support and technical work requires a lot of movement. I can say girls are better in software development, because girls do not like moving too’ (Case 9).</p> <p>‘When I was studying in the university, I saw that boys are very active and want to prove themselves. They are staying in the lab till midnight, and because we are girls, we can’t do the same’ (Case 3).</p> <p>‘I have one girl in my team and she works in the information systems. I have never called her for an urgent case after work time’ (Case 5).</p>
		IT field opportunities and challenges.	<p>‘There are no IT job opportunities, most of the people working in the IT field are foreign people like Indians and other. Why?! Because foreign labour is much cheaper than Bahraini labour’ (Case 2).</p> <p>‘I think the government is facing the challenges of how to cope with the technology changes, especially in the electronic government applications’ (Case 6).</p>
	4. Work-life balance	Family role	<p>‘I took maternity leave only two times during my career, and they</p>

			<p>were only 45 calendar days. Also, at that that time, the breast-feeding break was only one hour, and many times I didn't take this hour' (Case 2).</p> <p>'I was in the 14th day of my maternity leave, I cut my leave and I started the work here' (Case 8).</p>
		Family support.	<p>'Honestly, without my mother and my husband I would not be able to do anything' (Case 2).</p> <p>'My husband is a conservative man that sees a woman's place is at home rather than at work. He sees that work is not a necessary thing for a woman, and her family is more important than work' (Case 6).</p>

Research question 2: How do those factors influence the career advancement to upper managerial levels of senior IT women managers in Bahrain?

Research question 3: How have senior IT women managers in Bahrain overcome the factors that hinder their career advancement?

Every factor in table 18 has influenced participants' IT career in different ways, either a facilitator or barrier to their career advancement, or it haven't any significant influence in some participants' career. Also, every women in this study has responded to the barriers faced in different way. To answer research question two and three, the related data and analysis of each factor shown in table 18 are provided, categorised by themes.

6.2.1 Theme One: Individual Characteristics Influencing the Career

As the stories of the ten women's career unfolded, it was evident that some individual characteristics played an important role in their career advancement, these are, (a) the level of work performance and productivity, (b) work competencies, (c) commitment and motivation to the organisation, (d) persistency, challenge and ambition, and (e) interest in the IT work. The influence of each characteristic on the career development of women in this study is presented next.

6.2.1.1 Level of Performance and Productivity

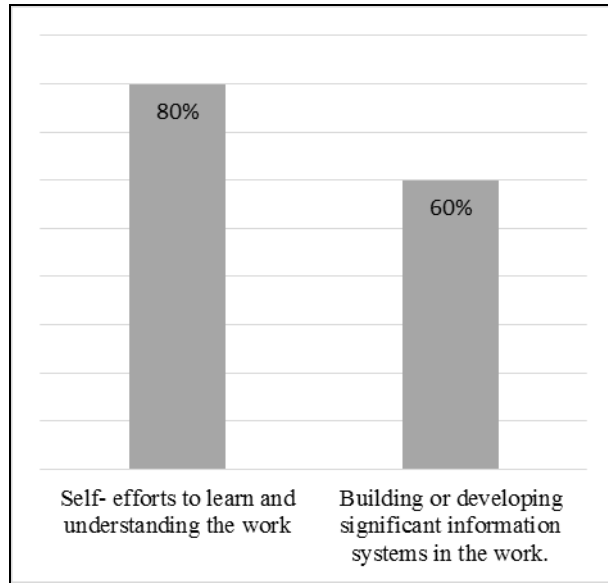
The stories of women in this study showed that the high level of work performance and productivity since the beginning of their career had significantly facilitated their career advancement. As you can see in table 19 and figure 16, most women (80%) indicated that they worked hard to learn and understand the business and entire work of their organisations, and how the IT is serving the work of the organisation. Also, (60%) of women stated that they have built or developed important IT systems for the work of their organisation at the early stage of their career, relying on their good understanding of the work of their organisations . Their early self-efforts and endeavours to learn, understand and develop the used applications and systems and the work of their organisation, have enabled them to achieve major work achievements, and build a strong work experience and a good professional reputation.

Next, the impact of the level of performance and work achievements of each case are presented.

Table 19: Level of Performance and Productivity

Level of performance and productivity	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Self- efforts to learn and understanding the work.	×	×	×	×	×	×		×	×	
Building or developing significant information systems in the work.	×	×			×		×	×	×	×

Figure 16: Level of Performance and Productivity



After case one has joined the work at the university, she started to learn and understand the used systems and applications used and how they work and what problems they have, and then she started to enhance and develop the functionality of these systems and applications. She believes that the quick and good understanding of the work has facilitated her advancement to her current job position. She stated, ‘at the time when I joined the university, the computer and information systems used were very old, and it was very hard to find someone from outside the university who knows the systems in a short period of time’. ‘I have known and enhanced these systems in a record time, I have learned how to work with all of the systems in four years, so it was wow!’ Since I am experienced in these systems and qualified, for example I have a BSc and so on, all of this had supported me in getting my current job position. What really happened was that two male IT workers, who were seen as very qualified and candidates to be heads and occupied my current position, had left the university and gone to other workplaces, so I was the only available qualified candidate for the position’. So all of this has enhanced my career progressing’.

Case two believes that her first job was the primary reason for her career advancement, she stated, ‘mainly, the company per se has built me and built my career, but also, partially it was my

effort, I used to spend more effort than the others, and also partially it was due to the luck'. 'I was very excited at the time when I just joined the financial company. At that time, the company was just newly established under the Bahrain Monetary Agency, and, it was providing the only ATM service and networking of ATMs. Over the time, it has become an independent big company and launched more services like the direct debit, payment gateway, credit reference bureau and others. At the beginning I worked as a systems administrator, I was supporting the end users, creating small databases, developing some statistics reports and some applications. I believe working in a small company gave me the opportunity to learn a lot, because I used to do many and multiple tasks like the networking, I have built the network there, I worked in the end users help and support, programming, development, in the database, and in various things. Over the time, I got primary experience in all of these works. Moreover, as the company is networking the ATMs, I have worked and got some experience in the ATMs, which have a certain language differs from the languages we learned in the university, the ATMs have certain configurations and servers, and they were being supported remotely from some service provider outside Bahrain. Later, I worked more in the programming, more in the applications, and some other things I can't remember them'.

Case two has played a key role in establishing a new significant service to the financial company, it is called the *credit reference bureau*. This important service helps the financial institutions in making informative decision when offering loans to their customers by obtaining their credit information and background. Case two believes that working in the project of this new service was a transition point in her career. She stated, 'after five years of working in the company, the project of 'credit reference bureau' has been initiated, I am not sure if you have heard about it, it is like when you go to a bank and apply for a loan, what they do? They enter your ID number and check your whole history, for example, whether you have loans in another banks, what is the percentage of loans out of your income, whether you pay on time or not'. After assigning the 'credit reference bureau' project to her, she travelled to Kuwait for two days to meet the group of people who worked at the same project in their organisation, she described her trip, 'it was a short business trip, but I was very committed to learn everything about the 'credit reference bureau system', and every part of it, and I was having many questions in mind to ask them. The 'credit reference bureau system' was supposed to be built by the company in

Kuwait, but when the manager saw that I was learning and knowing everything about it, he decided to assign the complete project to me’.

Case two believes that her first-line manager had decided to specifically choose her for managing the project because,’ he found that I have a variety of IT experiences, at that time the IT department had only 4 people, and all of them were women, all of the three women were older than me and were working in the technical section, which was dedicated to the ATMs networking. I was the only one who worked as a systems administrator, and did multiple IT works, I mean I was handling the other part of IT work, so they found in me a variety of knowledge and experiences, so they selected me’...‘So I worked in this project from the beginning, we have structured it, designed the applications, systems, interface, database and business rules. We had meetings with the managers of the banks and meetings with the users in order to know their exact requirements, also meetings with the Monetary Agency because this project was requested by them. These meetings were very important. After that, I travelled also twice to Egypt, because the company who developed the ‘credit reference bureau’ application was in Egypt, we had several meetings with them till we have reached to an optimal solution then we launched the application. We did some testing for the application, we did some trainings for the banks, because the banks are the end-users of the application. At the end everyone was satisfied with the project, the project is very useful and still running till today, we faced some obstacles, like the databases of the banks, the banks were not seriously caring about cleaning and updating the data, so the ‘credit reference bureau’ application came and came and contributed into cleaning the banks data’.

Case three believes that the time of joining her first job has helped her to start making work achievements from the beginning. She joined her first job at the time when the organisation was in process of automating its business process, which enabled her to know and understand the work of the organisation very quickly from her early days there. Directly after she joined the organisation, she was assigned to work in this automation project, she stated, ‘when I joined the organization, they were writing the information of exchange and transaction on whiteboards. Actually, when I joined, they were planning to establish the automated system for all the work process, they were discussing and brainstorming about the automated systems and exchange.

This was my first project in the work, and the reason of why they had to give many training, which helped me a lot in my career’.

Case four showed that she has always worked to understand and learn the IT work of all the organisations she had joined,’ at the Ministry, I began as a programmer, then system developer then higher and higher and so on, I have gone through all of this and gained the experience, specifically in the software side, while I learned things in the other IT sides through the training courses and my self-development effort, because there are many occupational fields in the IT field’. Also, after she joined the airport company she worked very hard to learn and understand the airports work and the IT airport systems.

Case five learned and understood the work very well in order to build a significant information system after she joined her first job, which had played an important role in building her work experience and facilitated her career advancement. She stated, ‘the legislative organisation was looking for an Oracle expert, they tried to find someone but they could not, they found me accidentally, so they employed me, and asked me to build the information system which they need. I have been employed in the legislative organisation just to build that system. In their view, the information system was small, however, over time it became bigger and bigger, and it became a huge system that everyone in the organisation depends on. Every input and output, every information, statistics, indicators, and every work were entered in the system. The system can show everything I want to know about the organisation, it can show everything from A to Z and its full history. Before I have built that information system, they used to follow-up the work by using papers, but after the developed system, the follow-up process can be done through the system. In the legislative organisation, there was many issues that needed to be followed-up, and the history of many of issues that needed to be checked. For example, sometimes they need to check what the update of a certain bill, whether it is approved by the executives? Whether it was recommended by organisation A or B? What are the related details and studies about this bill? ‘

‘I have built this system by myself, alone, without a team, I remember, when I started gathering the requirements, I worked in the Chairman's office, I sat with the staff of the Chairman's office for three months, in order to see where and when the organisation work starts, and where it goes.

I have read all work regulations, I knew what the law is, what the recommendations of the law are, and what questions were asked, and I lived with the staff in everything was happening. Accidentally, during the six years that I have spent in the legislative organisation, there were many new things that have come up in the work, like the interrogation, which requires developing the system which I have built. So, the system was getting bigger and bigger, and I also become more aware about laws and politics (laugh)’.

Case five believes she has learned and understand the work and she has a good knowledge from her first job place,‘sometimes you find that the work policy is unclear, for example, when they have promoted me to the position of ‘Head’ in the legislative organisation, they have not explained to me my exact work tasks, my tasks were unclear for me. I have imposed myself to understand and realised by myself what I have to do then I started working’... ‘there were many highly qualified and skilled people working there. It is true that I was working very hard there, but I have learned a lot! I think everyone can learn a lot there, for example I didn’t just learn the IT work, but I also understand the working of the legislation, human resources, finance, training, and etc. Me and every one worked there, he/she understand everything in the work. In contrast, here (current workplace) everyone is specialized in one certain work area only, and they become surprised when I talk for example in HR. They ask me how do you know in HR? The point is not that ‘I know’, but it is the ‘organisation which I came from and made me knew’. But unfortunately, the situation there was not normal, it was a sickly environment, working there is like a disease! The boat was being led by more than one leader. It was very difficult for me to stay working there’.

Case six believes that she really likes her first job at the navigation firm, and that she was always had the desire to understand and learn every work process in the organisation. She stated, ‘sometimes, I personally ask the management to cover the place of the absent employees, and I did not refuse to do any type of work. I like to work multi-tasks and any work. I like to know the work of the human resources, accounting, management, and etc. I always like to learn new things.

Case seven have built an important information system after she joined her first job at the Ministry of Education, she stated, ‘I did my senior project in the Ministry of Education, and after I have finished, I worked as a systems developer there. I have established for them a system using the Oracle within four months, and they are still using it till today (Proud)’. Also, she has established the IT department after she joined her current work organisation. She noted, ‘ I haven’t planned to change my work, I like my work too much in the Ministry, and I like to be honest and fair at my work. But some people came to me and offered me to work with them here, I accepted and came to work here. At that time, there was no IT department, so I started establishing the IT department.

Case eight believes her first job in the university have built her work experience and professional image. After she joined the university, she has solved a big problem in the registration system, and that was the start of her good and big professional reputation which it facilitated her career advancement.

She stated, ‘when I joined the university, the enrolment and registration section was being managed by a team of Egyptians, I was the only Bahraini in the team, and at that time, the university was suffering from a crisis, they have hired three part-time Egyptian employees, and all of them have police records or something like this, no transcript has been generated in the university for three or four semesters, they were lying for one year, telling people that the system has been attacked by a virus, but actually there was no virus, those three persons were holding the university from (the neck). At those days, the Oracle system was still not used, they said nobody in Bahrain knows how to use Oracle, and it was not taught in the university, it was expensive to have it in the university, but I studied in Qatar at the University of Qatar, where a lot of money can be given to the university, and the Oracle was taught there (phone call – she was in a debate), although I was a fresh graduate, I have built all the registration system by myself only’. ‘There was no Oracle specialist in Bahrain, and all of the IT people in the university were Egyptians, and my senior project was Development of Registration System, you know? And in those days, I was very fast, and we were working for 24 hours, the first transcript had been generated and printed by me, it had not been generated for one full year’.

Before case eight joined the legislative organisation, she and many others have been interviewed for the job. She believes the reason for choosing her among the rest of interviewees was 'maybe because of the certificates or experience, and at those days, the Oracle was the thing which was the most needed in the work, and there were a few people in Bahrain that had created a system from A-to-Z using the Oracle. I have many references in the university that can tell how many systems I have analysed, programmed and built by myself using the Oracle. I was like a complete team in one person'.

After case eight has changed her work and joined the legislative organisation, the first thing she was trying to do is to understand the work and develop it, although she was facing some difficulties, for example she noted, 'I was asking them about how do you write the correspondences, what are the procedures? Where is your booklet? I found that they have nothing! They have nothing written! Everything works according to the mores; I am the one who did the documentation for them before I did it for me, why?! Because I wanted to understand all the work of the organisation, in order to make it easier for them to do it. There was an attack from the people here on me when I came here (current workplace), 'who is this that you would bring from outside the organisation?!' Let me tell you how they have brought me here, I had been brought here as a systems specialist, why?! Because the ex-director of the IT was going to go for the master, and they were looking for someone very good in the Oracle, successful and can be trusted. Of course, my record in the university was clearly showing my work output.

Case eight is very concerned on protecting her professional image and reputation, 'praise be to Allah (God), we have never managed a project and it failed, never! Do you believe that even regarding my Master study, when the chairman announced that each head can have a scholarship for the MSc study, I did not have the desire to study, a normal employee came for me and said,'(her name), you have never ever finished a training course without getting the highest grade! Never! Those who study the master are not smarter or better than you, and this is a chance can't be found in any time in our organisation'. Therefore, I said for myself why not?! Let me take this chance. The only thing I was thinking about, is the presentation of the thesis (Laugh), it was the only thing I was thinking about (Laugh), I feel embarrassment. I have enrolled for the master in information technology, and my work organisation have paid the fees. Later, when I

reached a level where the thesis was the only thing remain, I lost the interest to finish the study, but I said for myself, ‘What a shame, they have paid the fees for me and now I don’t want to finish?! In whole of my life, I have never started something and I have not finished it, they have paid the fees, you know?! Just in order not to disappoint my boss, I have finished the master study. My boss went to the chairman to support me saying that I have never started a project without finishing it, because there are many employees are studying but they are not finishing, so the organisation lost the money, you know?!’

Case nine believes the reasons behind her career advancement are the high level of performance and luck, ‘it is the opportunities! I got the opportunities! It is hard to say ‘it is all about luck’, however, I have a discipline, and in all the job positions I have occupied, I was trying to do my best, even in the small ones. At the time when I just came here, there was nothing called ‘software development’, the section of software development was not existed in this organisation. I am the one who found it. So far we have built 42 in-house systems in addition to the ready applications which we have customized them’... ‘Also the helpdesk, we can say we have found it as well. Before I come here, the role of the IT department was to administer off-of-the-shelf applications, the IT team just administers them, they see if they are working well, and they do some needed configurations. There was no attention to the work process automation, here the work load is too much, and they used to do many work manually, so there were many papers, accounts, charts, etc everywhere. So, I have started from the point where some employee has asked me to help in some work. There was a system for flights scheduling, and they needed statistics of how many airplanes have arrived at the airport, and how many took off. All such information was being saved sometimes in MS Word files and sometimes in MS Excel file, and all of this work has been done manually. So the employee asked me whether I can help in this by making them able to do the required statistics faster. I saw their way of work, and then we did the work development. They liked it and they said that it made them feel more comfortable in doing the work. Since that time, we have started the work of software development in the IT department, and everyone heard that (her name) had created a good system, so people started to request some developments in their work, and they have started to think of automating their work process’.

‘When I have just come here, they asked me to look after the helpdesk and to manage it. Before I come to work here (current workplace), when anybody has a problem, he called the person who he already knew in the IT team, he called whoever he knows in the IT. There was no process, there was always a problem of ‘I did not get this and I did not get that’ and there was a lot of work delay. The helpdesk work was not organized at all. Being that I come from the petroleum company, which is a very organized workplace, and there is a helpdesk coordinator, I said for them ‘no’.

‘So we told them we have to use one phone number for the helpdesk, and everyone in the organisation has to call only this number for any IT problem. Also, now there is one person who manages the helpdesk and decides who should do this and that request assigned to. Previously, sometimes when they have some problem, they call some person but the issue is not related to his work, so he says it is not my work, and they don’t know who they should call for the help. This was how it was, but now the helpdesk team identifies the area and type of any in-coming request, and assign the requests to the right people. They have a list of the IT people and their specialization area, so they use it to know which person to send for help when they received a call. I can say we have designed the work procedures of the helpdesk, and they followed it and they are happy with it. The work of helpdesk became organised and the requests are not being forgotten. Of course, we began with a basic helpdesk, it was mainly receiving calls than forward the calls to the right people, it was just like the operator. Then, we have started to teach the helpdesk coordinator how to fix some frequent issues, thus it was not necessary to forward the calls every time. Also, we began to record and categorise every received issue, in order to be able at any time to do some statistics and know which areas have more issues, or need more workers, and so on. With the categorization of the issues, the helpdesk became okay’.

Case ten has developed an important information system for the Ministry which was her first workplace. She stated, ‘the training is part of the computer sciences curriculum plan, so I spent eight weeks in the Ministry of Housing for training. I worked in a division not in the IT department, and this division was working on a certain important information system. My job was just working in this information system. After I finished the training period, they had offered me to stay and work with them, so I have been employed at the same division and not in the IT

department...There was an IT department in the Ministry, but the division, which I was working in, has a big information system, and there was a real need for someone to work in this system. This system has been started with a simple level by someone in the division, but later it became very big and important system in the Ministry. I was the only one who understood the system and how to work on it, and also I was the only one who was helping this person in the work. This person trained me and taught me how to work in the system, the system was built by ORACLE, which is not part of the computer sciences curriculum in the university’.

6.2.1.2 Work Competencies

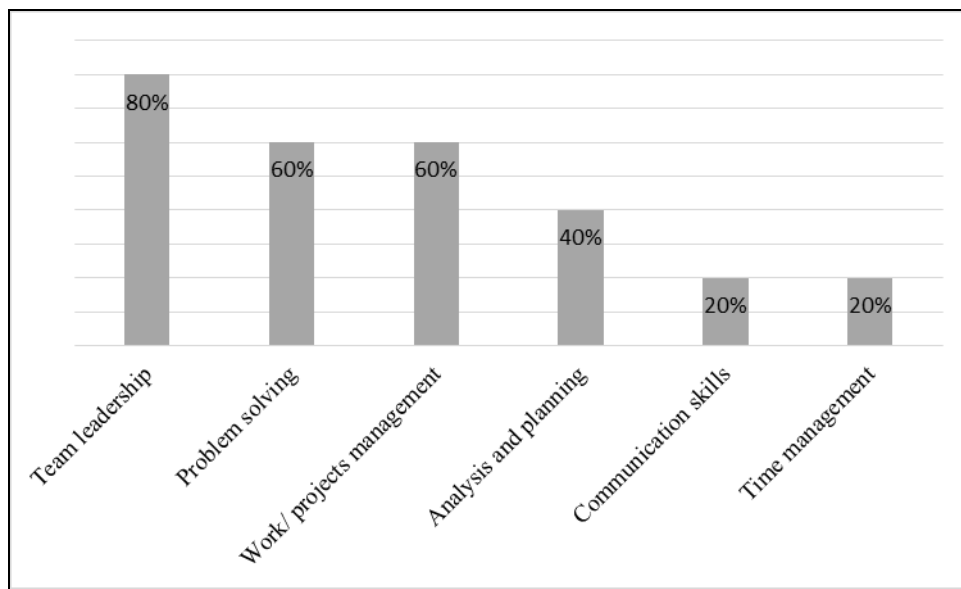
The data analysis showed that women in this study have the necessary work competencies for the IT management, such as the team management, leadership, project management, planning, analysis, communication and problem solving. All of the ten women have stated different work competencies, when they were asked: *Tell me about your abilities that influence your work*. As can be seen in table 20 and figure 17, (80%) of women believe that they enjoy team leadership skills, (60%) problem solving, (60%) work or project management, (40%) analysis and planning, (20%) time management and (20%) communication skills.

Table 20: Work Competencies

Work competencies	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Team leadership.	×		×	×	×	×	×		×	×
Problem solving.	×			×	×	×			×	×
Work/ projects management.	×		×	×	×				×	×

Analysis and planning.		×		×					×	×
Communication skills.						×				×
Time management.	×		×							

Figure 17: Work Competencies



Case one believes her competency of team management have helped her in the work, ‘praise be to Allah, now I feel that I am appropriately managing my team, and that I have distributed the work in a way that they can finish the work on the right time. The time is very important in our work’. ‘I have distributed the work among them based upon their knowledge and experience regardless of their gender. Usually, I assigned the work to them based upon their experience and their way of solving the problems. When I see that they become more advanced in the work, I let them work in more sensitive systems’.

Case one believes that problem solving is also one of her competencies that have helped her in the work, ‘we were able to handle and solve the technical problems of the information systems of

the university. These systems were very old and their issues come out over the time. We were able to solve these problems and in a way that keeps the systems stable’.

Case two believes that analysis and planning are very important in her work, ‘I have certain skills, and a very important skill, which is the analysis, I am very good in the analysis, I was able to easily analysing programs, data and requirements, and I was better than the others in the analysis, my manager was always run for me for the difficult things’...’There is one important thing I have forget to tell you, and it is very important for any management position, which is planning, planning is very important for anyone who wants to be organised all the time, you have to plan for any project you have, for example, having the IT weekly meeting makes you able to organise the work to the employees according to the target date, priority, and then check whether they are late in the completion of the work. Because, if you do not plan you won’t be able to follow up and finish your work, and especially the work of the IT support, there are a lot of support and tasks in our company so we need to plan each project and task. Any requested change by any employee requires a change request. Any problem requires a problem report. It is very important to know how to organise your work, I believe that if you fail to plan, you plan to fail, if you don’t plan right, you won’t succeed and you will fail. So planning is very important in the work, you can always refer to the check list of your plan, to check out what has completed and what has not, what is the delayed work, and what are the pending requirements. Planning is the most important thing in the management. For me, planning is number one’.

Case three believes that she has the attention of her first-line manager because of her strong leadership and management competencies, and these competencies also were the reason behind promoting her to be the head of IT,’ I think I have proved some different managerial and leadership skills. In general, I think boys are good in implementation, but they are always in need for direction. Girls do have the work follow-up skill, commitment, ability of meeting deadlines. They are more task-oriented than boys, and they can do many things in parallel. I believe I am strong in the management, commitment, and meeting deadlines (Laugh). I notice that boys in my team still needs direction, they still need to be guided to what to do, for example, when I give a project to them, I feel they still need to be guided, I have to show them that ‘this what you do first and this what you do next’. ‘I think I enjoyed a good leadership skill, I mean before I

became the head of IT, I was one of them, but actually I was leading them, especially in the project of automating the work system, I was technically shouting at them, ‘do this and do that’ (Laugh).

Case four believes the competency of analysis, problem solving and taking decision are important in her work, ‘the thing that helps in the work is the characteristics which I see them in women. Woman is a more strategic thinker than man, also the analysis and problem solving skills which are found in women. I see if you are in an IT career, you should have problem solving skills, for example, when any technical problem occurs, first of all, you have to solve it, and then later you have to sit down with your team and see why it had happened and what to do to prevent it in the future. Moreover, the IT career requires you to be a decision maker, and to take the decisions quickly, you have to take the responsibility. You have to make the decision and take the responsibility for your decisions; do not wait till someone else takes the decision for you, in order just to avoid the responsibility that comes when something happened after your decision. I see women are stronger than men in the decision making’...’working in the IT has benefited me a lot in my skills, because it structures the way of thinking, problem solving, and the analysis, because it has procedures, setup, standards, so you became an engineer in all of this things which can be useful in developing any type of job. I believe working in any new job would be easy, because the IT have organized your way of thinking, problem solving, work management and work following up’.

In addition, case four pointed to the importance of having communication skills with the team and people in the work, ‘you have to deal with them in a tough and serious way in order not to be labelled like that ‘this department headed by a woman so it is a loss’. And this is me since I began to work. You don’t have to be tough all the time, you should assess and decide when you have to be tough and when you have to be normal, because at the end my management style relies on the teamwork, I don’t have that relation which I am the boss and you have to do what I say, no! it is a teamwork, every time we have a new project, we do a brainstorming session, and I listen to everyone in the team, and I personally like the challenge, I need someone to challenge me, I don’t like everything I said is acceptable, I need another party to challenge me, this makes the discussion healthier, and now I become away from the technical work, now I am more in the technology management than working in the servers, cables and etc., so I have to listen for my

team because they are who work the ground so they can give you their notes'.... As I said, when I have a discussion, I like to be challenged by someone, without a challenge the meeting is dead and ends in a minute. Challenge is always required, for example, one time, someone saw me and my team in a meeting and he saw how the challenge was between us. No boss and subordinates at our meetings. Everyone discusses in the meetings. After the meeting, he asked us whether we always fight during the meetings. It is not a fight, it is something related to our work, this is a challenge for the sake of work, nobody has any problem with anyone after the meetings, and there is always a respect and appreciation for what have been said in the meeting. we communicate with each other in a way that 'you have a viewpoint and I have a viewpoint, I will never shut your mouth, and I have to listen for you, you don't see in the IT department that someone think in a way that 'just give me the work and I will do it silently, you know?!''

Case five showed during the interview that she has the competency of team management and problem solving, she noted, 'what I have done here (current work) is work distribution. I have assigned all the IT tasks for my team, so when I am not at the work, the team can run the work without any problem. Everyone in the team has to follow defined work procedures, and everyone can do the work of any absent member. We did documentation for our work. I have identified some people in my team for the 'on call', and they get allowance for the 'on call'. All of them are males so they can come anytime we call them. If anything happened after the work time, all the IT team members are being informed about the problem through the mobile (What's up), then we start discussing the problem with each other. I want to give chance to my team members, I have built a second line of the work rather than solely relying on myself in the work all the time. Now, I only plan, manage and follow up. I don't do programming, fixing, or etc. I left this kind of work for the team'. For example, 'If the network stopped after work time, we refer to our documentation. Our helpdesk is the first level of support. We call the member who is in-charge, and we come to the work. Praised be to Allah (God), most of the time, we could solve this kind of problems in a short time. I am with the supervisor and the IT support provider is always available and ready for any problem at any time. Sometimes it is an easy issue. If it is easy, we send a message to the employees informing them that there is a case and we are working to fix it. I contact all of the in-charge members. I am always in contact with my team by the mobile phone. Usually, I don't come to the work after the work time unless we have a critical case, like,

investigation or leaking of information. Working in this kind of cases I don't delegate it to anyone, I come by myself and do whatever needed. You know, during the political crisis, we have tried our best to have a good and strong information security. Such issues I don't let anybody to manage them, but other issues I let my team to manage them because I want them to take the responsibility and improve themselves, I want them to live in what I have lived'.

Case six was asked about her competencies that have influenced her work and that have facilitated the advancement to her current job position. She answered, 'I feel my personal communication style with people is the main reason why I am in this job position today. The communication style helped me a lot specifically in my current work in the university, but I feel it did not overcome the importance of the knowledge when I was at the firm (pause).' Moreover, at the university we are not dealing with normal students, we deal with a postgraduate students, medicine students, PhD holders and professors, so I believe these people which are in a high level, need to be treated carefully and in a special way. The university needs to choose very skilful communicator that is capable of efficiently deal with these people in the work (pause) I feel because of this, they have chosen me for the position of the head of IT support'. Also, she added, 'I do have good relations with the heads and directors and everybody in the university .I feel I don't have a shy character, I don't feel shy in talking with any people at the work. Every morning at the work, I go to everyone that I can, just to say good morning. If I have any question or I need any help from someone in the work, I don't hesitate to ask him/her. I go straightforward to this person and I say 'I know you have an experience in this issue and I am sure you have the answers that I am looking for', then I just ask'.

In addition, she has showed that she has team management and problem solving skills, 'when the employees are trying to solve an issue but they come to me and say that this issue cannot be solve, I became enthused and say to them I will show you how it can be solved! (Laugh). Even though, I am not sure how to solve it. Then I get involved in the details of the issue and work on it. I don't give up. I don't feel comfortable until the issue solved'.

Case seven showed during the interview that she has the competency of team management, 'since the beginning of my career, I have a presence in the meetings, I have an opinion and I

defend it, without having conflicts with anyone'. 'I also have my own strategy in the management, I mean I like to make people in my department comfortable, as long as they are comfortable, I am comfortable. And I am leading my team and not just managing them, the difference between the leadership and management is that the manager manages the work, I mean, when you be in senior level, you are not supposed to do technical work, but because I am leading my team, I still do it and work by my hand. I work with them'.

Case nine pointed to the importance of the management competencies for IT management positions, 'I sensed that with an MBA I can get better job opportunities, because it opens the door for the other fields, I don't want to just focus on the IT, especially that when I got the MBA I was a section head, so I was in need of the administration knowledge, in order to be able to administer. It is because you need to know some in the administration, accounting, etc. Anyone in a senior IT position needs to know the field of administration and management, it helps him a lot, instead of totally focusing on the IT, specifically the technical part of it'.

She also explained her way of planning and managing the IT work, 'see, before we begin the work, it must be requested by someone. We cannot provide a suggestion for someone without his request, sometimes we suggest and if we saw acceptance, we do it, but mostly, they are who request the work, so you see from who has requested the work, a lot of interest in the work, and he helps you in everything you need to finish, and he provides you any information you need for the work, and facilitates everything because he who wants the work to be done.'... 'this is how our work begins, it starts when there is a work request, our suggestions come in the way, for example, during the meetings, you can say a simple thing for improvement, if you saw their acceptance, you can continue, but if not you have to stop. Because without the user's acceptance of what you want, it is impossible to do it, unless it comes by force and we don't have an authority on other people, we do have authority only on the IT employees. In every system we have to create, we always try to do it comfortable, easy for use, and meet their requirements, this is a very important point for us, doing what they want is the most important thing for me. Also, I ask them, whether the system functioning as they want and they stopped their previous system and have relied on the new one. Meeting their work requirements and doing what they want is number one for me. You see cooperation from them, and I try to delegate most of the non-

technical things to them, like the data entry, reports generating and printing. Even when we see that the system we have created needs a lot of administration, we assign someone from the other team, not from the IT team, and we give them the full administration rights. Our role comes when there is a problem in the system, or when a new request has been raised by someone, because this type of work is a pure technical work, we can handle it, but we don't get ourselves in things such as taking approvals and choosing administrators. We do only the technical parts of the work requests, in order to save some time to do the other IT work requests. Sometimes, some users do not know what they want, I feel sorry for them, so I sit with them and I try to know what we can do for them, our questions to them are based on this'.

Case nine also showed during the interview that she has the competency of team management, 'Praise be to Allah (God), I try to be friendly with my team, and be rational with them, I always use the logic with them, I try to convince them about the way of the works they do, till I see an acceptance from them, otherwise they convince me about their way, it is one of the two, either they convince me or I convince them, so based on this rule, I feel I am okay. Sometimes, they run to me for small and big things, so I tell them you should take the decision by yourselves in some things, you don't need to come for me all the time. I feel they need advice, sometimes they want just to know my opinion on some work, although they know that they are authorized to take the decision on it'.

She also noted during the interview the issue of her team promotions and motivation, which showed her ability of work leadership, 'the problem here is that job promotions are given to the employees based on the work rules rather than the achievement level of the employee. Now I am trying to make promotions based upon the employee's achievements. I have already informed top management that starting from the next year, the work promotions will be given based upon the level and type of the work! At the end of the year, we sit together and put the reports on the table, to see who have worked, and the type of the work is important too, because the performance evaluation relies on the type of works rather than just on the number of tasks, for example, changing the password is counted as a work, but what this work is!'.

‘There are some complicated issues that might take three working days to be finished! So the type of work is very important, I told them that next evaluation will be based on the type and level of work. This way performance evaluation is not used in the public sector, rather they decide to give job promotions based on the quota and the turn. I told top management that it is very hard to encourage employees to work using this way, because he knows he will get a work promotion, whether he works or not. But I told them no, I want to give care for people who work hard in my team, and this is why we keep records of every IT work done, in order to be able to see each one and his effort at the end of each year, and then deciding whether it should be step or award or not. I want to decide based upon facts and to be able to decide contentedly. Honestly, the promotions system was based on whose turn is now, I think each year the head of section is given three steps and two awards, something like this, and he must choose which employees to give, taking in account whose turn is now. For example, who was given a step this year, someone else will be given the next year, and so on. Therefore, they were not working very hard, but now, no, they pay attention and work harder. For example, before, they delay the work in order to be reassigned to someone else the next day, or they accumulate the work in order to be given to someone else, because usually when there is a workload on someone, the work reassigned to someone else, but now, there is no point to do this anymore (Laugh)’....‘It is hard to face someone and tell him you are not good in the work, but it would be easier if I talk based upon the facts, I bring and show him his/her report, I tell him this is your work, and this is your colleague’s work, you judge and decide whether I shall give you or give your colleague? Again, without having a tangible thing, it will be hard to just reject their job promotion. It will be better, when I have something to show why I have rejected and why I have given, but usually, after giving someone a job promotion, he/she doesn’t ask you why, but the rejection is what you are questioned about it, so knowing the reasons is a must’.

Case ten believes the competency of problem solving and communication skills have helped in her career. She noted that it was one of the reasons behind choosing her among the candidates for the current job position,’ I remember that some of the interview questions were about whether I have any problem if I have to work after the working hours, and what about if I face a challenge, and I said to them that I don’t give up, I keep trying, checking, searching, and looking for a solution till I solved the problem. Also I don’t have any problem in dealing with people, my

communication with everybody is good, (Laugh) I can't say nice things about myself'.... 'When I face a difficult technical problem in the work, for example, if it is a new technology and I don't know too much about it, I speak with more than one IT vendors, then they come to us, and I discuss with every vendor about it, and listen to what they say. At the end, I search by myself about it, to make sure what the best option to choose'....' there are always solutions! Always! If the budget which we have is not enough, we can start up with a smaller system, there is always solution for any problem, if the top management and people here want their work to be done at the end, they will give a budget for starting up with a smaller system'.

Also case ten showed her competency of team work, 'in addition to the IT management work, I still put my hand in the technical work. All the IT staff are foreign male part-time employees, and very soon a new Bahraini girl would join us and she will work in the application development. I try to be friendly all the times with my team. When any problem happens or when something needs a decision or I have to be decisive, I become decisive and very serious with them, but I leave this as a last option, because I always expect a good attitude from them (Laugh). Since the beginning of my career, I become tough and I work very hard when I become in a hard situation and there is no option other than dealing with the situation seriously. This happens spontaneously, it is unplanned thing!'. Case ten also has the competency of planning the work, 'every day and every time we have to take a decision in the work, and the risk of the decision depends on how big and how much the system is. All of my works are being planned as projects, after I have started the work here, I have made a plan for two years, and now I make a plan for a year. So it is known for me what the projects will be done during the year, and to which persons in the team will be assigned to. And everyone in my team knows his responsibilities and tasks in these projects. I have someone in my team for the technical support, and someone for the IT infrastructure, servers and network. I have employed them according to their specialties, for example, for the technical support I looked for someone specialized in the support, I have interviewed more than one applicant and at the end, I choose one among them. And the same for the infrastructure and the systems, I have employed some people for them, and the girl who will join us soon will work in certain systems as well. I deliberately choose girl for the systems, because the girls are more patience than boys when they learn new software or

programming, such works need patience, and also she don't have a problem with working for late hours'.

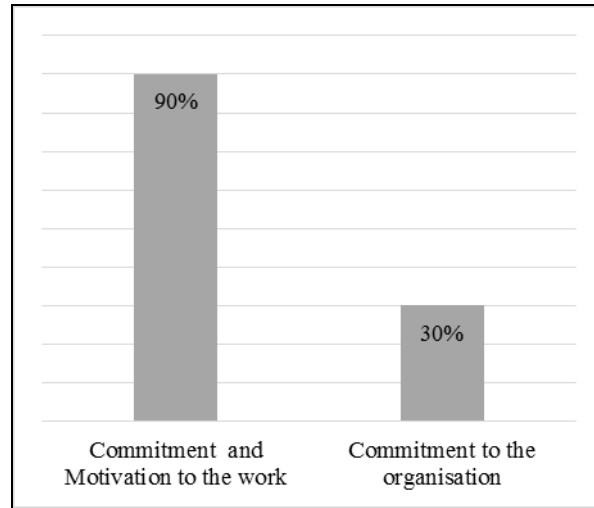
6.2.1.3 Commitment and Motivation to the Organisation.

It was evident from the stories of women in this study that they are highly committed and motivated to their work and organisations since the beginning of their career, and they really like their work. Moreover, their stories showed that they have a strong desire and motivation to develop themselves and their work. Thus, they are always motivated to learn, understand and develop the work or rules, and they are always willing to put extra effort to produce high quality work, and to face any work problem or challenge. As shown in table 21 and figure 18, (90%) of women stated that they are very committed and motivated to their work, and (30%) of women stated that they are very committed to their workplaces also.

Table 21: Commitment and Motivation to the Work and Organisation

	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Commitment and Motivation to the work.		×	×	×	×	×	×	×	×	×
Commitment to the organisation.	×						×	×		

Figure 18: Commitment and Motivation to the Work and Organisation



Case one believes her commitment to the organisation was the main reason behind assigning her to her current position, in addition to her experience in the systems and applications the university used, she stated, ‘once a woman has committed to work in a certain workplace, she is strongly committed to it and she sticks to this workplace for a long time. Especially in the IT field, the male workers are not stable in one workplace for a long time, they like moving from one workplace to another. At the time I have joined the university, the computer and information systems were very old, so it was very hard to find someone from outside the university to know its systems in a short period of time, so as I am experienced in these systems and also as I am qualified, for example I have a BSc and so on, all of this had supported me. What actually happened was that two of the male IT workers, who were highly qualified and candidates to be heads and occupy my current position, have left the university and gone to another workplaces, so I was the only available qualified candidate for the job position.

Case two noted that commitment to the work is very important for her, ‘I have noticed that the commitment in the private sector is different than in the public sector. I mean if you work in the private sector you can feel that you are really working and that you have to achieve the targets of the work. While in the public sector, at 2:00 O’clock, everyone wants to leave work, for them, they see that the work time has ended and they must leave the work. Such attitude has made me

unhappy, especially that I was a head of a team and I could not change this in them, I was new in this public organisation and this attitude was already held by people there before I come to them. All of this has impacted on me, and I was not happy with this work, I spent nearly 2 months and a half there, and it was a chance for me that I am allowed to leave the work at any time I want before finishing three months there. I had the opportunity to work here, my current position, so I took the opportunity'.....' And let me say that the thing that has made me come to this place, is the commitment, it is a very important thing, I mean sometimes you see people own the skills, knowledge and experience, but they lack the commitment. If they want to advance to a high position, they have to be committed to the work! They have to feel that their work is like their child, they have to take care of it and develop it. They have to feel that the company as their second home. Moreover, you have to be a role model to your employees, for example, coming on time. If you are a manager, you are allowed to come late or leave early, but when the employees see me do it, they would also do it. However, I come early and became an example for them, and this would help me for sure'....'In addition, the ethics, the work ethics are very important, I mean we are getting salary for our work from this hour to this hour, we have to be really deserve getting the whole salary.

Case two also pointed to the importance of the commitment to the work when she described her duty trip at Kuwait, 'I was very committed to learn everything about the 'credit reference bureau' system, and every part of it, and I had many questions to ask'.

Case two pointed to the importance of the work motivation, 'when I worked in this project I was in my late 20's, and I had a strong desire to work, the enthusiasm is very important for the employee, I mean if he lacks the desire and he lacks the willingness to learn and to work, at the end, you will get nothing from him. The sense of achievement is essential, if someone does not feel he is interested in what he is doing, the level of his productivity will be weak. So the sense of work achievement in the work is very important'....'Praise be to Allah (God), here, I feel that I am achieving, and this is very important for me, the achievement and productivity are very important for me, I mean I can't work in a place and just repeating the same routine every day, and without feeling that I am achieving and there is a productivity. This makes me unhappy, it is important for me to go to the work every morning with the feeling of satisfaction and happiness'.

Case three believes commitment and motivation to the work are very important. She showed in the interview that she was very motivated to learn and develop her work, ‘there was no clear objective to me at the beginning of my career. I was improving myself in order to be improved, I was not targeting a certain work position, I was just interested in what I am doing, I liked my work, and I was happy with the work I was doing, and my husband did not mind anything, he understood that this is work and there is a commitment, and your work performance must be beyond expectations, so you have to be always dynamic and want to improve yourself indirectly at the back of my mind’

Case four likes her work very much and she is very motivated to learn and develop her work, ‘one of the things I have noticed in some of women, and by the way I don’t like to say ‘women’, but now I have to use this word, that some people come to the work just because it is their job, they come and do their tasks then leave to their homes, and once you think in this way, you will never move from your job position, I come to the work not just because it is my job, it is because it is part of me, it is part of me, there is a personal side and a professional side, if I have developed myself in the professional side, I will also be developed in the personal side. So if you come just to do a job, you will not move from your current job position. The work for me was not just a job, it was a self-proving, a place where I prove to myself that I can reach and I can work, of course there are many obstacles you get in your life, it is not easy’..... ‘You will not work and produce in any career or in anything, if you don’t have the incentive and the excitement to do it, and the belief that it is a meaningful thing. You become happy when you develop a system then you see people have started using it, when you see them, you can sense the impact and result of your work in the other departments’ work. Your work is not intangible, you can see it, you see that everyone has a desktop, laptop and he/she is working with it. In addition, I feel I am responsible of developing and enhancing all of the services I have provided in the company.

She also described her love and commitment to the work after she joined her current work organisation, ‘since the establishment of the company (2008), I work daily for 10 hours minimum. I like my work, my heart is in the work (Smile). At the beginning you put a lot of

effort, you work for more than 12 hours a day, sometimes, I leave the work at 7 or 8 o'clock in the night, and I come to the work next day at 6 o'clock morning, it is less than 12 hours, and I like to come early, for me the working hours are not specified, as long as I have the power to work, I keep working.

Case five was very committed to learn and achieve in her work, she stated, 'when I came to work in the legislative organisation (previous workplace), I just wanted to be a programmer and nothing more. When I have decided to leave them, they offered me the 'Senior specialist' position, then a 'Head' position, thus, the management of my current workplace has offered me in return a higher position which is the 'Head' position. Before I left the legislative organisation, the Chairman came to my office and talked with me. First of all, I was shocked and I did not expect that I will be offered a position of Head!! This was not a wish in my life. I did not have the ambition to be a head someday. My concern was to work, achievement and to make the end users happy. I wanted the user to say 'wow!' after he/she click and see the result, I become very happy when this happens. I used to like my work, and like to learn and work. But promoting me to the 'Head' position, has opened my eyes and mind. They have made me understand and ask myself 'why not? Why don't I think of better and higher position? This has made me feel more confident'.

Case six likes her work at the firm and she always had the desire to learn and give more to the work. She stated, 'I always like to learn new things. Even outside the work, I always want to do many things at the same time, I don't take a rest, I always want to work and do something. If there is nothing to do I feel there might be something wrong! ...' I like to learn and being up to date with everything, I search and read about new software and technologies that can be used to develop the work. I attend the latest or upcoming technologies events in every time I can'.

Case seven likes her work and she always has the desire to develop the work, 'I like my work too much, and I like to be honest and fair at my work'.

Case eight likes her work and is highly motivated and committed to develop and achieve regardless of whether her work is being appreciated. She noted, 'this is enough for me (pointing

to the awards placed in her office), I sense during this 4 years (pause), I come to the work, and nobody told me ‘thank you’, or take this reward for your work, or because you are different than other directors. However, I have earned all these prizes and rewards from outside the organisation, and this is enough for me, when people know the level of the IT of our organisation, and what we have done, this is enough, the appreciation which I get from outside is enough for me, I have got nothing from inside the organisation (frustration)’

Case nine likes her work and is highly motivated and committed to achieve. She stated, ‘if you are dedicated for your job, you will achieve, and you will feel that you are achieving. You have to decide for yourself, put a goal then you have to work to attain it, no matter how big your job position is. Even if you are a manager, it is in your hand to decide whether to work hard or just sitting without working or making any achievements. You who should put for yourself a target, then you work to achieve it, you will feel the satisfaction that your work is worth getting out your home every day, I mean you don’t waste your time for nothing’.

Case ten likes her work and she is also highly committed to learn and to achieve in her work. When she has changed her job and joined the quality assurance organisation, the first thing she did was starting to know and understand the work and the plans of the every department in the organisation, She noted, ‘I sat with every director of the organisation right after I joined here, and I saw their work and what their plans are. I saw their master plan and what they want to achieve. Then, I wrote a master plan includes all of the projects, and now we are executing them one by one’. Moreover, she personally paid for some courses that she took, because she believes they are essential for the quality of her work. She stated, ‘these courses show the best practice or the international standards of the IT infrastructure management, so they enable us to make sure that what we apply in the work meets the international standards. I have decided to take and pay for these courses, because it is very important to make sure that you are following the international IT standards, or in another words, to have a benchmark’.

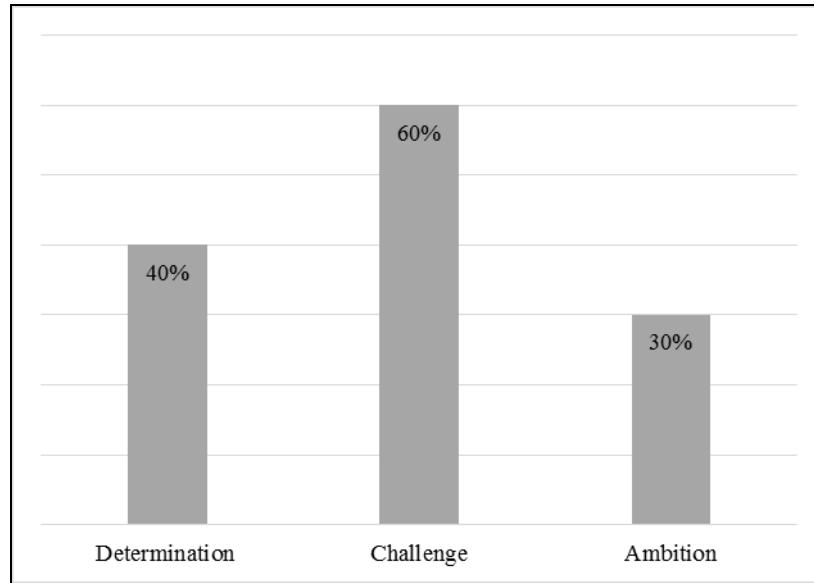
6.2.1.4 Determination, Challenge and Ambition

It was evident from the stories of women in this study that they have strong determination and ambition to reach their goals in their work. They stated that they like to challenge themselves in learning new things, making work achievements and facing any difficulties occur in the work. As can be seen in table 22 and figure 19, women in this study have stated that they like to have and take challenges in the work and life (60%), have strong determination in their selves to meet their goals and objective (40%), and have ambition in life (30%).

Table 22: Determination, Challenge and Ambition

	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Determination.	×		×				×	×		
Challenge.				×	×	×		×	×	×
Ambition.				×	×			×		

Figure 19: Determination, Challenge and Ambition



Case one likes to challenge herself, and this is why she had chosen to study the IT major. She believes, ‘at that time, it was like a challenge for me, and it was a new demanded field in the job market, so I felt it is like a challenge for me’.

Case three was the first one in her family who has studied Computer Sciences, she was determined to finish her study of the IT field although her family was not encouraging her to finish it, she stated, ‘all of my brothers and sisters have studied medicine. Also, my friend who was studying with me computer sciences in Kuwait, has changed her major to medicine after the first year in the university. Now, she is a doctor. Praise be to Allah (God) that I did not study medicine (Laugh), but my mother was dreaming to see me a doctor. After the end of the first year in the university, she has insisted and said for me that I have to change my major to medicine. But this has never happened, and I have decided to continue my study of computer sciences. I said for her that I will go back to Kuwait and I will just continue with the computer sciences, I found myself good in my study and I am being improved in it. Now, when I see my sisters and brothers, I say for myself ‘Praise be to Allah (God) that I did not study medicine ‘(Laugh). One of my school friends has studied the computer sciences in University of Bahrain, and now she is a Head of IT in a bank’.

Case three was able to face and challenge her fears after her first-line manager has left and she has been assigned the IT director position, ‘at the beginning, I was afraid, because I was a normal employee, I was a supervisor, then all suddenly, my work responsibilities have increased, I do not mean the IT work duties, I mean the administrative responsibilities, I did not expect them. I was afraid of my new situation, but praise be to Allah (God), over time I found that it is easy and I can do it!’.

Case four believes the challenges are very important for getting success in everything in the life. Specifically, she believes in the importance of the challenge in a career. She noted that, ‘I have a strong insistence and persistence that I never give up, and I always try over and over again till I get what I seek. I have ambition, and even now I have not felt that I have reached to what I seek to be, I feel there is still more to look forward to, I don’t like to stop in a certain position, I always look forward to what is higher or to the next. In addition, I always strive to submit high quality work and to finish my work on time’.

Case four also noted, ‘I am from the kind that I keep trying and I never lose hope, because just saying ‘I can do this and that, is not enough, you have to prove it! You cannot just say I will do this and that, you have to really do it and show that you are really capable of doing it. I found some people were not trusting my work abilities, and sometimes it happens that you become depressed, but you should never let such things affect you, because it is your own future, may be someone affects me and makes me negative person sees that it is over (the end) and I have to agree on whatever way they want. But this is me! I can’t do what they want’.

Case four also provided another example of the importance of the challenge in the career and life. She stated, ‘moreover, in Bahrain the IT foreign people work very hard to secure their job. In contrast, if I have implemented the concept of that ‘my salary and my job are secured’, then it will be a different story! They have the challenge of job security. I like the challenges. The life without a challenge becomes boring, it becomes routine and so boring without challenges’.

Case four has the interest and ambition to advance in her career, she stated, ‘since the beginning, I know that I don’t want to stop at this place, as I said, still I don’t feel that I have reached what I aim for, still I need more and I feel there is more to be achieved, and you have to get the opportunity to advance more in your career, because once you have the feeling that that’s it and this is your last job position, your level of performance and your enthusiasm at your work will be affected. This feeling is going to affect you too much, so everyone should believe that there will be a way or coming opportunities to be taken, I don’t know when, how many and where they can be found! They might be at the same workplace!

Case four also noted about her ambition in the work, ‘it is up to you and to what you have decided for yourself whether do you want to excel in your career or not? Not everybody likes to excel in his/her career, it depends on what you choose for yourself, on what your ambition is, on what plans you have for yourself, on where do you want to be’. Moreover, case four has shifted her work from the finance sector to the airports sector, and she believes it was a challenge for her to know and learn about the airports applications and systems. She noted ‘this is the challenge, this is the challenge’.

Case five believes the ability of challenge has significantly influenced her career, she noted, ‘I like the challenge, I have the will, I don’t give up quickly’.

Case five has expressed her ambition in the career, ‘before the political crisis (in Bahrain in 2011), I was having ambition in the work, I wanted to be a minister, I wanted to be something, I was thinking like ‘why not?’.

Case six likes the challenge of learning new things in the work, she noted, ‘I am a practical, kinesthetic and dynamic person. I like the challenges and I always wanted to be unique since early age....’I like to challenge, I really like to learn. I do not shy if I don’t know something, for example, when we hire an outsider technician from an IT service provider to fix a technical problem in a server, I ask him in indirect way ‘show me how you did it. I want to learn, teach me how to do it’. I don’t feel shy in admitting that I did not know how to solve the problem’.

Case seven believes her strong determination and her creativity have contributed to her career, 'I think my competencies which have enhanced my career are determination, persistence and creativity' 'I think I have an ambition which has positively impacted in my career'.

Case eight stated the following about her ambition in the career, 'I am building myself by myself, because you don't know what the future hides for you, praise be to Allah (God) I have ambition, but not cupidity, you know?! I am totally convinced that everything is fate, but this doesn't mean I am sitting and putting a leg on a leg and just waiting for the things to come to me. She provided example about challenges to herself in order to succeed in the work, 'after just one month of my work here, the IT director left the work for a complete year, he left even before finishing the work handover, during this complete year, I proved that I am capable of taking his place and even working better than him, I have succeeded, I have succeeded!'. Case eight also stated that she has overcome the issue of jealousy from her peers through determination on progressing in her work and the challenge for success, 'there is no solution, no solution for this issue, and this can impact anyone, but I always have the challenge to be better and stronger, you know?! And the challenge of how to be more successful? And the criticism, I don't take it in a way that I defend and defend myself. No! I understand it very well, then I solve it quickly. I turn every criticism to a success, every criticism!'.

Case nine views that the challenge is a significant motivator in her career persistency, 'changing my work field depends on if I like the field, if I liked it I might change from the IT field. I have not lost the interest yet in the IT field, because I want to continue what I have already started, as I said, we have reached a good level of the organisation of work here, and now because two other aviation organisations will be merged with our organisation into one organisation, I have a new challenge of how to merge these people, systems and work of different units into one unit, and how to make them work under one unit. We have just started the process of merging, so now we want all the IT teams to work together with the new people as one team, so this is the new challenge that I have it now, and it is interesting one'.

Case ten believes the reasons of choosing her among all of the candidates after the job interviews are her ability to challenge and face any difficulties,''I don't give up, I keep trying, checking,

searching, and looking for a solution, until I solved the problem’. Also, case ten believes that her ambition, self-confidence and ability to challenge have influenced her career advancement, ‘(Laugh and shyness) maybe it is the ambition!! And the self-confidence. When I know that I can do something, I don’t hesitate to do it, I was always see people, who were with me in the ministry, say no! This job position is hard for us. But when someone trusts himself and become occupying the job position, he feels that’s it! When I have just occupied my current job position, I was having some fears, and this was only at the beginning. But I said to myself ‘how long I will be having these fears?’?! I have to take this step and start, it is a chance that came to me, and the chances don’t come every day’.

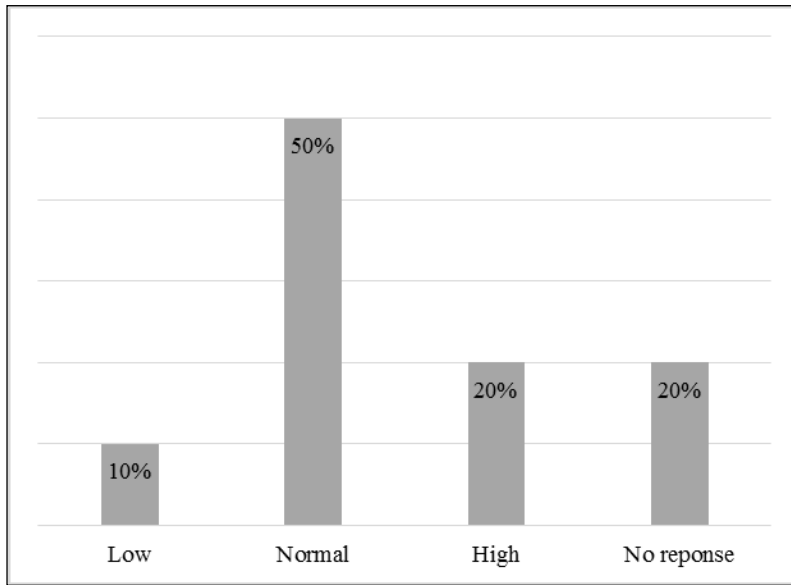
6.2.1.5 Interest in the IT Work

Women in this study were asked in the interview about their work interests and desire for advancement in the IT field, which has revealed some issues related to working in the IT field. The analysis revealed that (60%) of women showed their level of interest to remain working and advance in the IT field has declined at present for most women comparing to the earlier stage of their career. As can be seen in table 23 and figure 20, (50%) of women have indicated that their level of interest to remain working and advance in the IT is not very high (normal), and they are willing to change to other fields than IT, whereas (20%) of women have high level of interest to advancement in the IT field. Only one woman (10%) showed a low level of interest in the IT field and she seeks advancement in other fields of work.

Table 23: Level of Interest in IT Work

Factor	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Interest in the IT work.	L	-	N	N	-	N	H	H	N	N
L: Low N: Normal H: High										

Figure 20: Level of Interest in IT Work



Case one believes her interest of work in the IT field had been lessened especially in the technical side and after taking a project management course, she stated, ‘I have the passion to work in the IT field at the beginning of my career, but now it has decreased, and it has decreased a lot!! Because the working time is very long (7:00 – 3:30), and this has impacted on my level of interest. Also the IT field needs that I have to always check and see new technologies no matter my experience, it is something that never stops, and the point is not just knowing the new technologies, but you have to learn how to use them or take training in them! Moreover, I see the field of management is more attractive than IT, like project management, after I took a training course in project management, my view to the things has changed; now I like the management field and I don’t like to focus just on the IT side. Also, I don’t have interest for any technical training courses anymore; I would like to take training in management, especially that my current job position does not need doing technical work, however having a general technical knowledge is enough. There is no need to go deeply in the technical knowledge, unlike the time when I have just graduated, I was very enthused to do and learn the technical work’.

Case three has showed that she is interested in IT and risk management fields, ‘because of my current job position, I do many things not related to IT work. I leave my current work?! I don’t

know?! But I think because of my current work, I became involved in risk management work, and I like risk management, I feel it is an interesting field, and I can think about it in the future (Laugh), I don't know when! I also like the issues of women, I mean work related to women issues, I don't know why I like the work of Supreme Council for Women? So this is something I look at it with pleasure, so, maybe I would think about it in the future! I don't know!'

Case four has showed her interests in the work in the IT field is linked with the availability of the chance of self-improvement and career advancement, 'you have looked at my career and you saw that I have left the IT field for some time, this was because I felt that I am here, I am standing at my place and that's it, in addition, if you are working in IT and they give you only IT support work, there will be no chance to advance and go higher at your career. Another reason, you are a woman, you know?! So you will not get the chance to advance more, to be more honest with you, if they are going to choose between two, it is less likely that they will choose me for the higher position, so I thought why don't I leave the IT and go for another challenge, so I have got a chance to leave IT and Praise be to Allah (God), it was a challenge and I went through. Now, it's nice to return to IT work, because the airport is a new field for me, and the work of airports depends mainly on the technology, and this is the nice thing, there are many systems and many solutions are available that can be used to develop the work'.

Case six is still interested in working in the IT field, but at the same time she does not mind to work in another field. While, case seven is strongly interested in the work in the IT field, she stated, 'I will never leave the IT field, because it is a profession in my hand'.

Case eight has stated that she is not willing to take any job chance outside the IT field, 'no way! It is impossible to leave the IT field, I think nobody can succeed in something he doesn't like, do you know that till now I don't feel that I am a director, I still feel I am programmer, I am afraid to remove my hand from the programming and in someday I find myself forget it. The only tool that is in my hand and which has made me reach to this chair, to this position, is that I was a strong programmer and I know what I am doing'.

Case nine has noted that now she became interested in the IT management more than the technical side, ‘(Pause), now I am not working deeply in the technical side. Honestly, I leave the technical courses for the staff to attend, currently I am choosing events that show new idea, new software, or new thing that targets a large number of people, I don’t go for the very technical ones (Laugh), I leave it for the fresh young people who their brain (Laugh’)...‘Yes, yes, you have to work very hard, in order to improve yourself, and you have to be up to date with the new things in the IT field, especially in the technical area. Always you have to be aware and read about the latest technologies, you should not rely on someone to tell you about it. No! You have to read by yourself. But the difference is that you don’t read in details, you don’t go for the codes and etc. You just have to take an overview and leave the details for someone else’.

Case ten believes that she enjoys her work in the IT field, she stated, ‘I feel little bit that I don’t want to do more IT works. The problem of this field is it takes long time to do the work, and you always have to be up to date. I always follow up what existed and what has been changed, although, there is someone responsible about each system we have here , I have to know and read about all the systems and programs we use, in order to be able to take decisions about what can be done and what cannot be done, how much it costs, and etc. You know?! You have to know all these things. I cannot say I am not enjoying my work, I really like my work, but I guess if I change my job, I will give more, if I change my work field I will give more’.

The interviews shows that some environmental influences have an impact on the career advancement of women in this study, which can be categorized into three categories, the organisational context, IT occupation, and cultural attitudes toward women in IT. The organisational context combines five factors, which are (a) the management support, (b) relation with peers, (c) training, (d) organisation structure and rules, and (e) understanding of the IT role. The impact of each factor in the career development of women in this study is presented next.

6.2.2 Theme Two: Organisational Context

6.2.2.1 Management Support

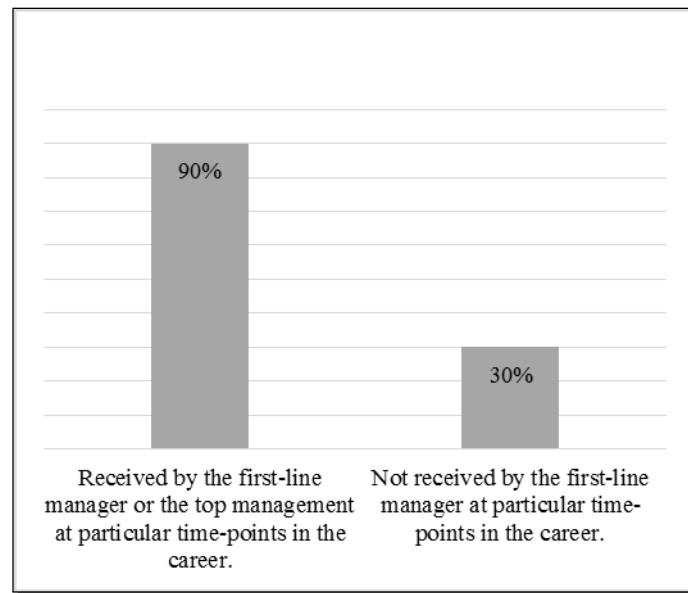
It was evident from some women's stories in this study that the management support has significantly influenced their career advancement. As can be seen in table 24 and figure 21, (90%) of women has received management support, whereas (30%) of women have experienced problems in the work because of the lack of supportiveness by first-line managers.

The management support, which was provided either by their first-line manager or top management to them since the beginning of their career, has enabled them to have high work involvement and significant achievements which have facilitated their career advancement at later stages. The first-line managers of women in this study, which most of them were in the top management team, have given these women the opportunity and support to show and prove their work abilities through assigning them significant work tasks and projects in the organisation. And also by providing them the training (will be discussed in section 5.5.3), authorities and facilities needed for their work. The first-line manager or/and someone from the top management team has served as a mentor or role model for these women, and they have significantly contributed into building their work experience, self-trust and professional image. Also the first-line manager and/or top management support has contributed to the level of work satisfaction and commitment of the women which enhanced their work performance.

Table 24: Management Support

Management support	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Received by the first-line manager or the top management at particular time-points in the career.	×	×	×	×	×	×		×	×	×
Unsupportive first-line manager at particular time-points in the career.					×	×	×			

Figure 21: Management Support



Case one believes that she was supported by the ex-first-line manager (IT director), who also was the dean of the IT College when she was a BSc student at the same university. He served as a mentor for case one at the beginning of her career, and he has provided her the chance to take many training courses which he saw essential to her IT work. She stated, ‘I was always running to him if I need any help, I used to rely on him in the work, because I was just a new worker with a little experience. However, he has been promoted to a higher non-IT managerial position, while the position of the IT director has been occupied by another person’.

Case two has been chosen among the IT team by her first-line manager in her first job for planning and implementing an important project called the ‘credit reference bureau’. She stated, ‘after launching the ‘credit reference bureau’ application in 2003 or 2004, my manager saw that I was an expert in everything related to the application, he has promoted me from data auditor to ‘credit reference bureau’ supervisor, he has assigned me the supervision of the whole IT department, and the IT department was also managing the customer services, because a big part of the customers’ complaints related to the data of the systems, for example, the customer asking

why his information in some bank is wrong, we were receiving such complaints, so both of the technical and customer services were under the IT department’.

Case two believes her extensive IT work experience was the reason of choosing her after she applied for her current job, she stated, ‘they had selected me, and I have to say that although I am a lady and the only female among the candidates, they have selected me. Maybe, I can say again, they have selected me because of the variety of my knowledge, this point is very important for any head of IT, I mean if someone has the experience in the networking only, he will face a big difficulty in heading the IT, for example in the side of the applications and systems, because he don’t understand them, and it is the same when someone understands only in the development of applications, while he lacks the knowledge in the networking, he would face a difficulty gain. So, I believe they selected me because of this, and of course I did not ask them why you have selected me! (Laugh)’.

Case three believes that her ex- first-line manager, which was also part of the top management team, is one of the positive factors in her career, she stated, ‘I believe one of the positive things in my career was that I had a good manager before he left. He had a big impact in my career, because he was my mentor. Many times, he used to involve me in several works, even though I was not an assistant, and my job title was not allowing that I get involved in some of the things. However, he tried to get me involved in many works which are not related to IT, they were related to operations, because he was the head of IT and at the same time the Central Securities Depository (CSD). He was managing two sections, and he was a deputy director as well. So because of his high job position, he was able to get me involved in many works, even to the extent that he has assigned me to establish a unit as a part of the CSD department! The unit manages the registry of the listed companies. So actually I did it, and I established it. Some woman has been hired to work in this unit, and now she is reporting to me. This was a big achievement to me. He has tried and involved me in the operation, in the core business of our organisation. I don’t expect that I was able to reach my current job position, if he did not open the door for me’... ‘When he left the work and joined another organisation, he recommended me. He left a recommendation to top management. After three months of his resignation, I have been assigned as an assistant, and then after two months, I have been assigned as Head of IT’.

The first-line manager of case four at her first job has supported and encouraged her to study MBA. She stated, 'I remember, I found an objection and resentment from the management team when I have decided to study MBA, they asked why she wants an MBA? She is in the IT field, why she needs an MBA?! But my boss has encouraged me and has defended me in this issue by saying to them that he wants me to be able to do the management work in the future. They did not want me to study, although I have to work hard and suffer, not them! So in facing this kind of issues, you have to take the decision for yourself, you have to push'.

Case five had the support from her first-line manager at the beginning of her career; however, her relationship with him had worsened at later stages for some reasons that will be presented later. She stated, 'when I joined the legislative organisation, my manger was very supportive, he trusted my work abilities, he taught me, he suggested all the training courses I took, he invited me to participate in work meetings. I used to go to him daily to discuss all the work and points I have, I used to ask him for any help or advice I need, I learned from him a lot, he taught me, he founded me, he taught me how to manage, how to write my CV, what to do in job interviews, and many things. But he changed after person X (one of the IT team) finished his MSc study outside Bahrain and came back to work'.

Case five had also the support of the chairman of the legislative organisation, which facilitated her work during her first important project. He ordered his staff to provide case five with any requirements to finish building the assigned information system. She stated, 'the cooperation and support of the chairman office staff has helped me in the work a lot, they were very cooperative and helpful with me all the time, they have never been miserly in providing any information I need, while the other departments have not been supportive with me as much as the chairman office, the chairman office staff were more supportive to me than the others, and because they have the highest authority in the organisation, they have forced the other departments to provide me with anything I needed, and sometimes they got the information in an indirect way just not to make them fight me. They used to try to find some way to provide me with the required information'.

The strong top management support for case five has enabled her to overcome the problem with her manager and person X which will be presented later in section 5.5.2. The chairman and top management team did not accept the resignation of case five when she decided to change her job after her relation with her first-line manager had worsened. Thus, they have promoted case five

to a higher job position. She stated, 'In 2006, I got the offer from my current workplace. I have passed the test and I had the highest grades among the applicants, and then I passed the interview. The offered job was a 'senior specialist' while, at that time, my job title in the legislative organisation was 'specialist'. I have submitted my resignation letter to them but they refused it. All of the directors, the director of the chairman office, and the director of committees, the general secretary, and all of the executive directors have refused my resignation. They said case five will not leave work, because she is the one who understands our work, and helped us and established the system. All of a sudden, a decision has been taken by the chairman to promote me to the position of head. At the beginning, they tried to make me stay and not to leave by offering a promotion to a 'senior specialist'. However, the management of the current workplace said if they offer to give you a title of 'senior specialist', we offer you a title of 'Head'. So they have been forced to make me a 'Head' in order not to leave them. All of a sudden, I became a head of my current head! (Laugh). Overnight, I became the head of our section! They got the ex-head out of his office and they have given me his office. All of this happened by Allah (God)'. 'When I had decided to leave them, they offered me a position of 'senior specialist', thus, the management of my current work have offered me a position of 'Head' in return. Higher position! Before I leave, the chairman came to my office and talked with me. First of all, I have been shocked and I have never expected that I will be offered a position of Head!! ... 'Yes (Sure), I had the top management support, and the support of all the directors of the departments. My manager did not give me support, he fought with me. At the beginning he helped me, but later I don't know! I became a Head, it was a shock for him that I became a Head. Also, after being a head, the problem with person X has been solved (Laugh), they gave him the position of head of network and support'.

In her current job, she has strong top management support from the beginning. She stated, 'our organisational hierarchy has no position of IT director, and because the top management is highly concerned about the IT in the work, the general secretary herself is heading the IT. The IT is managed under her department. When I joined the work, she wanted me to be close to her, and to avoid any barriers between her and me. So, she had to put me under her department rather than any other department, just to reduce the managerial levels and ease the communication and contact between me and her. She has added me under the general manager. It is true that I am

reporting to the general manger but I am also in contact with the all members of the top management team'... 'I have left them (legislative organisation) and I came to this work, and my image remained the same, I still feel that people say inside their self 'Case five is wow!' when I walk in the work and they see me. Why?! Because they have asked my old work about me, so my image came and stayed with me in my new work. When I was just about to start my work here, everyone was waiting to see me because they have heard that someone very good will join the work. When I attend meetings, I can feel the importance of my presence. Why? Because top management of my old and current work, has built a good professional image for me. Our chairman here has built an image for me and she has made everyone understand that someone very good will join us, and she has given me the support and the chance to participate and give in the work, praise be to Allah (God), now I am satisfied and happy'.

Also case five has top management support even during some sad events in her life, which will be presented later in section 5.7.1. Moreover, case five views the chairman of her work organisation as a role model. She stated, 'I see our chairman as a role model to me (smile), and this is since I came here for an interview at 2007. Over time, I get to know more about her. I know that she is a young woman, however, she is familiar with everything. She is a strong manager, I like her way of work. Her personality is nice and strong, I admire it and I wish to be like her (laugh). She is a woman of prestige, status and respect. At the same time she is modest. When you sit with her, she makes you feel your esteem, presence and value, and this is also when she sits with a small employee. Also, the nice thing about her is that she knows everything about everyone in the organisation, her door is always open for everybody, she has eliminated the thing which called 'conflicts', there is no conflicts between the employees here'.

Case six has the support from one of the top management team members in her work organisation. She stated that 'he always used to ask me to join his work meetings even if they were not related to the IT work, he always wanted me to learn and develop my knowledge and skills, and he always allowed me to attend the latest technologies events and many training courses. (Pause) He always said to me that I am a leader! He always depended on me in the work. Also, even after the firm closed its business in Bahrain and shifted to Italy, he kept in touch with me for 8 months after the closing, and he gave me recommendations to search for a job. Unlike her first-line manager which was not supportive or helpful for her in the work, she

stated, 'I did not get any support from him and by the way, after some time he was fired from the work before the closing.

Case seven believes her first-line manager was not supportive, and she had the mentoring and support from someone in the IT department. She stated, 'never, my first-line manager in the Ministry has never supported or motivated me in the work, and this was a problem to me'. 'I have spent seven years in the Ministry of Education without getting any job promotion, and I have not asked because I don't like to ask for promotion'...' But, there was someone in our department who helped me a lot in the work, he drew a right career path for me, but unfortunately he has left the work after four months after I joined the Ministry'.

Case eight believes the support of the chairman of her previous work organisation to her has significantly facilitated her career advancement. However, and at the same time, she believes this top management support was one of the reasons of the problems she has faced with the people in the work. She stated, 'when I have joined the university, I was a developer in the enrolment and registration section. Then, I have been transferred to the office of the vice president of the university, and then to the office of the president. Why?! Just because of the importance of the system which was in my hand, they did not know where to put me, and under who? 'The chairman has honoured me, I was the youngest employee, and I cannot remember the title of the award, I think it was the award of the excellence in work'...' 'When the president has sensed that the registration system is in danger, you know?! He has brought me to work under his office. What the university can be without the registration system and the registration records? He wanted somebody that he can trust whether there is abuse of the registration system'.

In her current job, case eight believes her self-trust has resulted from top management support and trust in her work. She stated, 'my relationship with top management is very good! (Sure! and quick answer), I think without them I was not able to reach to where I have reached, our bosses trust our capabilities, my self-confidence comes from their trust in me'. Moreover, the Assistant General Secretary is mentoring case eight as she has described in the interview. She stated, 'the Assistant General Secretary is my mentor in the work, he taught me the policy of the work and management, and what to do in the difficult times and problems. I go for him, I am not shy, I go to him and I ask about

anything in the work. Actually, I am so shy, so shy! But it all depends on the man itself, some men you avoid them, and some of them are very amiable, and you can know their ethics, so it all depends on the type of the man, and also the woman herself, she imposes her respect’.

Case eight was asked about how she learned the management, and she answered, ‘I have been thrown inside it, you know?! I have depended on myself, and secondly, the directors here are very friendly, they have a nice way of communicating with people, they advised me in a very nice way, for example they say, ‘(her name), do not do this, this is wrong’.

Case nine believes that the support and appreciation of the top management and her first-line manager has made her satisfied and strongly committed to her work. She stated, ‘I am very close with my first-line manager, when he wants or I want anything, we discuss it in detail’...‘Presently, I can say I am satisfied with my job, and I don’t look for another job, because so far I am comfortable in my job position, and I am getting the appreciation I deserve. (Smile) You have reminded me about the undersecretary, he was saying for me ‘you are the mastermind of the aviation (Laugh), at that moment he made me feel (Laugh), he made me feel that he knows what I am doing, and also the current minister, I feel he is very understanding, and everyone in the top management are very understanding. We met him and he is very understanding, and I did not feel he has any gender bias, but the most important thing for him is the qualifications’ ...‘Presently, my manager is relatively understanding and this is very important to me. The IT section has many problems, and sometimes its work is misunderstood. For example, sometime they assign some work to the IT team, even though it is not related to their work. Honestly he was defending the IT team at many times. He was saying that not every work must be done by the IT team, there is some work related to some internal issues, or the work delay because of some internal issues. This encourages you too much and makes you feel comfortable that there is someone backing you up’.

Case ten has got the support of the head of IT in the ministry, when she has asked him to transfer her to work under the IT department. She stated, ‘I have transferred to the IT department after a two years. I went for the head of IT, and I told him whether there is a vacancy in the IT department, and I would like to join the department. He has welcomed me right away. The

system, which I was working in, was an isolated thing for the people in the IT department, they did know anything about it, and they were always wished to have it under the IT department. For this, he welcomed my request right away, and he has officially transferred me to the IT department. Then, I started to learn new things. I like to learn different thing every day’.

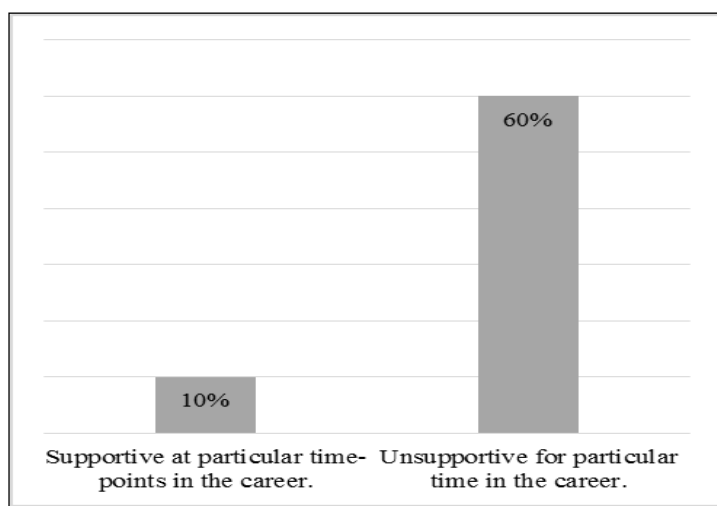
6.2.2.2 Relation with Peers

The stories of some women in this study have shown the significant impact of peers in the career advancement of these women. As can be seen in table 25 and figure 22, (60%) of women experienced problems with unsupportive work peers, and (10%) of women showed positive impact of the supportive peers in their career. For some cases, their success and the top management support have caused competition and conflicts between them and their peers in the organisation. In contrast, case ten believes her peers were one of the reasons of her career success.

Table 25: Relations with Peers in the Work

Relation with peers at work	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Supportive at particular time-points in the career.				-						×
Unsupportive for particular time in the career.		×	×		×	×	×	×		

Figure 22: Relations with Peers in the Work



Case two believes that in every workplace there are some obstacles that the employee has to face. She stated, ‘you will never find a 100% perfect workplace. Overcoming obstacles is a must, for example, sometimes you don’t get the cooperation from the other managers, and in fact we do not communicate with others so much, so it is a communication problem. Also, difficulty of the work, confusion, misunderstanding, and the different personalities at work. These are obstacles but they are not really obstacles because they do not prevent you to do your work, especially that there is no work that is 100% perfect, I have worked in a number of workplaces, so I can say there is no work where you can be 100% happy and exactly like what you do, because at the end it is a company and not your own business’.

Case three noted, ‘at the first days after I was assigned to be the head of IT, I have felt that being a girl and a head of department was not acceptable by some heads in the organisation, specially that I was the only woman among all the heads, so at the beginning, it was a little bit hard for them to observe and communicate with me, or to accept the fact that I was actually the head of the IT department now, and that you have to ‘speak to me as a one, do not speak to me as a supervisor or a girl, there is no difference between me and you!’ So I had to show them who I really am, and I had to change my style in order to meet their expectation, and even beyond their

expectations, I mean I don't show that I am weak, and I negotiate strongly and go beyond that, especially in the discussions. I think this was the only negative thing in my career, otherwise I did not see anything'.

Case five has talked about some problems with some people in her work. She stated,' when I have just joined the legislative organisation, I was a developer and fresh employee. I have been asked to start the first information system for the work by using ORACLE. Actually, they have employed me in the organisation to build this system, which gathers the work data of all the departments in the organisation. This means I am going to deal with all the departments to build the system, and some of these departments are against each other. What have caused a problem in my work there was the existing conflicts and fights between people in different departments. When I start the work with department A, some people of other department get upset and see me allied with people of department A and against them. It was like I am in a war. When this problem happens, they were try to show the top management that I am not doing their work, and I am deliberately making problems for them. And when I do their work, they were attempting to show that my work is not good enough, or to look for its negative things. Therefore, I was trying my best to show the reverse, showing that my work is good and satisfies their work requirements. This requires from me that to be awake 24 hrs, meeting their requirements on time, and to be conscious and aware in every moment about what they are doing behind me. When they give me complicated works to do, I say to myself 'I can do it' and I show them that I can do it. At the same time, I was studying the psychological side, I study how I can balance between the two parties, how to be neutral with everybody, and to win everyone in the work. Praise be to Allah (God), I had managed to do it (smile), and because of this I have been promoted and I have advanced in my career, although that the war against me in the legislative organisation have stayed for a long time'.

Also, case five talked in detail about her problem with (person X) and how this person has destroyed the relationship between her and her first-line manager as mentioned earlier. She stated,' my first-line manager has changed after one of the IT team (person X) has finished his MSc study outside Bahrain and came back to the work. After person X has returned to the work, he was shocked that he has no place, because he was occupying the position of the head of IT,

and this position has been taken by someone else when he was out of Bahrain. The position was occupied by my first-line manager. After person X has returned, his job title became 'senior specialist' and he worked in the technical support and network section. I was in the development section, but I have suffered a lot from him, I have suffered a lot! He was rummaging through my papers, he wanted to know why people always run to me rather than him when they needed something, or wanted to follow-up their work with me, or wanted to ask for some reports, data or help they needed. He wanted to know why they always communicated with me rather than with him for everything related to IT. He was having a problem of why people come to me rather than him?! And when they come to him, he did not know how to communicate with them, and he did not refer to me when they needed something related to my work, he felt that I was competition for him, and he was afraid of me. It was a big problem to me'...'Also, it is not nice when someone feels or knows that he/she is being observed. When someone comes to me for some work, he (person X) asks him (Haa! What is up? What do you have? Why did you come to her?) It was not nice of him to ask such questions. I became emotionally tired, very tired, I got sick for a month. During that time, I have asked for a work leave, but the leave request has been refused, although, it was not for taking rest, it was for studying for the Microsoft certificates. I wanted to study for the exam, but I couldn't get leave. He was not nice to me. He was throwing papers in my face. It is a shame that they deal with me in such inappropriate and impolite way'.

She continued saying, 'over the time, my manger became like him (person X) and he has started to deal with me in the same way, I don't know why?! Maybe person X had turned him on me! Or he really became afraid of me! I don't know what happened! I was just a developer in the team. I have gone through so many pains because of them. Later, they have realized that the system which I have created is the basis of the success of the IT section and me. This is what I have felt and I am not sure whether it is true or not, Allah (God) knows. They have decided not to have the system be controlled by one person. It was controlled only by me. And I didn't mind it and I see this decision was right in terms of management. They have brought some IT company to build a similar system to what I have built, and then to merge the existing data to it'...'I did the database schemas and I have prepared all the needed documentations for the company to start building the system. After the company staff has come and got the database and everything they need from me, my manager and the project team have kept me aside, they did not want me to work in the

project anymore. They have kept me away. During that time, I felt that I go to the work but there is nothing to do, I was like the criminal, they have made me feel that ‘finally we could catch you!’ or ‘a big thing has been taken from you!’ They have placed the desk of the company’s staff next to my desk without leaving any space in between. It was horrible days (smile). Also, I don’t know why after some time, they have decided to employ new developers, and again I did tests and everything for the applicants, but I have noticed that they were thinking that I deliberately did not want to employ any of the applicants. It was not my business! I am just a developer and have nothing to do with the employment decision! They come to me and say ‘we are going to bring a head to your section to take all the call and work from your hand!’ they were very discontent with why everything was in my hand! I don’t know why! However, I did not deal with anybody in this bad way, maybe they were discontent because ‘why I have succeed’! Or maybe because person X did not like to see all people come to me, and why I was the star! The IT in the organisation was me and only me!!’

Case five believes the strong top management support she has got in her current job has prevented any major conflicts with people in the work. She stated, ‘I can say I have a power in the work, I have their support! Now, if you see fights and conflicts in the work, you will not find them. You can find very simple and small ones. Why? Because I have the top management support, so I don’t have enmities. All the problems I have faced in the legislative organisation, I don’t face any of them here’.... ‘In my current workplace, I have faced another kind of difficulties. A war has started from the section of the network and helpdesk, because its head become equal to me. It is a war between [head of section] to [head of section], for example, when I say the servers have some problem, they deny and say no, the servers don’t have any problem!’ ‘People here have no conflicts and fights between them. There are just simple and normal conflicts. Now, I have the support, and I have everything. Now, praise be to Allah (God), everything goes smoothly in the work, if someone ask me to do some work I can do and finish it in a week. In contrast, when I was in the legislative organisation, some departments delayed my work and make me finish the same work in two months. I don’t like to stop my work, the work should not be stopped for anyone or any reason. I know those people very well, I was doing the work task as fast as possible before they make something to stop me working. They just want to stop me! I was like

in a war field. I have noticed that most of the qualified people there have started to leave the work. There are many highly qualified and skilled people work there’.

Case five believes the work style and culture of the public sector plays a role in forming such conflicts among people in the work. She stated, ‘culture! The culture of Ministries (public sector) is different than the private sector. In the private sector, there are a-b-c work procedures and everyone in the work has to follow and stick to it. While people in the public sector are like ‘you hurt me and I hurt you’, and ‘you intrigue to hurt me and I intrigue to hurt you’. They only think about who wins the seat first? They like the show, and they are trying to show up in any possible chance. They are, just like the inflated balloon, they show people that they are important but in fact they are empty inside. They lack the professionalism in the work, but they are proficient in ‘how to show themselves’! Where does the problem lie? The problem lies where some of the managers believe the show of those people. They are just seeing what appears on the stage and they do not know what is behind. This is a big problem in the public Ministries and organisations, and in every department not just the IT.’

Case seven has noted that some peers think that the IT department might take their work, ‘I have work relations with the other heads and directors, which all of them are men except one. I feel I am part of the network, but sometimes I feel there is something between them or meetings that I don’t know about it. sometimes, I feel that some of them afraid that the IT department might take the work from their hand, or they see that some work is supposed to be done by them rather than the IT team, for example, a short time ago, we heard bad news about one of the IT vendors in Bahrain, so some director has phoned me to ask me to login some system and check whether this vendor has done something illegal. At that time, I was shocked that they have dealt with this vendor to build a system for them, while the IT department is not aware about it! They don’t know that it is an endless process! They did not ask themselves if the IT team don’t know about their system, who is going to do its configuration, support, backup, and update?!’.

Case eight talked about her problem with the peers in her first job (the university), ‘a lot of problems have happened to me because of my success, like jealousy and, you know?! A jealousy from the existing people in the section and have no work output’... ‘So the enemies have

increased a lot, the talk about me has increased, I became famous in the university more than I should be, I don't know why?! When I was walking in a restaurant or any place inside the university, I find some people ask, are you (her name)? This has not impacted me, because I was still young to understand such behaviours'.

She continued saying, 'when I was transferred to the president's office, my situation became worse, you know?! My enemies have increased, I have suffered a lot in the university until I left. The work will not finish if this and that is against you, you know?! He gave me many work authorities, but I think working there was not worth being all the time afraid or worry about what they are going to do and what not!'... 'When they brought me here (current workplace), I was in day 14 of my maternity leave, I cut my leave and I started my new job, because I was in a need to leave the university because of the shocks I have got there. Moreover, I have accepted to work with a lower salary, it was BD 200 less than my salary in the university, but I have decided to look for my relief. What do I want? Money? Or to be relieved and in a good and peaceful work environment? Why I liked the work here (current workplace)? Because, from the ZERO, I am going to start from the ZERO, it is a green environment, and there is money and a budget for the work, and they are who have brought me here, and they trust me. They know that I am a practical and productive person, I work and I achieve, you know?! '

Case eight has been asked about her response to this issue. She answered, 'in every time, I succeed more, my weapon is my success, what is the thing that upset them? Is it my success?! So, if I gave up, cried, became weak and withdrew at the end, they will win. I just keep going, I was just continuing. I have a very hard head. Even here (current work), when I get sharp criticism on something in my work, I do not defend myself, but I fix it, I take it (a received phone call – she was in a debate). I have been changed from the shocks I had got in the work! Shocks! Actually, I am a weak and shy person and I don't have strong self-confidence at all, but after every shock or trouble I become stronger. With every hole they dig for me, I ask myself why?! For example, is it because I am not good enough in the networking? So that is why they have given for me in this area, so I go to learn more in the networking. When they slap me, I ask myself why they have slapped me. I tell myself that because I am weak at this thing. I was learning a new lesson with every slap. I did not waste my energy in revenging from them, no, I use my energy to improve myself in their point, and to be better and much better, in order not to

let anybody to catch me at the same point again, and not to be shocked from the same source twice. I have learned that it is unnecessary that people, who are in higher position than mine, are not an enemy to me. Some people have self-problems, they think that this employee is lower than me but he might be a competitor to me, you know?! This is what I have faced in the university, there was some PhD holders and people in high positions who look at me as an enemy that must be eliminated quickly, why?! They were in good positions and have good qualifications, I was the one who must learn from them, but I don't know why they saw me as an enemy?! They were fighting me in my work!'. Case eight was asked about whether this issue has impacted in her career progress, she answered, 'no, it has not. I told you I am from the type of who becomes better after every knock, my type is different'.

During the interview with case eight, she received a phone call, which has made her very angry and shouting to the caller. This phone call can be considered as an example of her ability to challenge anyone hinders who her work. The researcher commented, 'I think I can say after this phone call, that now I really know your management style (Laugh)', she replied, ' (Laugh) managing by shouting, no, here people supports and be in the side of whoever come first, I mean when any one has a problem and came for them, they believe him without listening to the other parties, and they see that everybody must solve his problem. This is wrong! They have to listen to every party! All of us have stresses! They have to be rational with us, we work all day for them, but they don't want to write any work request! We just orally receiving the work requests, so and at the end of the year, the most hard-working employee has no records in the work requests system. It is unfair! It is unfair! Although they can enter the request in the system by only three clicks, they say it is a waste of time! Because they don't want! They don't want! Ironically, entering the work requests in the system will be helpful for them in following up their projects and it is also showing the level of work they do it daily. They don't understand!! I don't know why they don't see this?!'...'Also, my relations with the other heads are good except the female heads, (name of specific head) enmity! Enmity! Competition! I don't know how to express it, for example, when we succeed in conferences or some events, she comes and says, 'they haven't take approvals, we are the media section, we who should do it'...' The success is for the organisation not for us! But actually they want to make us at the behind, just because of the competition between me and her, as woman to woman'. Case eight was asked how she has

overcome this issue, she answered, ‘there is no solution, no solution for this issue, and this is can impact anyone, but I am always have the challenge to be better, you know?! To how to be stronger? To how to be more successful? And the criticism, I don’t take it in a way that I defend and defend. No! I understand it very well, and then I solve it quickly. Every criticism I turn it to success, every criticism!’.

Case ten views that her peers in her first job have a positive impact in her career. They were working very hard and they like their work, which made her always want to be at their same level of expertise. She stated, ‘Maybe, my study and my degree, and the work environment which I have worked in, all have helped me. I like to study, I like to learn, we were a nice group in the ministry, all of them were using their knowledge skillfully, thus, this was motivating everyone to be up to their level and to be even better and to work hard’.

6.2.2.3 Training and Educating

It was evident from the stories of women that the training and knowledge which they took at their first job have enhanced their career. As can be seen in table 26, the analysis showed that eight of out of ten women have taken professional training in the IT or management, for example, in Oracle, Windows, project management and others, and some of them also were sent to similar work organisations outside Bahrain, in order to learn their experience and their used applications. Also, some women have been given MBA scholarships which have enhanced their management knowledge. All women believe that they have benefited a lot from the training.

Table 26: Professional and Technical Training

Factor	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Professional and technical training.	×	×	×	×	×		×		×	×

At the beginning of case one's job in the university, her first-line manager has sent her for a number of training courses which he saw as essential to her IT work. These were Oracle Certificated Professional (OCP), Certified Information System Audit (CISA) and others. Also later she has taken a Project Management Planning (PMP) course. She believes that this training has improved her work skills and knowledge, but it was not a direct reason of her career advancement.

Case two has good and many training courses during her first job. She stated, 'after I have joined the company, my-first line manager has sent me to the exchange server, at that time it was not called an exchange server, I forgot its name, but it was giving a full study about the exchange server, windows and directory. As soon as the window server has been launched, he sent me to a full course in every part of the window server as an operating system. In addition, I went to other courses which most of them were workshops especially that my work at the beginning was system administration, so he was sending me to workshops, seminars and the latest IT events. So they were really simple courses but they have benefited me a lot in my work'. As mentioned earlier, after assigning the 'credit reference bureau' project to case two, she has been sent for two organisations in Kuwait and Egypt which have already implemented the same application, in order to see and learn their experience.

Case two also has pointed to the importance of the training when she talked about her work in the public sector for a very short period of time. She stated, 'because my first job was in the private company, I could not stand the work in the public sector, especially that you don't feel that you can easily develop the work, although there is a massive budget for training. Recently, they are sending many people for training inside and outside Bahrain. They are supporting the employee, but where is the work? There, the project takes years to be approved, for example, they were having a project, and they have already working in it before I joined the organisation, and after two years of leaving my job there, I heard that they have finished! And who knows if they did it in the right way or not. And another example, they were conducting many meetings of the 2030 strategy, and then, where is their action? Where is the work? Still they did nothing yet'.

Case three has taken many IT and management training courses soon after she joined her first job. She stated that, 'because of the process of automating the work system, the organisation had to give many training courses to the employees'...'This was my first project in the work, and the reason of why they had to give much training'...'I believe the training has made me more knowledgeable in the field, thus I have become able to prove myself and to always get good appraisals. I think the training has contributed in to my work promotions'.

Case four believes that the training has enhanced her work, she stated, 'the training has benefited me that it made me work more, provide and produce more in the work, you know?! Thus it has helped in being more recognised and appreciated in the work'.

Case five has appreciated the training and support she got in her first job. She stated, 'I am very grateful and appreciative to the support of the legislative organisation (her first job). They have sent me for a management diploma for six months, and this was very good for me, because I need the knowledge of management beside the IT. I have to know the management, they have sent me to a PMP course, ITIL, and other courses that have helped me a lot in managing my team and work'. 'The legislative organisation was providing internal training to us, and also it was sending us for professional courses. It has spent a lot of money in the training of employees, and it has encouraged us to participate in conferences and committees meetings at the level of GCC states and MENA. Many external participants I did for representing the legislative organisation outside Bahrain. I have been nominated to be leader of many work committees at the level of GCC states. This was very helpful in improving ourselves in the work, and in seeing and understanding what the other legislative organisations have. Seeing the work of other legislative organisations has made us more aware and knowledgeable in the work. We have implemented some of the things we have seen there'.

She believes that the training has improved her work skills and competencies, which, in turn enhanced her career development. She stated that, 'the firm was concerned a lot with the training and qualifications of employees, they were encouraged to develop their work abilities by going on training courses. The management used to offer the most recent training courses inside and outside Bahrain regardless of the cost and time needed. The firm always wanted the employees

to learn, and being aware with the latest things related to the work. For this, the employees in the firm were very committed to it. When I joined the firm, they sent me to the main branch in the UK just to make me know the work of the firm and how it is being done’.

Case seven received an MBA scholarship from her first workplace, as well as an Oracle certification sponsorship. She stated, ‘when I was at the Ministry, we were the ones who looked for and chose training courses then we ask the management for the approval. I received from the Ministry a scholarship for the MBA from Brunel University (UK). They gave to anyone who asked for study sponsorship or training course’.

Case nine believes the strength of the training program of her first workplace (in the petroleum company) was very supportive for her career. She stated the following about the previous way of work at the helpdesk in the current workplace, ‘I came from the petroleum company, which is a very organized workplace, and there is a helpdesk coordinator, so when I came here and saw the chaos I said to them ‘no’. The researcher has interrupted case nine and asked whether this company has impacted in her personality at work. She answered ‘Yes, exactly! A big, big impact, because when I have just joined the petroleum company, they have entered me into the ‘PROMPT’ programme. According to the work rules of the company, every new graduate comes to work in the company has to enter into a program called ‘PROMPT’. ‘Honestly, it is not the first-line manager who enriches your work experience, but the organisation itself who gives you and builds your work experience. I mean the ‘PROMPT’ programme in the petroleum company, we have to start our job by working for two weeks at each division in the company, and then in a later stage we have to work for two months in each division. In each division we have to look at their type of issues from A-Z. My role at the beginning was to do technical support for two or three years, when there is any problem we go to see what the problem is and try to solve it. My job title was ‘business analyst’, and my work role was analysing the work and technical problems to provide the best solution to. Today, you can find many technologies available in the market, you can find many solutions for one problem, so the role of the ‘business analyst ‘is to choose the best and cost effective solution. More importantly, choosing the solution that meet the needs of the user. Each user needs a customised solution for his/her work needs, for example, the busy managers need different solution than people who have work load and etc. Mainly my job

was to see the problem and decide what to do and how it should be done. So, my work role was just to write the recommendations or what it needs to be done, and there were other people for taking the actions. I believe this kind of work has benefited me a lot’.

Also, case nine has got an MBA scholarship from her current work place, she stated, ‘the only thing I got here is the master sponsorship, they have sponsored to take the master degree, and actually it was useful’. ‘Mostly I took all the training courses I need when I was at the petroleum company, they even sent me for courses outside Bahrain, and actually these courses were part of the ‘PROMPT’ programme. Therefore, after I have joined this organisation, I have already took enough training courses and from all the types, so I did not take training courses here. I can say here it is just a matter of top up training, and also I go for conferences’.

Case ten believes the training and learning have enhanced her career advancement. She took many training courses and she personally paid for some of them, because she believes they are essential for the quality of her work. She stated, ‘these courses provided the best practice or the international standards of IT infrastructure management, so they enabled us to make sure that what we do and apply in the work meets international standards. I have decided to pay for these courses, because it is very important to have a benchmark to make sure that you are following the international IT standards’. In addition, her current organisation is concerned with improving and enhancing her experience and knowledge in her work. She stated, ‘the organisation (current job) gave me the chance for more than one time to go for many quality assurance organisations outside Bahrain. There, I saw the systems and applications they used, and I felt we are at the same level. They might have higher budget for the systems they use than us. But we are at the same level of development. Last week, I went to Oman to see their systems, and when I went to Singapore, Hong Kong and GCC countries, I saw that we are using the same systems and application, and we even have some systems they don’t have yet, or in the process of applying them, because the quality assurance is relatively new all over the world’.

Case ten believes the master degree has facilitated her career advancement. She stated, ‘if I didn’t have the master degree, I don’t think I have been employed here, because here the ‘Head’ job positions must be occupied by master holders. Of course, if two persons have applied for

some job, and one of them has master degree and the other one don't have it, for sure they will choose the one with the master degree. The project management course has benefited me a lot, because now my entire work is planned as projects, so I need project management skills and administration knowledge. It has benefited me a lot'.

6.2.2.4 Organisational Structure and Rules

The stories of some women have showed that the organisational structure and work rules have influenced their career. As can be seen in table 27, (20%) of women in this study believe that their career have been influenced by the merging and demerging process, and that (20%) of women believe their career have been negatively influenced by the job promotion rules of their organisations.

Table 27: Organisational Structure and Rules

Organisation structure and rules	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Merging and demerging.									×	×
Job promotions rules.	×					×				

Case nine believes the organisational mergers have positively influenced her career due to the changes in the organisational chart. She stated, 'this organisational mergers have corrected the IT position in our organisation, because the IT was a division under a department, honestly our situation was strange, it did not make sense that a division provides services to other departments, while it is under a department, I mean we were a service within a service, usually the IT has a department in the organisations rather than a division under some department. Because we were a division under a department, the priority for the people of the department, so the situation was not normal, but now, the advantage that we got from the merger is that now we

have an IT department, we can have our own work rules and we can set the policies we want, and make everyone in the organisation follow them, and nobody can say this is a division under a department so we don't have to follow the policies of division. We became a department, and our policies are being applied to everyone'.

In contrast, case ten believes the organisational merger has negatively impacted her career. She had witnessed many organisational changes during her first job. The Ministry has been merged with another Ministry for some period of time, and later they have been separated and became separate Ministries again. She stated, 'when the Ministry has been separated into two Ministries again, the Ministry of A and B, I became under the Ministry A. I did not like my situation at that time, because the minister has left, and the ministry was still without an organisational chart. Do you know how it is when a big organisation separated? It was chaos! So I did not like the situation there. One day, I was talking with someone and he said to me that a new organisation has just been initiated, and you can give me your resume and papers if you want to work there. Then I have applied, and they interviewed me three or four times, and at the end they greed on employing me here'.

Case one and six both worked in different universities, however they faced the same barrier to their career advancement, which are the rules of the position of 'Director of IT'. The rule of university requires that any director in the university must be PhD holder. This rule has prevented the career progress of these women's career progress in their current work organisations.

Case one stated, 'once someone has been promoted to the position of head, it is hard to promote him again to higher position in the IT department, because the position of the 'IT director' must be occupied by a PhD holder?! So if you are in the position of head of section and without PhD degree you will be stick at this '. Case one has been asked if she see this law is negatively impacting on her career advancement, she answered 'no, because I did not think about or about career advancement'.

Case six stated, 'in our university, it is hard to be promoted to the position of director because it needs a Master or PhD degree. According to the work law of the university, the position of IT director must be occupied by someone that has a PhD degree. I do not have the PhD degree and our IT director is not a PhD holder too but he has lots of experience and the necessary skills to manage the IT in the university'.

6.2.3 Theme Three: IT Work Field

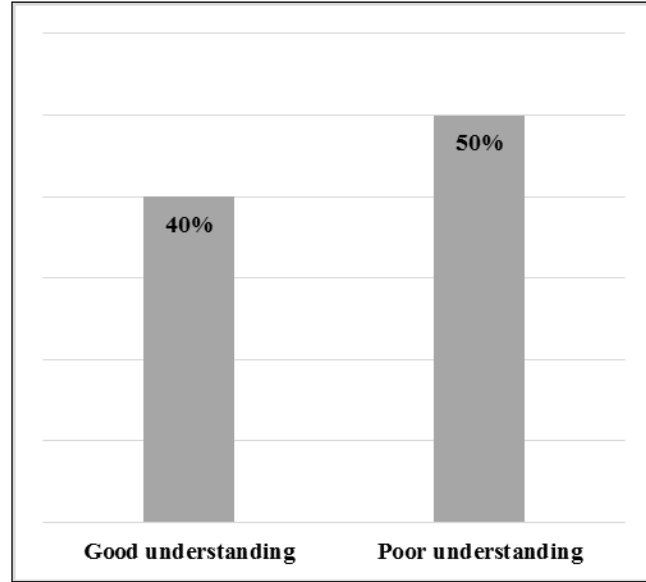
6.2.3.1 Understanding the Role of IT in the Organisation

The stories of women in this study have shown that the level of understanding the role of IT in the organisation plays an important role in their IT career. As can be seen in table 28 and figure 23, (40%) of women showed that the good understanding of the management team and people to the potentials, role and work of IT in the work, has provided the chance of work achievements and thus facilitated their career advancement. In contrast, (50%) of women showed they have experienced problems and obstacles in the work due to the lack or poor understanding to the IT.

Table 28: Management and People's Understanding of the IT Role and Work

Management and people's understanding of the IT role and work.	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Good understanding.		×	×		×					×
Poor understanding.	×			×			×	×		×

Figure 23: Management and People's Understanding of the IT Role and Work



Case one has mentioned the problem of the lack of understanding the IT work in her workplace. She stated, ‘for example, one time they asked me to build a system and finish it in three days! How come! Such work request needs time and thinking, and we need to ask them about its correct rules. They have just provided us the headlines and they left us to decide what the system will and should do! This is unacceptable! The work is not in this way! They must meet with us to explain and provide us with the exact requirements and rules in details. And then we should meet with them again to check and make sure whether our understanding of the requirements was correct. So these kinds of work and things need time in order to be done in a professional way. The top managers can understand it, but some people in some departments do not understand this’.

Case two believes the top management team of the financial company has a high understanding of the IT and how to use it in establishing and providing business services.

Case three believes her first-line manager was one of the positive things in her career, he was the head of IT, and in the same time the Central Securities Depository (CSD) and a deputy director.

Thus, the top management has a high understating of IT work and how it can be used to develop the business services.

Case four believes that the lack of understanding IT work was one of the negative things that has affected her career advancement, ‘as you know, IT work has many policies and procedures that must be followed, IT is not something that can be worked without considering the standards, policies and procedures, because you have to follow certain rules. Moreover, if I work in IT, I have to take care about information security. I have to protect the work information, and I have to be consistent across the board. I don’t compromise in such things, so unfortunately this has affected me, because I am decisive in the work (Serious tone).It takes time to explain for some people why we cannot do the work in the way they see and like, you know? I have to explain for them about the information security, for example, they ask us to give them access to some websites like chatting websites, and as you know we have a close circuit at the work so we cannot open any websites. This is one of the biggest issues I face and since long time ago, since the beginning of the chatting and messenger in the web. We have blocked the chatting applications because they constituted major risks to the entire work environment, network and the entire setup. People think that we are IT people and we just like to control them, so I can say that the role of IT is not clear enough for the other departments, they think that I just like to close what they like, but their thinking is wrong! However, this has not impacted my career advancement, because if you deal with professional people, they will be supportive to your decisions and your way of work. In contrast, some people are unhappy about your work decisions, so you have to explain the reasons for them. You should not just put the obstacles, but you should look for solutions and this is part of the IT job. I mean if they want something to happen, we will do it for them but in the best way for the company. I am not just refusing what they want, but I give the reason and I provide the solution. I believe it is important to provide awareness for the non-IT people about the information security, and make them know why they don’t have to do this and that, and why some things are disabled, you know?!’.

Also case four has pointed to the lack of understanding the importance and role of IT in the workplace, ‘formerly, the IT was very much the back office, and the IT team did not directly communicate with the people. In contrast, today, we have direct relations with the departments

as a services provider, we are providing applications and systems that make their work easier, and we attempt to change their way of running the business from the traditional way to a more automated and efficient way'... 'Sometimes you find resistance from the employees in these things, because people resist change. The way to make them accept the change is to go ahead with it. For example, we have implemented the SharePoint application, then we found resistance from some people, so we have decided to go ahead and start using the application, while we leave the other department to make their own decision. Also for example, one time, the electrical power stopped the work, and when it was turned on, the IT team needed about two hours to start up all the IT services again. However, a message has been sent to all employees informing them that the electrical power had been turned on and the work returned back to normal, without taking into account that the information and computer systems still need to be restarted and checked. For them it is easy!! So, we face such issues in the IT work. I believe the role of IT is not clear in this type of issues, people don't know how important the IT role is, and how long the work takes to be done, for example, when some department asks us to provide a financial application, we tell them it would take six months, they say Ooooh! Too much!, they don't know about all the needed preparations, setup, hardware, software, etc., because they are just seeing the final product, they just see a screen in front of them and not all the headache behind it. They think that the IT department takes a long time to provide the service rather than that the service needs a lot of work and operations'.

Case four has also added to the negative things she thinks she had faced, 'unfortunately, the traditional style is to have the IT as a service department and not part of the core business. If we distribute the seats, people who are working in the core business are in the front seats, while the IT people sit in the back seats. Let us take the bank as an example, the people of investment, funding and development come at the front seats, while people of human resources, administration, IT and the finance department come at the back seats. Over time, the business is relying more and more on the technology, no businesses can be run without technology. Today, I see that the IT people have to push a little bit to be at the front seats, the IT does not just provide traditional normal service like printing and typing, but it provides solutions as well. Today, the IT department provides services and solutions! Today, the general conception of the IT has been changed, it becomes more close to the core business, and it complements the other

side of business. I mean to run any business you must have the ICTs'... 'Also, one of the issues is that IT is considered as a cost centre that requires a big budget and heavy investments. Today, the model which we have to work with is to make the IT department a services provider that can generate revenues for the company. Currently, the IT department provides a small part of the company's revenues, which can cover some expenses at least. But my aim is to provide more services, and commercialise the IT department by providing number of paid solutions. I am thinking to do this idea even internally, since as a head of a cost center (IT), I have to show people of the other departments and sections how much their share is in the budget of the IT department, so when I buy certain infrastructure or application, I can share its cost with them. Currently, I don't get money from them, but I can show top management that this service or this requested budget is because that the other department is using this service. So I can say that today the model of the IT in the private sector has been changed that the IT became more connected to the core businesses'.

Case five has shown that the top management team IT in all the workplaces she has been in, has a high understanding to the importance and work of the IT. As she has mentioned earlier in section 5.4.1, the chairman of her first workplace has assigned her the project of building an important information system coordinating the entire work of the organisation. Also, when all of the directors and managers have refused her resignation because they understood the importance of the IT work that case five was doing there. She also has mentioned that her current chairman is highly concerned with the IT in the organisation.

Case seven believes the management of her workplace lacks the understanding of the role of IT, 'people here have no awareness about what IT can do for the organisation, I mean, you don't get the budget for IT projects easily like the other departments, we are a supporting department, so it is hard to get enough budget for our projects. I have too many useful ideas and they are even good for Bahrain, but people here do not have enough awareness about the role of the IT department in the organisation'. Case seven were asked about how she has overcome these difficulties, 'the employees have been educated through giving them some guidelines. Some of them have been changed for the better, and some of them have not even read them. Overall, the

departments here don't have the sufficient awareness, they do not know what the IT can provide and serve them.

Case seven has mentioned earlier an example on the lack of understanding the role of IT, 'there is a project that has been proposed since 2009, and it aims to connect the *gases emissions* systems of the factories. I have just accidentally knew about it. Since 2009, this project was just a paper inside the drawer. I asked them to give me an idea about it, because I want to know about it, and then I saw it. Then, when I read it, I have realised that it entirely depends on the IT. But they said 'no the project is related to some other departments' work', and at the end they asked me 'can you do it?! I said assign the project to me and you will see! (Self-confidence).I did it, and I have got an award of best work in our field on the GCC level'.... 'Overall, I can say in all workplaces in the public sector, they don't know what the IT can do for them, for example, after I have finished the master studies, I have suggested to the Ministry to do a project for the e-learning, but they didn't care and they didn't want'. Also, case seven has provided examples about the lack of IT work in her workplace as mentioned earlier in section 5.5.2.

Case eight believes that people in her current workplace don't understand the role of IT in the workplace, 'have you heard the debate in the phone, it is all about the work procedures manual. Everything is in their mind, many people have resigned, and nobody knows how they used to do their work, all the work was in their mind. I took as much I can from them, although I don't know how to write the system requirements in Arabic, here they want it in Arabic, it is difficult! So we brought a certain company to do the analysis and writing. The consultants of our organisation have refused to cooperate with the company, and they argued that this is their work. It is okay we don't mind that it is their work, so why don't they write it?! They said they don't have time, so what is the solution?! Please tell me, what is the solution?! We are ready to accept a compromise solution. They disliked the company's team and they searched for their work mistakes, and they did not cooperate with them. It is a disaster! So this manual of work procedures, which you just saw me fought about on the phone, is for the Chairman's office and the General Secretary's office, which is the core business of our organisation, it manages the legislation, questions, suggestions and projects. Nobody knows how the work is being run, it is not documented as work laws or policies. Everything is up to them, how come?! Sometimes,

they want you to help them, but they don't want you to intervene in their work, and if you brought a third party they fight with you, for example, I did not do the analysis of the finance application because I am not an accountant, I know where I have to be in, and where not to be in, you know?! So we brought specialists from a certain company, to see the problems of the current finance system, they sat with the users and asked them why they do not like the system, and they sat with the auditors who every year said your system is very weak, the security of the system is weak. Based upon the points of the auditors, the needs of the employees, and the accounting laws and standards, which I have no idea about, the requirements of the finance system were analysed and signed by specialists. We played our role in the implementation time, the finance employees also had a voice in choosing the vendors. They have 5% in the evaluation. They see which one is the best for them'.

Case ten believes that working in an IT career, but not under the IT department was a negative thing she faced during the first two years in the work. As mentioned earlier in section 5.4.1, that she was working under some division which was managing an important information system in the Ministry, and the IT department had no hand in it. This indicates that the management team of the Ministry lacked the understanding of the IT role and work. She stated, 'therefore, I sensed that my efforts during these two years were in vain, you know?! If you are working in the IT department, you benefit from those around you, and from working on the other applications and systems used in the organisation, or from taking IT training courses. I was missing all of this, I was just in my place'. The researcher asked case ten if she had experienced good things during these two years, and why she feels that her time was wasted?! She answered, '(Laugh) you know, my work for two years was just on the Oracle system, it was creating forms and reports, which is something I can learn within two months. That's it, and nothing more. Add a new field, edit a field, do a query and so on. No this is not what I seek. Actually, I feel what I have been through during these two years has delayed my job promotions'.

In contrast, the management team and people of the current workplace of case ten have a good understanding of the role of IT, 'when anyone speaks to the chairman about any work related to the IT, she turns them straightforward to us, she always involve the IT team in any work meeting where she needs the opinion of the IT people. When I was in the Ministry, many times some

divisions created or bought systems without the awareness of the IT team. Honestly, we don't have such problem with the management team here. Whenever someone has some work and part of it is related to IT work, the work can never be passed and approved by the top management without my approval first, if I say yes, top management approves it. This is due to the management style of the chairman, she always communicates with us'... 'People here are very understanding and very IT oriented. after I joined the organisation, I have decided to make an awareness session for them on how they can secure their computers and data, I chose only a small group of employees from each division to attend it, in order to see if the session should be repeated for the others or not. The feedback of people who have attended showed that the IT awareness is unnecessary to people here. Therefore, I felt people here don't need too much IT help, and I don't face any problems with them at all. Most of them were school principals, or senior teacher, you know?! All of them are already working for a long time. Moreover, people here follow the work rules and apply the work policies. We have work rules and policies for everything here, and they have been signed by the chairman, and everyone refers back to them whenever it is necessary'.

However, case ten has shown that the organisational chart is impacting on her level of productivity in the IT department in her current workplace. She stated, 'the obstacles might be the small number of staff, I have many projects to do, but I don't have enough people to manage them. Our work is very slow in the projects, because we are very few people working here. Our organisational chart is very small, and it includes head of IT and only two employees, it is not enough, as I said for you, the people here are IT oriented, they want information management systems, and to have everything automated, they are not of the type which accept to work with any way or manually. Since they want this, more IT staff are needed, this is a big problem, and it is the only problem here'.

6.2.3.2 Cultural Impact on Women in the IT Field

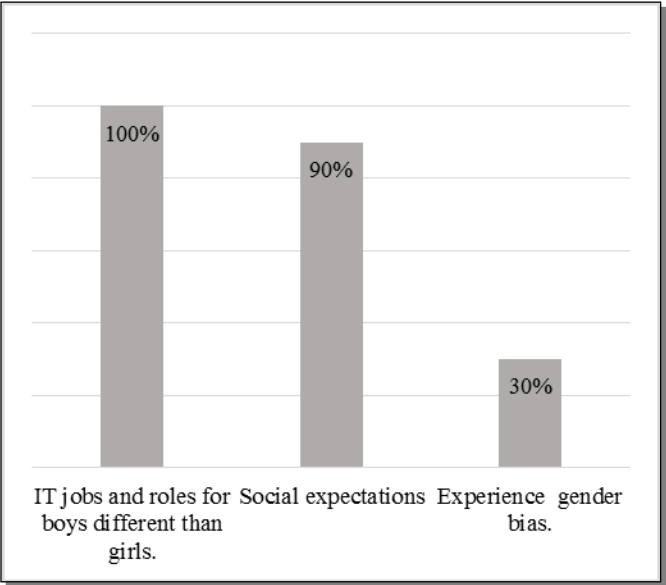
It was evident from the stories of women that the culture has significant impact on women's career in the IT field. Most of the women believe that the culture is impacting in the work role of women and men in the IT field. They were asked these questions: *What is your*

attitude toward the role of women (in general)? What is your attitude toward women in IT? What is your workplace attitude toward women in general and IT? As can be seen in table 29 and figure 24, all women (100%) believe that women should have different role in the IT than men, where there are certain IT tasks and jobs fit women more than others, like graphic design, software development, systems analysis, database administration and etc. However, they believe hardware work, technical helpdesk, computer networking and engineering works do not fit women. The data analysis also showed that (90%) of women in this study have experienced issues in the work resulted by the social expectations related to women. Also, (30%) of women in this study have indicated that they have experienced gender bias by their first-line managers or peers in the work.

Table 29: Cultural Impact on Women in the IT Field

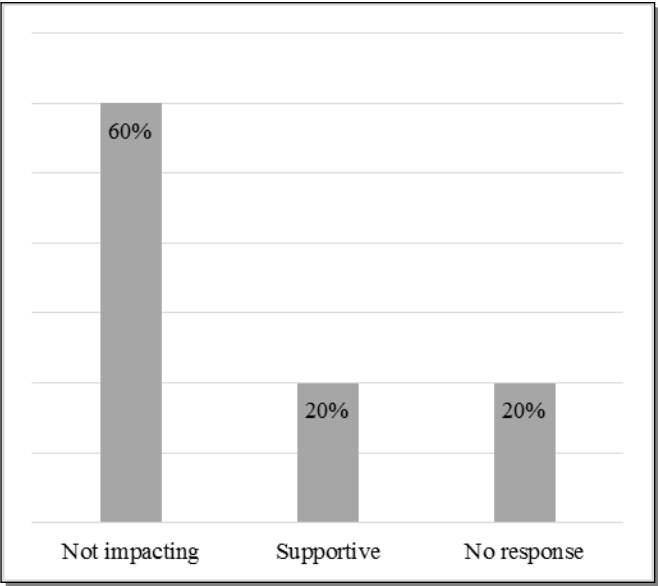
Cultural impact on women in the IT field	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
IT jobs and roles for boys different than girls.	×	×	×	×	×	×	×	×	×	×
Social expectations.	×	×	×	×	×	×	×		×	×
Experience gender bias.			×				×		×	
Attitude toward the impact of Islamic rules toward women in the work.		No impact	No impact	No impact	Supportive		No impact	Supportive	No impact	No impact

Figure 24: Cultural Impact on Women in the IT Field



Also, women were asked about whether the Islam has any impact in their career. As can be seen in table 29 and figure 25, (60%) of women believe that Islam is not restricting women’s career advancement, and (20%) of women believe that Islamic rules related to women are supportive for women to work and advance their careers.

Figure 25: Islam Impact in Women’s Career



Case one views, 'the field of IT has many areas of specialization, and some of them are okay for women, especially the graphics and designs. I think girls have a better view in these areas than men. Also in programming, you see that the girls have the logic of programming, they are more precise than boys. Boys are a little bit scatter-minded. So it depends on the area of specialization, I mean I don't see that a woman can work as a technician or in networking. Men can work in anything even in graphics and designs. It is normal! Although the girl is better in these two areas. Because I feel she should deal with the soft things and men with the hardware, you know?! Case one doesn't believe that there is any gender bias in her workplace, however, sometimes she decides by herself to avoid certain work tasks because she is a woman, for example she stated, 'I say no when they asked me to go on a business trip, with a group of men, I can't go, I feel if I go with them, there will be a little bit of restrictions, although I was able to take my husband with me and go with them, but, somehow, I feel it is embarrassing if we go with them, you know?!'.

Case two believes that being a woman is not a problem to be faced in the IT management. She stated, ' I am a lady and this was not an obstacle for me to be a head of the IT department, I have been chosen for this position after several interviews with the employment company, the Minister and other people in the organisation. 'Women are excellent in management. Of course, it is impossible that she can be a manager very quickly however she has to work hard. But for management as I said she is good, and I have noticed that she is more likely to succeed than men, because she is more organised than them. If you look at high school graduates, the number of females is much higher than males. Why? Not because they are the smarter, it is because they are more committed, they care more and manage their time in a better way than the males. They have more self-discipline' ...'I have some jobs for my team for which I preferred to choose females, although our work here is very tough and needs a lot of moving, I preferred females because they differ from the males in their commitment to work. Females are more committed than males, they know how to start the work, and their work is more organised. Girl knows how to organize her work (praise be to Allah), that is why Allah (God) has created her to be a mother and a wife, because she is the one who manages her home and her children. She is a leader'.

However, she believes that culture has an impact in woman's career in the IT field, she stated, 'Islam has nothing to do with women's career, it is the society who may affects woman's work status. Woman herself is who makes people respect her. The mingling with men, and seating with them alone could be in somehow an obstacle, but (laugh) I don't know if it is permissible at Islam or not, I cannot say, but about me, praise be to Allah (God), I made the people with me in the work respecting me. I think any woman with respectable personality, she will not face any problem with men in the work. Especially in the IT field, there some jobs like IT management, development, systems and applications are easier for women than networking and engineering. Because engineering and networking need cabling, going under the tables and so on. Of course, at the end, you know that such work is difficult for the woman but it is not too much that it can be an obstacle if she wants these areas'.

Also case two has provided example about the cultural impact on women's career, 'the assessment in the work is based upon the employee's productivity regardless the gender. You have reminded me about the Saudi HR director that when he came here, he was surprised about the large number of women working here and that we have female managers. Of course, the culture in Kingdom of Saudi Arabia (KSA) is different than our culture, it is very weird for them that a woman can work in IT, maybe the whole company has one woman only, and it is not normal in the KSA, he said how can you deal with women in the work? How? Women have many problems. However, the feedback of the management team shows that the level of the productivity of women here is very high and there are no problems at all. (Laugh)I don't want to be unfair with the men, so let me say women and men are equal in the work here. Regarding the position of the head of IT, male are more likely to be selected than females. But who have selected me for this position is not a Saudi person, he is Jordanian and he lived in Australia, so his view and mentality is different'.

Case three showed in the interview some of the cultural issues she had faced in the work, 'all the time, I was trying to show everyone that nothing can stop me in the work. For example, one time we had to go on a duty travel, and at that time I was very young, unmarried and did not have the experience, it was my first duty travel, my manager said for me, 'we would like you to be with us but unfortunately you will not come with us'. I said,' why?! Why all of you will go except me? I am part of this work project! It is a very important project and I want to learn', he said, 'because

you are a girl and your family might not agree. I said, 'are you deciding on behalf of my family? On what basis have you decided what my family will say?! What is between me and my family is not your business! You just have to tell me, and if I will go I will say yes, if not I will say no, but at least give me the opportunity. Then, they said, 'we hope you come with us, and yes you are right we have decided by ourselves that you might say no without asking you, , and we have not asked you just not to make you feel embarrassed, and put you in this awkward position. I was sad about what they did to me, and I said to my manager, 'I will come back to you on this'. Praise be to Allah (God), my father was not having this kind of restrictions, in contrast, he likes to see his sons are improving and learning, I told him about the duty travel and he said yes, Wow! They want you to go for a duty travel! This is very good, and it indicates that they really like you and they are happy and satisfied with your work performance'. So I took his advice, and I joined them in the duty trip. I proved to them that 'whatever you have thought about me was wrong, so change your mentality and the way you think', praise be to Allah'.

Also, another cultural issue had been faced by case three after assigning her to the current position, 'I joined all the work meetings, and I worked with the other heads of the organisation, but I don't have informal relations with them, because all of them are males, and because they are male, sometimes, they do a meeting without me knowing, (ammm) it is a cultural issue'. Also she added to her opinion about the culture and Islam impact on women's career in Bahrain, 'I don't see in Bahrain that Islam or culture restrict women in the work, or prevent them to improve themselves (laugh). For example, in our organisation, the majority of the employees are women. Woman has to prove herself in the work!'...' There are few women in the IT field in Bahrain, but I don't believe this prevents women from choosing the IT field. This issue is not only in Bahrain, it is in everywhere in the world. Generally speaking, there was no strong presence of women, in most of the IT conferences I have attended, and which relates to the IT in the stock exchange business. They were not more than three or four women in a conference! They were very few, so you see yourself an odd whether you are inside or outside Bahrain. I feel that I am an odd already, and I don't see this is bad thing'.

Case three believes there was a difference between girls and boys in the IT College, 'when I was studying in the university, I saw that boys are very active and want to prove themselves. They

are staying in the lab till midnight, and because we are girls, we can't do the same. Therefore, we were always asking ourselves 'why can't we prove ourselves to the same level?' We were afraid that it might affect the view of the doctors to us. We thought that this might make them think that the boys are smarter than us. Thus, we used to study more and work harder and harder and try to get higher grades to prove that the boys are not better than us'.

Case four has mentioned some cultural points that she believes are the reason behind why women avoid the IT careers, 'some of the things which make women do not like to choose IT careers are that the IT jobs are not office occupations, and some of them are on call jobs (24/7), especially in the mission critical operations, for example in the airport, or places where the core business depends totally on IT, so a woman in IT always feels that she might be called anytime or there might be something happening at any time. So she should always be ready for work. Some people do not like to have any contact with the work after the end of the working time, but in IT, you have to be ready to come to the work at any time, for example when there is maintenance or a problem even during weekends or night. You have to be ready 24/7 for the work, if anything happens, you have to come to the work and follow up to solve the problems. So I think this is one thing that makes women reluctant to choose the IT field or advance in it, because she will have big work responsibility, 24/7 responsibility. The mobile phone is always near your head at the bedroom, in order just not to miss any urgent work call'.

Also, case three believes women and men are different in the IT jobs, 'I believe that the boy can definitely have high IT job opportunities, but the girl, having the opportunities is up to her personality, it depends on whether she is capable and strong enough to show and prove herself. Very few women have reached high positions in the IT field, so she has to work very hard if she like to advance and reach high positions, she has to work harder than the man. Man can easily reach these job positions, because he can come to the work anytime he wants, he doesn't have the same responsibility and commitment which women have for the family. Therefore, comparing to men, women's career advancement in the IT field is more difficult because of the fact that we are 24 hour on-call is a problem for women. For example, assuming that your team has one boy and one girl, you can easily approach the boy by phone to make him come to the work at midnight to fix some problem on the server, but you can't call the girl. You will favour

the boy in such job regardless whether the girl is good at the assigned task. Praise to be Allah (God), in my team I have assigned all the work in the on-call schedule to the boys (Laugh). But I did not make this an obstacle to the career advancement of the girls, I can see the girls of my team are being improved gradually in the work and in their specialisation fields just like the boys. For example, in my team, there is a girl that is capable to lead the work in a better way than all the boys in the team’.

Case four stated about the cultural and Islam impact on women’s career, ‘Islam?! Unfortunately, they use Islam as a reason to limit women’s ambition and development. Islam does not prevent women’s work, can you tell me where in Islam does that prevent women to work or develop herself? She can be in any work field. If you are talking about management, it is much easier for women than being in the engineering field. However, as I said, she have to work harder than men, because we are in a masculine society, so, she has to prove herself. I believe there is nothing that can be given based upon whether you are a woman or not, but in the reality it is more difficult for women than men to gain because they are women. There is always a glass ceiling at work that women cannot break, even in Europe and America, because men are on top, they are the ones who decide to promote and make you reach your goal. Again, I can say for those who say that Islam prevents women’s work, if you look at the Islamic countries, you would find some of them has female prime ministers, like Pakistan, Bangladesh, and others. These are Islamic countries with female prime ministers, which means that woman is governing the whole country, so Islam has nothing to do with women’s work. In contrast, this is not found in the non-Islamic countries, if you do a study about how many females are in the top positions in the Islamic countries, you will find many women, so Islam is just a reason that some people use to discourage women’.

Before the current job of case four, she had worked for some time in an administrative job, as presented earlier, and she believes the reason of changing the work field is because women’s advancement in the IT field is not easy , ‘another reason, you are woman, you know? So you will not easy get the chance to advance more in the IT field, to be more honest with you, if they are going to choose between two, it is less likely that they will choose me for the higher position, so I have thought why don’t I leave the IT and go for another challenge’.

Case five has provided an example on the cultural issues faced by the only girl in the IT team in her current workplace, 'I have one girl in my team and she works in the information systems. I have never called her for an urgent case after work time. I have distributed the IT works based upon the gender, because sometimes women cannot do some work due to the lifestyle and culture of our environment, I cannot keep her working till late. I cannot keep her working till one or two o'clock at night, sometimes our work needs. Does her family agree on this? I have not asked her if they agree or not, but I know which type of people she belongs to. Also, of course married women can't stay for a long time at work, it is not possible for her! I know and I respect this matter. I can't impact on her social life. But if it is okay for her and she does not mind to stay at work or come anytime to work, I don't mind it. Sometimes we have conferences and she attends and does not mind, but everything has limits, she stays at work till she says to me 'I have to leave'. It all depends on her circumstances. In contrast, the man can be called to come to work till whenever we needed him to stay. Nevertheless, I can understand this, and it would not affect her career promotions. Because I have divided my work into three units namely network and security, helpdesk, and information systems. She is in the information systems unit, and this unit does not have a call and urgent cases. In this unit, there is workload and pressure but it is not urgent work, so if she will be promoted, she will be promoted through her work unit or she also can be heading the other IT units as well, because, at the end, all of our three IT units are connected and work together. For example, if we want to develop a system, she has to sit with the network people because the project needs servers, back up and connectivity. She has to sit also with the helpdesk and documentation team, because she has to know the procedures. She is part of the IT team, so there will be no problem if she became the leader of the team one day. It will be okay! I was in the same case, working in the systems development and then I became responsible of all IT areas'. 'She understands all the work, for example, one time, some project has been allocated to her, so she went to every party to see what are the requirements and the work type, and she tried to understand all the details. Sometimes, she even had to take the work to home. But coming to work and working with the company staff (Indians) at night is not acceptable. You know? Sometimes they come and do some cabling or fixing a damaged cable outside the building, so someone from our team should be with them and supervise them. This is

not possible for women. Such work I assign it to men. Some jobs in the IT are for men and some for women’.

Case five believes women should have different roles in the IT work than men, ‘now, I blame the girls who choose to specialise in networking, I advise and tell them not to specialise in the networking, hardware or etc., because they will not get a job. However, I advise them to choose analysis or information systems, because in this kind of areas they will get job opportunities. I believe nobody can imagine that a girl come to a man in the work to fix a new PC for him for example...’ ‘When I assigned the helpdesk to the only girl in my team, I faced these kinds of problems, I got phone calls from someone saying ‘why did you send the girl to do this task? Why a girl come to us to fix the new PCs. At that time, we were in shortage of IT people, so I had to assign the helpdesk to her. I did not have another choice. This means that the culture of people in this organisation is part of the problem. After I have understood the situation and the culture here, I have assigned the helpdesk to men. Now, she works in the information system and she is interested in her work. Moreover, her current work saves her dignity. She gave a lot to the organisation and she works hard, and now we are working to make her work more deeply in the projects, and to work more with the IT service providers, and do more of systems development, maintenance and some heavy tasks’.

Case five provided her opinion about the Islam effect in women’s career, ‘Islam do not set boundaries to women, in contrast, the Islam provides the legislations (Halal and Haram) that protect women. Let us be realistic, in the Western world or the Eastern, the attitude of men toward women is one and the same. It will never change whether they are doctors, professors, American, European, Arabs or whatever they are - all of them see women the same way. Women in the work are being seen as females by all of men rather than employees. This is the real image of women in their eyes and in their mind. Let me be honest with you, I am working and I saw by myself many bad things that have happened and also harassment to some girls in the work, but they did not say anything about it. Because girls do not talk, it is shame when a girl talks about such things. When I was in the legislative organisation, there was a girl working as a technician at the helpdesk. When she goes to fix something for some employees, she comes to me and says that she was harassed by someone. Sometimes, I got phone calls from some men asking about a

specific girl in the IT team, and then he laughs very loudly when he speaks with her. I feel sorry for her, because she doesn't want this to happen. It is out of our hands, what can we do if our society is in this way? Everybody knows that women are seen this way everywhere and not just in a certain societies. So, I prefer to keep the girl in my team in a section that does not need too much contact with people. I believe that the legislations of Islam have limited this kind of issues. They limit the excessive mingling of male and female, and they prohibit the seclusion of man and woman in a locked place in the work or anywhere'... 'If you notice such legislations at work, you will find it does not make woman want to interact too much with men, and she does not do more than meetings. I believe the Islamic legislations are protecting women in the work, rather than narrowing their role in the work. IT directors have other options for woman in IT than the helpdesk and support, they should not say 'she is woman and that's it! It is her problem!' They should find or create suitable work for her nature and let her participate, work, achieve, and be promoted in the work. They shouldn't say 'no chance for her', they have to create the suitable place for her, and let her do meaningful work. I have created a new section called 'information system and projects' and I assigned its work to the girl in my team. This section did not exist before'.

Case six doesn't believe that her gender prevents her from doing her job, 'in addition to my managerial role, I still like to do the work by myself. I go to the dusty HW stores, and I carry the PCs and printers by my hands. Amazingly, my boss asked me not to do it and that I have to call the male workers for the help. I don't want to call any of them just because I don't want to waste the time waiting for them to come. I don't mind to do it (pause) I'm still doing technical jobs too'.

Case six believes she has been chosen by the top management for her current position due to cultural reasons,' I feel my communication style with the people is the main reason why I am in the job position I am today. The communication style helped me a lot in my work at the university specifically, but I feel it did not overcome the importance of the knowledge when I was at the navigation firm (pause), I think they have chosen me among a group of male candidates for this position (Head of IT support) because of my work experience (pause) and also I feel because that most of the under and post-graduates students at our university are

females and from Saudi Arabia and other GCC countries, and they prefer to deal with woman in the IT department for any wanted IT help or support. I think they are conservative people and dealing with woman rather than man in the IT department is much more comfortable to them'. Case six also believes that women and men are different in the IT jobs,' I see that there are many work opportunities in the IT field in Bahrain for both women and men, taking into account that some IT jobs fit men more than women. People see men are more qualified than women in the networking, computer engineering, and in working with the hardware. I see it is difficult for women to work with such things, for example, sometime it needs to fix a cable on the ceiling or to change or add cables under the server room floor. This type of work is not fit for women'.

Case seven believes that her first-line manager was not supportive to her because she is a girl, 'never, my first-line manager in the Ministry has never supported or motivated me in the work, and this was disappointing to me. 'When I was there, I have sensed some gender bias in our department, because my manager was very religiously committed and he doesn't want to employ girls in his department. I was the first girl working in his team. Everyone was shocked on how he had hired me in his department. When people saw me, they were saying to me 'how come?!'

She also believes that women and men are different in IT jobs, 'some workplaces prefer to hire men more than women, just because of their availability for the work 24 hrs. For me, I don't mind to hire a girl if I have someone that can replace her when she is on maternity leave and when she takes the two-hour break for breast-feeding. I also see that there are many girls working in the support and networking, and they have no problem in carrying hardware and using their hands in the work. This doesn't reduce their femininity, but of course, I don't make them carry hardware because they are heavy and do not fit with the females' formation or nature'... 'Islam doesn't impact on woman's work, but the social norms do impact on it, and maybe it is because girls are for thinking, and boys for muscles (Laugh)'.

Case eight showed in the interview how the culture has impacted in her career, 'no at all, I am a religious person, praise be to Allah (God), I have never felt that my religion has stopped in me in any way. But let me be honest with you, if we talk about Halal and Haram, for example, my husband told me not to close the door of my office when I am in a work meeting with some man.

How come! I am a director! I need to close it when I have a work meeting! So I overcame this issue by doing some changes in the walls of my department, I have asked to make new large windows in most of the walls. That is all just to make him happy and comfortable, and to make sure we are not doing something not Halal. I have ordered to make new windows in the offices for everyone without exception in the IT department, if you go to all the departments of our organisation, you will not find the same thing. I have even changed the door! I have replaced them with ones that have built-in window/screen. So even when we close the door, there is a window in it! I believe inside myself in what he told me, so I thought about it and I took this action (Laugh). Every problem has a solution. With this decision, I have pleased my God, I have pleased my husband and I don't make him worry about anything, and at the same time I have pleased myself. With men, I don't do handshaking, I don't travel without Mahram¹, I don't go alone for any duty travel, it is not because he doesn't like, it is because I don't like it and I don't like to do something wrong! It is something not Halal and I really don't know how to manage the things in the travel. No way to travel without him! After all of this success from Allah, why I should I do such a small not Halal thing and spoil all of this success?! I should thank Allah for this blessing and I always say to my children that I feel that Allah gives me even before I ask'.

Case eight believes girls and boys are different in the IT education, 'when I was in the university, I felt that boys were seen as that they are smarter than girls, I don't know why! I see boys are smarter only in the networking work, and in fact the networking work needs you to go down under the room for the cables! When I am looking for new employees for the networking, I do not choose girls, I thought a lot in how can they go under the room? Under the hardware? How can they come to work at night? I can hire girls for machines and software work, but in networking, I think it is hard. Boys in the electrical engineering and this kind of things are smarter than the girls, even in the exams they get higher grades, I don't know, maybe Allah has

¹ Mahram* defined as 'a person whom she is never permitted to marry because of their close blood relationship (such as her father, grandfather, great-grandfather, etc., and her son, grandson, great-grandson, etc., her paternal and maternal uncles, her brother, brother's son and sister's son), or because of radaa'ah or breastfeeding (such as the brother and husband of the woman who breastfed her), or because they are related by marriage (such as the mother's husband, the husband's father, grandfather, etc., and the husband's son, grandson, etc.)' (Al-Munjid).

created them in this way (Laugh) girls are good in programming, information systems and the other IT specialization fields, but not the networking’.

Case nine has showed how the culture has impacted in her career, ‘it is hard to say this, but I can say if I am still in the petroleum company, my job position might be higher than my current position. Even here, it was possible for me to be in a higher job position, but some circumstances have prevented this. But there were also some circumstances that have opened the way for me. I can say that, before I became a head, they did not give me the acting when my manager was on leave, he did not give me the acting, he give it to someone else, because he was afraid that if an urgent thing happened after the work time, they cannot call me, although I told them it is okay for me, you can call me at any time, I don’t have any problem with this. My home is near the organisation, so I can come when something happened at any time, I am not afraid to come to the work at any time, I can come at any time! In their mind, I am a woman so I am incapable to do the things they want and as quick as they want. This is what is in their mind, I don’t know why! For this reason, I did not get the acting head of IT until he quit the work (Laugh). After he left the work, they saw that the person who usually takes his place is a foreign person, which he cannot be assigned to the position according to our work law. Therefore, they had to assign me to the position, and suddenly I become the head of IT, and later they saw that I can do it. He was non Bahraini and this job position is critical. Moreover, this problem overlaps with some other issues as well, mean it is not just work issues, (Laugh) I cannot say more, because of the audio recorder, I have to take care (Laugh).’

Case nine has provided also another example of the cultural impact on her career, ‘we do not see many ladies in the IT field like men, because men have communication tools, that allow them to improve themselves (Laugh), for example, my ex-manager was a friend of his manager, he was with him all the time out the work. The relations play a big role in the career, while for me, my relations are only inside the work, and even inside the work they are not too much, unless if there is some problem, some people call me by phone. My relations are purely for the work. However, they meet each other inside and outside the work, and I cannot do the same because this is conflicted with the social norms, I mean it is impossible that we go with our boss for a coffee shop unless there is a work purpose, otherwise you cannot! You cannot! Even if I will go with

my husband, it is also not possible unless they know each other before. It is not practical. So this affects too much. If I am a little bit lose (Laugh), this will be possible, I really felt the impact of this point. And sometimes, you find some people suddenly became bosses, just because their relations are very nice with their bosses. And you can find this problem not only in the IT field, but in every work field. Regarding women in the IT field, I don't know, I sense that if the woman has not reached high job positions after sometime, she change her career (Laugh) and she goes for other work field'.

Case nine believes girls and boys are different in the IT jobs, 'honestly, when there is a vacant job in the IT department, I look at the type of work of this job, then I hire a boy or girl based upon the work type. For example, boys are better in the technical work or in the work that needs a lot of movement. The support and technical work requires a lot of movement. I can say girls are better in software development, because girls do not like moving too much, it is not all of them but the majority of them don't like it. Also, they have stronger focus than boys, and they like the quiet things. It should be very quiet in development work, and it needs concentration and planning for all the information system development. It needs thinking about the system from A-Z and from all the sides. However, the head of our technical section is a girl. So it depends on the personality type, the quiet people prefer software development and they can be more creative in it. Here, the software development team consists of only girls. A girl who has the interest in learning and knowing more in the networking, she can work in the networking. In fact, either in software development or networking there are always new things that come up in the field, or this might be faster in the area of software development. So there are always new technologies, and people of software development or networking have to be aware about them, and to see all the possibilities and problems'.

Case nine provided her opinion about the impact of culture on women's career in Bahrain, 'Islam doesn't hinder women in the work, and it does not prevent her work. The social norms might hinder her in the work. But the situation in Bahrain is much better than in some other countries. Also it depends on the family type the woman belongs to, some families do not like their girls to be in high job positions. In Bahrain, people are very heterogeneous, they are not the same. It is not like in KSA where the majority of people has the same thinking type. Also, honestly I can

say that the Supreme Women Council has strongly supported women in the work, I don't know about the private sector, but it supports women in the public sector at least. In the public sector, we always sense that there is attention to not to forget woman because she is woman, and now I have heard that there will be woman quota in the work law. So it has strongly supported women in the work in a better way than before. Before the Supreme Women Council, there were centres that support women, but I was not in a lower job position that I couldn't sense their impact in the work. Now, with my current job position, I can see the impact of the Supreme Women Council on women at work, women's roles are taken into consideration more and more in the work, and the organisations had to look after women at work. It has eliminated that idea of 'just because she is woman so it is unnecessary to assign her a decision making position'. Instead, now they look at her qualifications, whether it is possible to be in a leadership position or not'.

Case ten believes that women are able to overcome the culture when it hinders their career advancement, 'I don't think the social norms hinder women in the work, and if we assume there are obstacles they are from the woman herself, for example, when the home and family come first and before the work, yes this might be an obstacle in the career. But the society does not put controls on women work.... Islam!!! If the woman knows her bounds in the work so that's it, there will be no problem. I don't know much about women's work in Islam (Laugh), but I think the Islam does not recommend to assign woman in a leading position and letting the final decision in her hand'... 'I believe woman in the IT career in Bahrain gets her rights and she is able to prove herself in the work. Although the majority are men in the IT field, I don't think the fault is from the society. However, the fault is from the women their self that they don't give their self the chance to reach to those high levels. When I have just worked here, it happened to me a lot that when some people come into my office without any expectation that I am a woman, especially that foreign people can't know when they read my name whether I am man or woman. They come unexpected that I am woman, they open the door of my office and they see me and say, 'we did not expect! You! You are the one who is heading the IT of the organisation?! You know?! They become very surprised, it is something they did not get used to it, because most of the IT heads they see are men. However, I don't sense that this has hindered my work, in contrast, it has enhanced my self-confidence because people see that women cannot work in this job position, while I did it. I believe that anyone has the ambition to reach somewhere, he will

reach it. Sometimes, when we start the work with the IT vendors, they don't take it seriously at the beginning, but after they see my work way and my communication style, they start to be serious!'...'I can say that if there is a problem, it resulted by the woman herself rather than the society or the IT field, the IT field is like any other work field, for example, the engineering or medicine and etc. Every field and everything now in the world changes quickly and everyone has to cope with this change and update himself. So, women in the IT field can prove herself if she wants to, just like any woman in any field. She is who decides what she wants to be'.

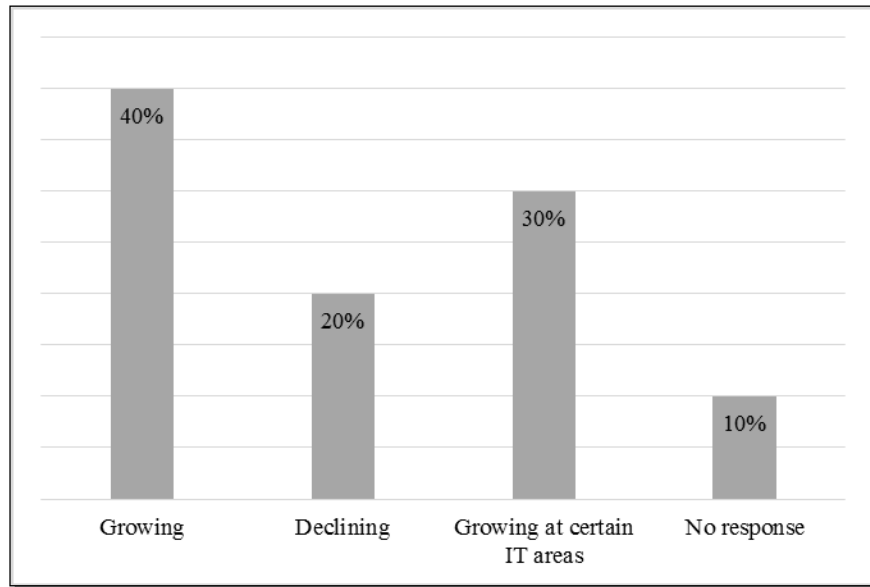
6.2.3.3 IT Field Opportunities and Challenges

Women were asked during the interviews about their personal view about the opportunities and challenges of the IT field in Bahrain. They were asked: *What is your opinion about the IT occupational culture? (Challenges and opportunities)*. As can be seen in table 30 and figure 26, (40%) of women believe that the IT job opportunities and career advancement are growing in Bahrain, while (30%) of women believe the IT opportunities are growing in only certain areas in the IT jobs market, and (20%) of women believe the IT job opportunities in Bahrain are declining.

Table 30: IT Job Opportunities in Bahrain

IT job opportunities	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Job opportunities at present and future.	Growing	Declining	Certain IT areas	Certain IT areas	Growing	Certain IT areas		Growing	Declining	Growing

Figure 26: IT Job Opportunities in Bahrain



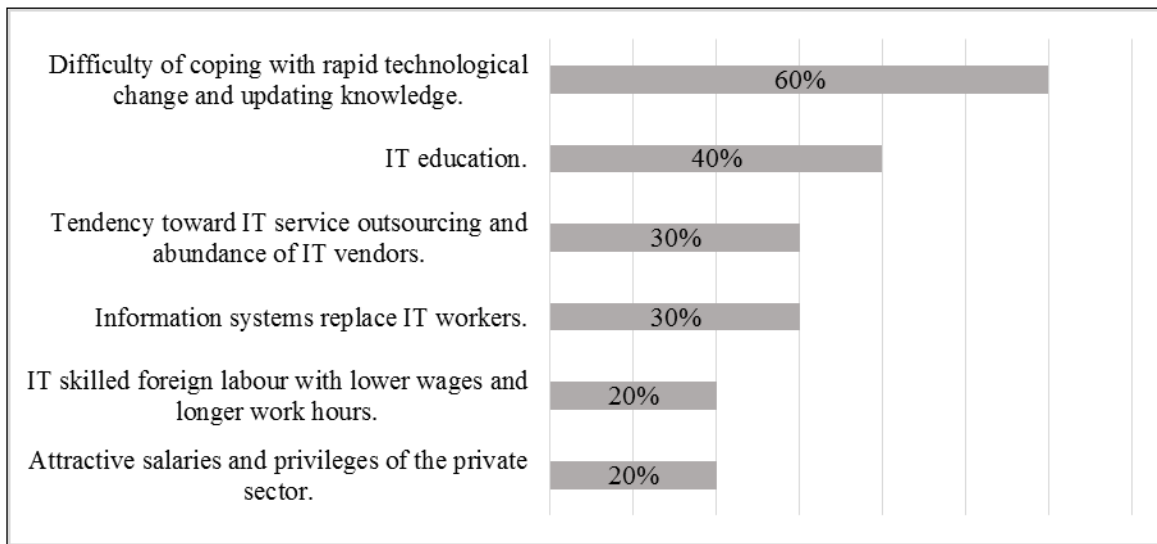
The data analysis have revealed a number of challenges in the IT sector that make the career advancement not easy for Bahraini IT people. As can be seen in table 31 and figure 27, (60%) of women indicated to the difficulty of coping with the rapid technology changes by the public sector, (40%) to the decline of the quality of IT education outputs, (30%) to the tendency of IT outsourcing and abundance of IT vendors, (30%) to the user-friendly information system that can be used by anyone without the help of IT worker or expert, (20%) to the availability of IT skilled foreign labour with lower wages and longer work hours, and (20%) to the shortage of Bahraini qualified IT people in the public sector due to their switch to the private sector for more attractive wages and work privileges.

Table 31: Challenges in the IT Sector in Bahrain

Challenges in the IT sector	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
IT skilled foreign labour with lower wages and longer work hours.		×		×						

Tendency toward IT service outsourcing and abundance of IT vendors.		×					×		×	
Difficulty of coping with rapid technological change and updating knowledge.		×	×	×		×		×		×
Information systems replace IT workers.		×		×					×	
Attractive salaries and privileges of the private sector.							×		×	
IT education.		×	×		×				×	

Figure 27 : Challenges of IT field in Bahrain



Case two believes that the IT field in Bahrain does not need more Bahraini IT professionals, because, ‘the job market is saturated with people with the computer sciences certificate, I mean there are many IT people without jobs since two to three years. There are no IT job opportunities, most of the people working in the IT field are foreign people like Indians and other. Why?! Because foreign labour is much cheaper than Bahraini labour. In addition, now

most of the work organisations like to outsource the IT department. It will be much easier for me, as a head of IT, to sign an annual maintenance and support contract with any IT service provider for the network, servers, and etc. If I have this contract, the IT services will be more reliable and guaranteed, because the IT services provider is a big organisation and has many employees and resources, and is able to provide support at any time. So the head of IT will get rid of a big headache. Also, there is another reason as well, the head of IT wants to limit the number of IT employees, I mean the old applications are not like the ones we are using today. Today, Microsoft applications are very easy to be administrated, for example, the SharePoint which is a very easy application that even non-IT people can work with, so why do people have to waste their effort and study computer sciences for 5 years if at the end it is about a click or double click!’... ‘Also, today technology is oriented towards the cloud platform, maybe after two years most of the workplaces will adopt the cloud platform so they will not require systems administration, database management, servers, etc. All such works will not be needed, so people who is currently doing such work, you will not need them in the future. So what is the point of having more IT graduates! They have to minimize the number of students in Computer Sciences. Also, as you are in the IT field, do you see that the e-Government authority is hiring any IT people? Mostly, they are contracting with IT companies to do the IT projects. They depend on the IT companies, so why they would need to have more IT employees and pay more salaries? They always enter into contracts with foreign IT companies for their projects, so I think computer sciences should be reviewed! Because it is a difficult study and there are many graduates without a job’.

Case two noted that she has overcome the difficulty of the rapid change in the IT field by reading and working with top management, she stated, ‘I improve myself by myself, I read, I learn, I read even at home, I use the internet which today became available 24 hours for everybody. It is not like reading an article every day! But I like to search every time I hear about an unknown term or a new technology. Being up-to-date in the IT field is very important. Moreover, today I am in a job position that I work a lot with businesses and top management, so I feel I am improving myself by getting management experience more than technical experience’.

Case three pointed also to the importance of coping with the rapid changes in the IT field, ‘I update myself with the latest technologies and trends in the IT field through reading and searching whenever I have time at work. I use the Internet to search whenever I have finished with my family, also through conferences that I attend. I try to attend all IT events, because there are many vendors and agencies that make events for branding their products, for example workshops or conferences. I always try my best to attend these events. This is how I get updated myself.’

Case four has pointed to the significance of choosing the right IT specialisation area. She stated, ‘I recommend choosing IT as a field of study and career, taking into account the specialisation area. They must be careful about what to specialise in! I see that networking and security is highly in demanded today in the market. Today the whole world is networked, and all solutions are networked, so the fields of networking and security are very important for protecting the assets and securing the information of the company, so I see these two occupational fields are highly in demand in the labour market. Software development might also be needed however the new trend is to buy ready applications and packages, so development is not needed too much. Before, the organisations used to develop in-house software for their requirements, while today, they take off-shelve applications and then customise them to fit their needs’.

Case four believes opportunities are available in the IT field, ‘opportunities can be found! They might be at the same workplace! the good point about IT is that we are in a dynamic environment, it is not a boring thing, it is not like just doing one thing, it’s like every time there is something new, for example, a new system, upgrading, do this and add this, some technology has been changed, etc., so the nice thing in the IT field is that it makes you always feel that you do a new job every time, you feel every time you work in a new workplace and do a new work and a new project’.

Although all of the employees on her IT team were males, she believes that she has hired them based on their qualifications and field of experience regardless their gender. She stated, ‘boys or girls, everyone has to work very hard, and nothing can be gained easily. Never! Today’s generation wants an elevator to take them directly up to the top, this will not work, we took the

stairs step-by-step, and sometimes we take one step backward then one step forward again, you know? You have to wait a long time to reach it, it is not like that you will be a manager shortly after you have begun working. Even when someone come into a high job position, but he/she lacks the understanding of everything that happens in the work, it will be difficult to him to manage. As I said, I began as a programmer, then system developer and so on, I went through all this and have gained the necessary experience, specifically in the software side, and I have also learnt things from the other side through training courses and my efforts in self-improving, because there are various IT occupational fields’.

Case four also noted about the foreign IT labour in Bahrain and her experience in working with them, ‘I began my IT career at the days where there was very few Bahraini IT people available, at that time most of the IT people was non-Bahraini. But what do you want? Do you want to be away and let the foreign person do the work? Or do you want to push yourself to learn from him? I was pushing myself, it is not easy that foreign people like to transfer their knowledge to the Bahraini people, because they want to protect their job security. So you have to prove yourself and show that you are more qualified than the foreign IT people. Unfortunately, in some IT fields, like, the database administration, you don’t find specialised Bahraini people, I have suffered in finding someone who has experience in such areas, I believe the priority is to hire Bahraini people and I want them, I want to hire and develop them, but I could not find any. So, in such cases, you have to balance between this and your work responsibility, and to decide to employ the one who is capable to do the required job. Most of Bahraini IT people go for the systems development field, sitting at the back seat, and work with the mentality of ‘the foreign people are taking our work, and they are doing the most important works’. (Sneer) Why?! They should think and say to themselves ‘I should do it not the foreign people’...’At the beginning of our career, we have worked with the foreign IT people, if we have worked with such mentality, we will not even be able to move from our place. Again, it all depends on what the person wants. It has happened that I want to learn and they did not want to let me know, but I have pushed myself, tried and worked to learn from them. At the end, you are Bahraini and this is your country, you who should want to work and develop it rather than the foreign people. Some IT fields really need external experience, because they are more developed than us in these fields, so we will need some foreign IT people to work with us for some time, but we have to make sure

that they will be replaced by Bahraini people after a defined period of time. Moreover, I see in Bahrain the IT foreign people work very hard to secure their job. If I implement the concept of that ‘my salary and my job are secured’, it will be different story! They have the challenge of job security’.

Case four updates her IT knowledge by the reading and communicating with experts outside the company about the latest issues in the field, she stated, ‘you have to read and always be aware of the most recent things, and you should attend the significant IT events. Recently, I was not able to attend many events, because the company is new and it needs a lot of establishment work, maybe I have attended events twice or three times although I feel I have to attend more, but I make up for this by reading brochures and reading online, also I am updating my knowledge by my contacts with the consultants when they come to us’.

Case five views that the strength of IT education in the universities has decreased in the last years. She noted, ‘the IT field offers job opportunities, but it is all about luck. Today, IT job opportunities are not the question. However, the problem is that the IT graduates who come to work with us are under-qualified and they lack the necessary education to work in the IT field. Their knowledge level is not like our level when we had just graduated. The strength of the IT learning outcomes has lessened, I don’t know why! It is different than in our days, I guess maybe because of the study material or the way of teaching, I don’t know! When I was a fresh graduate, I was able to do programming and to build systems. Today, the graduate of computer sciences doesn’t even know how to write an ‘if’ statement, I don’t know how he has graduated! We saw very few good people and we can choose from them. These people will definitely find job opportunities, and they will be promoted for high positions. However, people who are not well educated will not find IT job opportunities and they will be lost. But, I can say the job market has IT job opportunities. There are some places that need IT people, like e-Government, and some places need males and some places need females. So, it is all about luck and the level of the education the person has received’.

Also, case five believes the IT job opportunities are available and the chance for career advancement is high for those who work hard. She stated, ‘if the woman gave she will get her

right, I saw many people that have given and they got their right, for example Abeer (name of some female IT director work in some organisation), she gave and she got her right, Dena (name of some female IT employee work in some organisation) she gave and she got her right, it is true that she is supposed to get a better chance, but anyway she likes her current work and she does not want to change it. I saw that some women got chances for showing their capabilities in the work but because they don't care, the chances have gone from their hands. They are lazy and they don't care. When I was working in the legislative organisation I saw that some young girl had the chance to work in some new important project that could made her prove herself and to be head or supervisor in the future, but she didn't want to take the chance'...Chances come to the people, but some of them can't open the door! I believe they want something ready. Unfortunately, today, most of the youth wants a ready thing, they want to be promoted quickly in work, they want to reach up quickly, and I am talking specifically about people in the public sector. While people in the private sector cannot think this way because there is seriousness and work commitment. In the public sector, they want to be promoted now and straightforward by whatever way they can, by the show by anything. I saw some of them act that he worked very hard and he is tired, but actually he has achieved nothing in the work! He just want to advance in his career, how come? Because I work in the IT field I have many friends in the IT field, and I see many people of this type'.

Case six also pointed to the importance of choosing the right IT specialisation area, and to the difficulty of coping with the rapid technology change, 'I see that there are many work opportunities in the IT field in Bahrain for both women and men'...'I could not see any challenges in the field but I think the government is facing the challenges of how to cope with the technology changes, especially in the electronic government applications, I am thinking 'can they be like Dubai and other countries in the e-government applications?'

Case seven pointed to how the political situation in Bahrain in 2011 had impacted the IT field in Bahrain which heavily depends on the non-Bahraini IT workers. She stated,' the political situation has impacted on the projects and work of IT vendors in Bahrain, for example, after the political crisis (2011), the work of software development has stopped, some projects have stopped, and some vendors left Bahrain. In addition, the IT employment in the public sector

stopped, because of the governance of projects, therefore, there is a shortage of IT people. Bahraini IT people do not stay in the public sector however, they go to the private sector due to higher wages. I have many ideas and projects that I want to start doing, but people with the required capabilities are not available in my team’...‘I see that there are many IT job opportunities available! Actually, there is a shortage of IT people in the public sector, and most of the IT people in the public sector are non-Bahraini, most of them are Indians. Some days, I could not find someone that has the required experience. And the good qualified people do not remain in the public sector. I had a highly qualified man in my team, and I was trying for one year to make him a permanent employee, but they did not agree to it as he has more than one degree. This was not attractive for him! So he left and went to study for PhD, and now I think he wants to be an academic or he will start his own business’.

Case eight believes the IT jobs are always important and available everywhere and she pointed also to the difficulty of coping with the rapid technology changes. She stated, ‘you can find the best job opportunities in the IT field, tell me which work in the world can be managed without IT? In our organisation we have IT job opportunities, and especially that our work rules allow employing only Bahraini people to work in the IT. I don’t know about the IT job market in Bahrain, but I can say in all types of work in all over the world, IT is the first thing that comes into your mind. Regarding the challenges, I think the continued rapid change in the information technologies and hardware makes it hard for governments to cope with the latest technology trends. Our organisation does not have this problem as we have enough budget and knowledge to have the latest technologies in our work. I have never worked in a Ministry, so I am not sure whether they can cope or not, but comparing to UAE, I can say our government is under pressure in coping with the rapid changes of information technologies’.

Case nine believes that it is not very easy these days to find IT jobs due to the availability of many IT vendors in Bahrain. She stated, ‘I have no idea about the IT job opportunities, I have never looked for any job since I worked here, but I guess IT job opportunities are decreasing now, today, you have to be very skilful in order to get the job you seek, I think getting an IT job is not very easy anymore, I don’t know! I cannot give an answer for this question, because I don’t have recent experience in looking for work’... ‘Now, there are a lot of IT vendors and suppliers in Bahrain, so you have to be very professional in certain things, in order to be required

in the IT job market. Also now, (Laugh) everyone knows IT, and even sometimes the end users know more than the IT staff, so I feel I cannot give a right answer for this question’.

Case nine has also pointed to the higher wages of the IT jobs in the private sector than the public sector, she stated, ‘one of the males in the IT team had just left the organisation and I believe the reason is because the field of IT is required in every workplace, and IT people can get many job opportunities. Moreover, overall the wages in the private sector are higher than the public sector. Therefore, you find that boys are starting their career in the public sector, and then they remain for a while, only for few years just to get the experience, then they look and get another job offer, while the girls are staying for a long time in the same job’.

Moreover, case nine has pointed to the level of the IT education in Bahrain, which is linked with the level of the work performance, and how she overcome this challenge, she stated, ‘yes (Laugh), Why I like to choose people from University of Bahrain? Because it is strict, and nobody bears the strictness except the girls (Laugh), girls usually have discipline, while boys want the fast things, the things that they can finish very quickly. You see that they go to any university, and they don’t care about the education level (Laugh). Everyone here knows that I welcome the graduates of University of Bahrain, while the graduates of other universities, we have to pay attention to their details before we choose them. And it also depends on the type of person. There is no one perfect 100%, but I can say that 90% of people who came to us from the University of Bahrain for training are very good and amazing, they are very good, and they do what you want and even much more. I did not study at the University of Bahrain (UOB), but I have tried the people who have graduated from it, they are very good. Every time we are asked for training for their students, I accept it, because even when they are in a training period they serve you in the work’...’UOB students who came here for training do amazing work within two months, and the difference between them and others is that when I say for them what I want, for example, I want a system that does this and that, then I leave them for 1-2 weeks, they come to me with amazing prototype. In contrast, students from the other universities in Bahrain, I do the same with them, but they come to ask me over and over again. If I have to tell you everything that you have to do, what is the point of giving you the task?! (Laugh) They keep coming back to you for every small and big issues and their final output is not up to the expected level.

Therefore, I really feel the difference between the graduates of University of Bahrain and the private University, it is a very big difference. I can say there is big difference in their self-discipline. I remember someone from a private university came here for training and he was not even familiar with MS Word! His major study is IT and he did not know how to use MS Word! He did not know how to write in MS Word. Is there anyone who does not know this?!(Laugh) Now, even kids know how to use MS Excel, Word and PowerPoint (Laugh), it is unfair that he received a college degree in something he does not know about, I am sure all of the assignments and projects he has submitted in the university were done by someone else, otherwise, how come?'... 'We have overcome this problem by documenting the work steps, everything here has been documented. We try to document everything as much as possible. Whoever doesn't know how to do some certain work can read the documentation and learn how to do it. They have to read and learn in order not to say every time 'I don't know how to do it', how long you will keep saying 'I don't know how'?! Also, we are recording the daily work of everyone in the team, to know what work he/she has done. As I said earlier, the person who is receiving the calls in the helpdesk writes the problem description under the right category and then assigns it to some person. All of this is done by an application called 'track it'.

Case ten believes IT jobs are always important and available however there is a shortage of qualified people in certain IT areas. She stated, 'sure, there is always a need for IT people, and I encourage anyone to choose this field, because even if he did not get a job opportunity in the IT field, they will see his degree in IT and they will employ him. And IT job opportunities do exist in Bahrain. I did not wait for a long time to get my job, I had a job shortly after I have graduated, praise be to Allah (God), I don't know about the employment chances these days, but I see that everyone who have applied for a job in our organisation already had a job somewhere shortly after their graduation, I did not find out in their CVs that one of them was without job for one or two years after his graduation. I think there is a need for more IT people in Bahrain, and there is a shortage of qualified IT people, you can find many IT qualified people but not in the field you need, because every day a new system come up in the market and this system needs someone specialised in it and so on. So I think there will always be a need for the IT people in Bahrain'. Case ten also has pointed to the difficulty of coping with the rapid technology changes, 'the problem of this field is it takes a long time to do the work, and you always have to be up to date'.

6.2.4 Theme Four: Work-life Balance

It was evident from the stories of women in this study the significance of balancing between the life and work. Each woman has described the intersection between her family and work roles according to her experience. The work-life balance combines two prominent factors, which are (a) family role (b) family support.

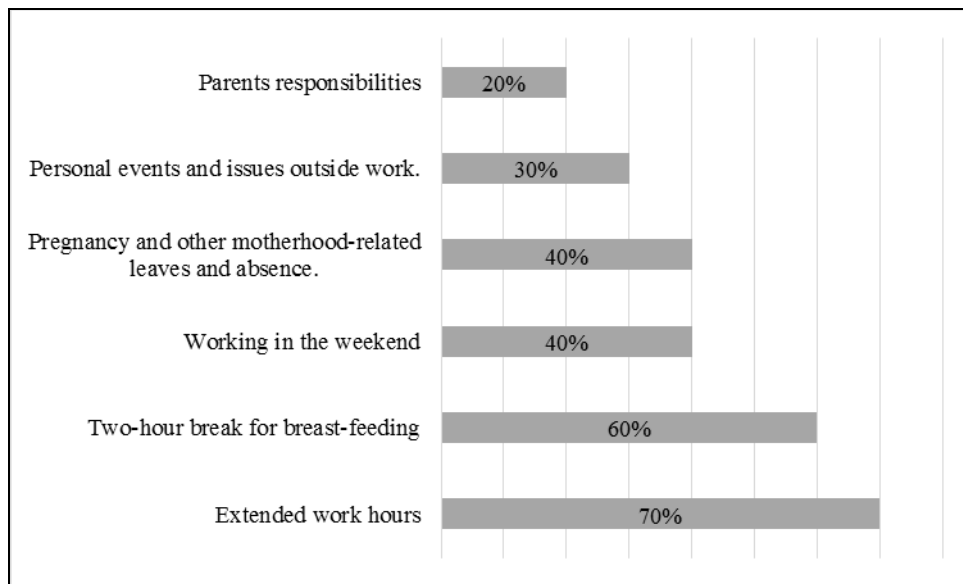
6.4.1 Family Role

Each woman has described the intersection between her family and work roles according to her experience. The data analysis showed a number of issues that can cause work-life conflict, see table 32. As can be seen in table 32 and figure 28, (70%) of women stated that in most of days they had to work extended work hours in order to accomplish their work tasks, and (40%) of women stated that they had to work during the weekends for many times. Also, (40%) of women believe that the two- hour break for breast feeding and the motherhood-related leaves and absence, have a negative influence in women's career in IT. Also, (30%) of women have indicated to the negative impact of personal events and issues outside the work, and (20%) to the responsibilities toward their parents in their level of performance in the work.

Table 32: Work-life Conflict

Work-life conflict	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Extended work hours.	×		×	×	×		×		×	×
Working in the weekend.	×		×		×					×
Two-hour break for breast-feeding.	×	×	×				×		×	×
Pregnancy and other motherhood-related leaves and absence.	×	×	×				×			
Personal events and issues outside work.	×				×	×				
Parents responsibilities					×	×				

Figure 28: Work-life Conflict



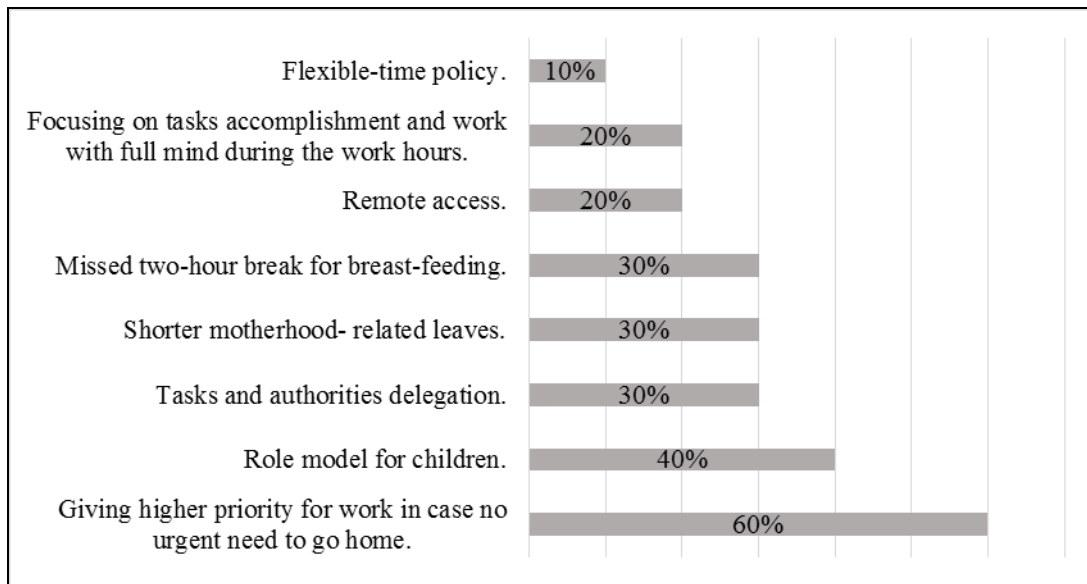
The data analysis has revealed some ways that women in this study have adopted to achieve work-life balance. As can be seen in table 33 and figure 29, (60%) of women have indicated that they give higher priority for work than family and home when it is necessary to work extended hours, as long as it is not necessary to go home like when one of the children have school exam or sick. (30%) of women stated that they have taken shorter maternity leaves (case 8 took only 7 out of 60 day), and kept going to the work till the last week of their pregnancy, and missed the breast-feeding break in many days. (30%) of women believe they have managed to effectively delegate the critical IT work to the members of their work team, and some authorities to the business users to access and control the IT systems of their business unit, which has lessened the work load and pressure on them.

(20%) of women stated that they use their work time only for work, and give full focus on work accomplishment during the work hours regardless any personal or family issues. (20%) of women mentioned that the remote access software for work network has enabled them to work at home, and makes it easier for them especially at weekend or late time. One woman only (10%) believe that the flexible time policy might help mothers to balance between the role of work and mother. (40%) of women believe that giving a high priority to the work, for example, working extended hours and in weekends, taking shorter maternity leave, missing the breast-feeding break, hard work and career achievements, all make them a role model for their children, rather than being seen as conflicting with their mother responsibilities and roles as mothers.

Table 33: Ways Adopted to Achieve Work-Life Balance by Women in This Study

Balancing work-life roles ways	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Tasks and authorities delegation.	×			×	×					
Remote access.	×									×
Giving higher priority for work in case no urgent need to go home.		×	×	×	×			×		×
Focusing on tasks accomplishment and work with full mind during the work hours.		×	×							
Shorter motherhood- related leaves.			×	×				×		
Missed two-hour break for breast-feeding.		×						×	×	
Role model for children.		×		×				×	×	
Flexible-time policy.							×			

Figure 29: Ways Adopted to Achieve Work-Life Balance by Women in this Study



Case one has provided examples of the conflict between her role in the family and work, she stated, ‘it is not difficulties in the work, it is that the work has become conflicting with our life, it conflicts with our social life, for example, sometimes they ask us to do some during the weekend, they call me by the phone to ask me to do some urgent work, and this is not our problem, it is their fault that they did not do true planning for their work. This is why they sometimes make random decisions and not at the right time, you know?! I mean if they have planned their work carefully, we were be able to solve some issues before they come out during our weekends and our rest days. For me, the work ends at the moment I leave the work and go to my home. When I come to my home, I want to be more dedicated to my home, my children, and my personal things’.

Case one was asked about how she has overcome these difficulties, and she answered, ‘I have somewhat overcome them by distributing the work tasks and by remote access from the home. Though, the remote access has become an excuse for them because they know that I can access from my home and do the work they need without coming to work, no excuse! In addition, I have delegated some authorities to some users in the other departments, the information systems were entirely administrated by the IT team, but I saw that controls and administration of some of these systems should be in the hand of the business users rather than the IT team. These controls

were given only to the IT team, in order to have strong controlling on the system. However, I have delegated some of the authorities to the business users, because, firstly they are the owners of the systems and they are who should control them, secondly, I saw that these information systems need a lot of commitment, I mean that every time they need to do some changes in the systems, they call us and ask to open this and close this, and so on’.

Case one does not have any plans for her career advancement because she does not want any job with long working hours, she stated, ‘my parents and husband wanted the best for me. If I have a better job offer, of course they will wish me the best, but for me, it’s over. If I want to advance in my career, I want to be in another place, I mean not in the IT field, and I don’t want a job with long working hours, because I want to be able to coordinate between my work and home. I think I will be able to give more, because now the work is too much’...‘I don’t have any plans for my career advancement, I mean, even if I will study, I will do it only because of personal motive, and not because I want to progress in my career or because I want to reach a certain position. And even if I intent to advance, it won’t be in the IT field’.

Case one views that the most important role of a woman is to take care of her family, she stated, ‘the woman has to play her role in the society, and I don’t mean that her role is just to work or to be a housewife, however, there are other roles than those like being an active member in an association, club, etc... taking into account that these roles must not negatively affect her life, husband and the raising of her children’.

She also believes that the work abilities of women in the IT career are trusted, but their motherhood responsibilities limit their role at work, she stated, ‘everyone at work trusts women’s work abilities. But now, they don’t prefer to hire girls anymore, although they are more stable in the work than the boys and they rarely change their workplace. Women have a significant problem, which is the daily two-hour break for breast-feeding. This point has negatively impacted women in the work. Also they think that all married women will frequently be absent because of their children’.

Case two got married in the early 90's when she was a student in the first year in the university. Now, she has got two daughters and two sons. Her eldest girl is in the third year in the medicine college, and the second girl is in the final year of high school. The two boys are younger than the girls. She thinks that getting married in her first year at university was a little bit difficult for her. However, she believes that having a family is not a barrier to study and to work in the IT field. She stated, 'although marriage has formed a difficulty for me in university, I did not stop, I had the ambition to finish my study, though it was a very difficult study and I have children. But I continued and managed to finish and graduate and I also managed to work and reach this job position'... 'The willingness to learn and improve is what counts, you can see a lot of people got a high GPA in their study, but at the end they are not productive at work. Moreover, the experience is the most important thing in the IT, your knowledge is useless if you do not know how to use it. It is like the medicine career. For example when a doctor is studying and memorising the book and memorising the symptoms of the diseases, but at the end he does not use his knowledge in a reality. The IT worker is similar to the doctor, he has to work and gain work experience that he needs to advance in his career. Moreover, he should constantly read and study without stopping! If he stopped, he will be far away from the latest trends and technologies. His knowledge will be outdated and he cannot work and be productive anymore at work'

Case two does not believe that maternity leave and the two-hours for breast-feeding have negatively impacted her career, she stated, 'I was still at university when I had my first two daughters, so I took maternity leave only two times during my career, and they were only 45 calendar days. Also, at that time, the breast-feeding break was only one hour, and many times I didn't take this hour. If I took it, it means I was lucky at that day, because when there was some work to do, we lose this break. So maternity leave and breast-feeding breaks did not affect me. Also, she does not believe that her work has negatively impacted on her family, in contrast, it enabled her to be a role model for her family, she stated, 'Praise be to Allah (God), my eldest daughter is studying medicine, and my second daughter is an A student and she has already been selected for the Crown Prince's International Scholarship Programme. I think that you have to be an example for your children, your partner, your colleagues and your employees. I think being a role model is very important. My boys are very young and I cannot judge whether my work has a

negative impact on them. I am not sure whether they will be like their sisters. I believe it is a matter of individual differences and everyone has his own abilities’.

Case two dedicates her entire time and mind to her work during the work time ignoring any issues, ‘of course, no one has a life free of problems and concerns, but, praise be to Allah (God), when I come to the work, I disengage from any problems outside the work. I entirely focus on my work once I get inside my office. (Laugh) I am not a mountain that the problems are not affecting me, they effect but not too much’.

Case three doesn’t believe her family role is impacting on her career, ‘it was not clear in front of my eyes that ‘I want to do this! And I will bring my child, and I will do this and that and I will stay and work till night! Some days, I slept at work, I mean I was working till the morning, so these things have been accumulated and they proved to management that being a girl does not mean I am not capable. For example, once I come to work, I kept in mind that there are tasks and I had to do. I don’t have the problem of that I am a woman and I have children, or using this for giving excuses for not being able to do the tasks, all of these things have nothing to do with my work, and the family and my children are things related to me, and I personally take over them. So I did not make them barriers and I did not show management that they are problems that hinder my work’.

Case three believes that women are different in the IT job due to their family responsibilities, she stated, ‘most of the employees of the organisation are women, and now we want to hire more men. I believe that this has happened because the job turnover of male employees is more than women. They change their work more than women. Some job positions in our organisation are requiring only routine work from the employee, which girls fit in more than boys (Laugh). Very rarely you can find a very ambitious, active and dynamic girl. Very rare! For this reason, you find many girls at the same job position for a long time doing the same work! They don’t mind and they don’t say no because they are satisfied with this situation, because I think their priorities in the life are different than men. That is why boys are different. Boys want to advance and improve quickly, they want to be managers very quickly, because they have different commitments and responsibilities outside the work. Maybe this is one of the reasons’.

Case four is divorced and she has one son and one girl. She believes that some of her personal characteristics have helped her to balance between her roles in the work and family, she stated, ‘I have strong insistence and persistence on achieving my goals and I have never given up. I always keep trying over and over again till I get what I want. I have ambition and even now I do not feel that I have reached what I seek to be, I still feel there is more to be looked forward to, I don’t like to stop in a certain position, I always look forward to what is higher, in addition, I always strive to submit very high quality work and finish on time. Moreover, I used to work long hours, I don’t mind it at all, and this is since long time ago. I remember one time when I was pregnant, I kept going to work till the last day of my ninth month. I worked until the day I gave birth. You got it? Also, let me be more honest with you and say that I don’t see men and women are different in the work, I mean, sometimes, there are some negative stereotypes about woman in the work, like, job abandonment, or people think because they are women they will have to be absent from work on some days, or they want to leave the work on time and they can’t work for long hours and so on. I don’t like to have such problems and I believe I have to balance between my work and my responsibilities at the home’.

Case four doesn’t believe her career had influenced her family role, she stated, ‘today, my son is not a kid anymore, and this is the challenge that being a woman put you more under the microscope than the man, because you are a woman, you always have to double the effort in order to prove that there is no difference between a woman and man. It is a job and you have to be professional, you are required to provide a service and to do certain work regardless of any thing, so you have to put double effort in the work and from the beginning of your work life’... ‘And by the way, my daughter is doing a research about women in the managerial positions, which is related to your research area, she is a student in some university in the UK, and she found the same issues I have mentioned, so your research problem is also found in Europe. So making sacrifices is a must in a woman’s life’... ‘I believe family responsibilities are just an excuse, you can build you career if you properly manage your time. It is up to you and to what you have decided for yourself, do you want to excel in your career or not? Not everybody likes to excel in his/her career, it depends on what you choose for yourself, on what is your ambition, on what plans you have for yourself, on where do you want to be. If you work just because for

the salary, it is okay you can work but why have you choose IT? Why have you choose this difficult field? It is a field that requires you to keep reading, developing and training, etc. It is a responsibility!! A big responsibility! You are responsible for every technical problem at work, and that's why some people think like why I have to stand all of this! So it all depends on your choice and need! It depends on your way of thinking, some people believe that women and men are not different, and they are equal in the work, she can give exactly what he can give. At the end, you will choose for yourself whether to be a leader or a follower, whether you want to sit at the foreground with the others or at the back, whether you want to be a star or just like the others. It all depends on self-satisfaction, if she can be satisfied with any career, she can choose any easy career. I remember when I was at the board of university of Bahrain, the females constitute 69% of the graduates, which meant that they managed to have time to study, but ironically after they work, they say we do not have time to care about our career! So girls can have time to study but they can't have time to care about their career. What a strange thought!'.

Case five is divorced and has no children. When she was at her first job she felt that her job was stopping her to see her life as a woman, she stated, 'at the beginning, they wanted me to work in-hand with the company staff and provide them everything they need, and I agreed on this because I thought this will reduce the work load on me, and I will have more time for me and finally I will be able to see myself. I am a girl! You know?! I have to start seeing my life'.

She has mentioned some events that happened in her life and to her father that have affected her in her current job, 'in 2011, I have gone through some events that have affected my performance at work. First, the political crisis which everybody knows how the situation was during that time, I can't say more! It has changed my way of thinking! Before the political crisis of Bahrain, I had ambition in my career, I wanted to be a Minister, I wanted to be something, I was thinking 'why not?'. After the crisis, I did not care about anything! I felt that's it. I felt that I am satisfied with everything and I don't want more than what I have. What we have faced during the crisis has changed my mind especially that my home was near the problem area, so we have suffered a lot during the crisis. I don't know why the crisis has changed my personality 180 degrees, I became a rebel, and did not want to look forward to anything, I just wanted to come to the work and that's it. I did not produce at work during that time, and I became able to say 'no' at work. Now,

I still have the challenge, and I like to work and give but it is not like before'... 'In addition, during the same year, two of my close relatives have passed away in a car accident, and my father were also injured in a big car accident. He was between the life and death and I spent two months with him at the hospital, and later on my fiancé and I broke up. The year 2011 was tragic for me. Everyone noticed that I was coming to work but I was not producing and giving, and I became a different person which nobody knows. But the nice thing was that the general secretary and chairman did not punish me. I was supposed to be punished because I did not work and produce anything during that year. The general secretary knew everything about me and all of my problems I was facing at that time. She asked about me and she appreciated and understood my situation. She is a woman, so she can understand what was inside me at that time. All of the directors, which all of them are women, have emotionally supported me, they came to me to know 'what is wrong with me'? Praise be to Allah (God) now I am fine and very well, from a few months ago I became normal and I have started feeling that I am full of energy. So far, I have already completed some projects at work, although it was a few months but the number of the completed projects is good for this short period of time. Soon I will start new projects'.

Case six believes that it is not easy to balance between family duties and work, 'I see that some people have the ability to control their brain and making it stop thinking with family problems when they are at work. I don't have such ability and I cannot prevent my brain from thinking about family problems! It is one of my weaknesses at work. I cannot work if I have some problem related to family. (Pause) my father died when I was so young so my mother took responsibility of me and my two younger brothers, and my father's business as well. Now I am responsible for my mother and my sick brother, and it is very hard and a big responsibility. (Pause) I have to do everything in my life by myself, everything since early age!! Living and growing up without a father has made me an independent person. I remember how it was when I traveled with my mother and my younger brothers without a father carrying our luggage, holding the passports and tickets, finishing the papers, and guiding us inside the airports. I used to help my mother in all of this and in everything. However, case six believes she is taking care of her work and life at the same level, she stated, 'all the time, I am thinking about what is the next thing I have to do in order to develop at work, my life, my children and my home. I don't like

routine, I don't like the routine in work and life, and I can't stay in one place. I am always thinking about the next move in my life'.

Case seven is single and 34 years old. She believes the work is an essential part of her life, she stated, 'I don't have a problem in working for long hours, I am available 24 hours/day for the work, and even if I am outside the country, I keep in touch with the work all the time. I am always available and ready for work, because work became part of my life'. She provided an example on the problem of the family role of some woman in her team, 'my team consists of seven people, but over time these seven persons became two men only. One of those who have left was a girl. After her maternity leave finished, she informed me that she will not come to work anymore. The other persons in the team just got new jobs'. She believes the two-hour break for breast-feeding is a problem but it can be overcome, 'the two-hour break is a right for women, but at the same time it impacts on the work, but this is not a big problem. It can be solved by a flexi-time policy. Because that I already don't like to come work very early. Usually I come to work late, so I have suggested to management to apply a flexi-time policy, and they have agreed. Now, my department is the only one that applies the flexi-time in the organisation'. Case seven believes women's career advancement in the IT field can be affected by marriage, 'some of my friends at university have worked in HR, and some in the IT field but they haven't reached high job positions. I believe that is because they do not want the IT work, they prefer HR work and dealing with people instead of computers. Also, some of them got married and became busy. Maybe also, the IT major was not their desire, but the university admitted them in this major'.

Case eight is 40 years old and she has four children aged 8, 10, 14 and 15. When she joined her current workplace, she was on maternity leave, 'when they brought me here (current job), I was in the 14th day of my maternity leave, I cut my leave and I started the work here '. She provided many examples on how she balanced between her work and family, 'many times, I stay at work to finish the work, I decided by myself to stay without being told by someone. Now I am in a job position that I have to worry about my work. Yes, this conflicts with my family responsibilities (Laugh). I don't know whether my work or family has a higher priority for me, but all I know is that my children are the most important thing in my life. I will go home and force them to sleep and then I also sleep. I make them sleep for one to two hours in order to rest their body. Once

they wake up, I do their homework with them, they are four, but I finish with them one by one. Do you know at what time we finish? 12 O'clock! I am not neglecting them, all of them are successful and excellent in the school. if I neglect them, I feel guilty and I blame myself a lot, I have never allow myself to neglect them because of my work, I feel guilty, I have never neglect them because of my job'.

Case eight believes the two-hour break for every child of less than two years has caused problems in women's career. She stated, 'see! What sentenced women to death and makes anyone think one thousand times before employing them, is the two-hour break for breast-feeding. After you have finished the interview and you have two candidates, one man and one woman, this two-hour break is what makes the difference. You hesitate to choose the woman, because you think that she will take these two-hours every day so there will be some work delay, or someday she will be pregnant and she will give birth. While at the other hand, the man will not have all of this, so this upset the balance in favor of the man. By the way, this is what really happens in the meetings if we have to choose between one man and one woman. The two-hour break which had been given for women is adversely affecting them. Currently, I am having a pregnant one in my team, she already took leave for two months before giving birth, and when her maternity leave has completed, she will return to the work and she will take the two-hour break. Currently, I have a vacant position of head, if she will take the two-hour break, I can't assign her the head position (angry)! Now I am doing the tasks of this position! Now, I am the head, I am the director and the programmer, I don't know how long I will stay like this. It is a problem and the woman herself must do something about it. I went for a new job two weeks after giving birth! I cut my maternity leave, and I did this twice, I did it with my last two sons'.

Case eight has given priority to the work rather than family, and she justified this by saying, ' but I proved to them that I am up to the responsibility, I was a specialist and I became head, and then director. Now this pregnant one, what she has done to herself? Top management asked me about that vacant position, and where is (her name)?! It is her right to take a complete maternity leave, but not also taking two months before giving birth!'

Case nine believes that working hours play a significant role in a woman's career and life. 'Girls remain for a long time in the same job. Girls remain in the same job for long time, because of the timing, the timing is very important for girls, and I can say I am one of those who loves the timing of our organisation, because I was at the petroleum company where work ends at 3:30 PM, and actually I have chosen to come here with less salary than which I used to have there, just because it was more suitable for the family at that time. Nearly, this is why most of the girls of our IT team are still working here (organisation), I mean because of the family circumstances, they stay at the same job and they don't want to change it, even if they are highly qualified. I mean they are qualified and they can find better job offers, but of course they don't go because in the private sector there are work shifts or long working hours. It is hard to work for long hours for long years'.

Notwithstanding that case nine likes her first job in the petroleum company, she has decided to leave the company. She justified this, 'well, at that time it differs, because I live in Muhharaq, so the distance is long. If the distance is long, it really differs'.

Case nine doesn't believe that family is a barrier to women's career advancement, 'it is hard to say that the family is a barrier to the career, because it is a must, you cannot run away (laugh). I said girls of our IT team prefer to stay in our organisation more than any place because of the timing, but this does not mean that our organisation is bad in things other than the timing. In our organisation, the opportunities come and the employee can be promoted as we have been promoted, praise be to Allah (God). There is a chance for everyone here, when the opportunity become available, you can be promoted if you really proved yourself in the work'.

Case nine believes that the two-hour break has a negative impact in the work of her team, 'honestly, the two-hour break hinders the work a little bit, especially in a division where most of its employees are girls in the age of childbearing. This causes some workload on some people in the team. For example, when some woman took two hours in the morning and another woman in the afternoon, in addition to the people who are on sick leave, so this break causes a workload, because it lasts for complete two years, so it is not a short period. Actually I see it is something against the woman in somewhat. Honestly, the baby needs his mother to be with him at home

during the first year, but after this year, the woman who has chosen the career should not take the two-hour break. I took all of my maternity leave when I was working in the petroleum company (Laugh). I used to take full maternity leave. In this company the working hours are longer, it is until 3:30, so you need to take full maternity leave. Here the work ends at 2:00 so if you will take the two-hour break, how many hours will remain to do the work? (Laugh). See, I see the two-hour break is necessary at the beginning, I mean that the mother needs the break for breast-feeding only during the first year of the age of her child. I really agree that at the beginning the baby needs it, although it impacts on the work, but if it is only one woman in the team we can manage the work load, I mean the work can bear the 60 days (maternity leave) or one year, but it begins to impact on the work when there are more than one woman, and each one takes leave for one year or more, and so on (Laugh)’.

Case ten doesn’t see that marriage and family responsibilities negatively impacting on women’s career, ‘I don’t think marriage is impacting on a woman’s career, I don’t know?! If I look at it from another side, if I have not got married, would I have a higher job position than now? I don’t think so (Sure). Definitely no! Maybe marriage can affect a woman’s emotions that she feels guilty all the time and she wishes to spend the work time with her children. This might be true, but I don’t think marriage has affected my career or job. True, I am ambitious and I want to advance more in my career, but I am satisfied with what I have already achieved. I don’t think I will reach something higher if I have not got married and have children’.

Case ten thinks she gives more priority to the career in the times when her family doesn’t need her. She believes that working and studying at the same time was hard, especially with a family to be looked after, ‘yes it was hard, but I have finished it! Of course the priority is to my family, but sometimes, I give more priority to work than the home, or the reverse (Laugh)’... ‘When we have a lot of work, and I have to stay at work, I stay, unless my daughter is sick or has an exam the next day. I give priority to the work if she is not sick or doesn’t have exam....’ I have never went back home after work on time, I always have some more work to do after working hours, and I think all IT people are the same, I remember, in the Ministry, it was strange for us when we saw someone leaving work on time, and we all thought that he must be in a hurry because he has an urgent thing to do. For me, if I have a problem at work, I don’t go home before solving it’.

Even at home, and especially when I have just been employed here, the blackberry and my laptop are always with me, when anything happens, I access remotely the work systems to see the problem. Or when the chairman wants something urgently, I do it immediately. But other than this, I am free for my family. When I have just been employed here I had to stay at work many times, but now it happens rarely or from time to time'. Currently, case ten doesn't feel she want to advance in her career, she stated, 'it is not in my mind now to go for a higher job position, I am not aiming for more than head of department, because if I become in higher position, I know that it will impact in my life. I have seen how the high managerial position is affecting the life of some people, I see how the life of the chairman (female) of our organisation is being affected, and I don't like this. It is true, I like my job, but I want to have time for my work and time for my home'.

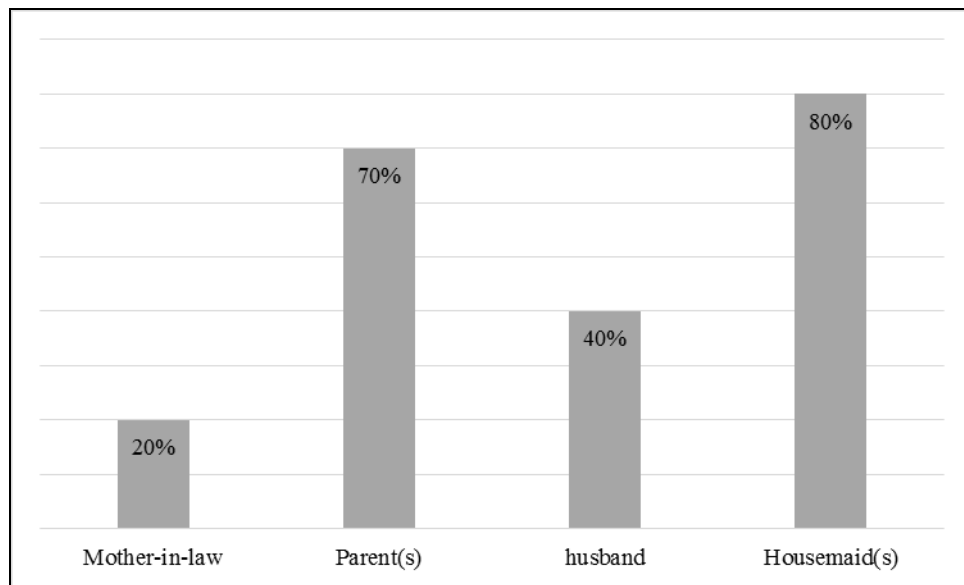
6.4.2 Family Support

As can be seen in table 34 and figure 30, (80%) of women (all mothers) in this study have housemaid to help in children care and do other households activities such as cooking, cleaning, laundry, and etc. (70%) of women have obtained the help they need in children care and/or the emotional support from their parents to their career development. (20%) of women have obtained the help in children care from their mother-in-law. (40%) of women have obtained the help in children care and the emotional support to their career development from their husbands, but only one women (case 6) stated that her husband discourage her to continue developing her career.

Table 34: Family Support

Factor	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Mother-in-law	×								×	
Parent(s)	×	×	×	×			×	×		×
husband		×	×			U		×		×
Housemaid(s)	×	×	×	×		×		×	×	×
U: Unsupportive										

Figure 30: Family Support



Case two relies on the support of her mother and husband in taking care of her children when she is at work, ‘when I travelled to Kuwait and Egypt, my youngest son was two years old. Do you

know what it means to travel and leave a child of two? It was very hard for me. Honestly, without my mother and my husband I would not be able to do anything. My mother is a housewife and the work of my husband ends at 3:00 o'clock. My work ends at 4:00 o'clock'.

Case three relies on her mother and husband in taking care of her children when she is at the work. She provided an example of how she balances between her roles at work and at home,' but it was not clear in front of my eyes that 'I want to do this! and I will bring my child with me to the work after the working hours, and I would do this and that and I will stay and work till the night! at some days, I slept at the work, I mean I was working till the morning', so these things have been accumulated and they have proved to the top management that being a girl does not mean I am not capable'. Case three also had the support from her father before she got married as she mentioned earlier his opinion in her first duty travel.

Case four is divorced for long time, and when her children were young, she relies on her mother's help in taking care of them when she is at work. She stated, 'as you know that most Bahraini people rely on the support of the family when they are at work. So my sons were with my mother. When I have some work to finish, I do not go home. I mean I have never said that work time has finished! I am working long hours. Today it is much easier than before, because you can access the network and work even from home, you can access and finish your work from home. Before, we have to come to the office because you could not access from the home. At the same time, I was taking care of them. Personally, I was following up with their school about their performance, and I was helping them in their homework and teaching them for the exams. Now, my daughter sees me as her role model, in 2012, when the Forbes American magazine has ranked me 66 out of 100 most influential businesswomen, she took the magazine and put it inside a frame, then she gave it to me as a gift, I did not care in keeping a copy of the magazine, but she framed it and kept it for me, so my work has encouraged my sons, Praise be to Allah (God), my sons are A students, my son has a MSc degree and my daughter is studying BSc now'.

Case six believes that her husband has limited her career development somehow,' my husband is a conservative man that sees a woman's place is at home rather than at work. He sees that work

is not a necessary thing for a woman, and her family is more important than work. He prefers a non-mixed work environment for a working woman like the girls' schools. My husband doesn't like me to have work meetings with men. Sometimes, he calls me by phone and I can't answer his call because I am in a meeting at work. When this happened he gets angry at me and he asks about the purpose of the meeting, how many people were in the meeting, and their names. (Pause) My husband refuses to let me travel alone without him or my brother, I have been asked to do business trips, or attend important conferences and training courses outside Bahrain, but I could not do it because I know he won't let me travel without him or my brother. He travels frequently for his work so it is not easy for him to take work leave to travel with me every time, and it is not easy for me to ask my brother to take leave from work to come with me at any time I need him. My brother is working and has a wife and children! What will his wife think! I always get excited when I heard or know about some important event or training outside Bahrain, and I imagine myself going to it and what I can do after finishing it, but when I remember that my husband will refuse to let me go without him or my brother, I stop dreaming about it. One time I have asked him, he said who will go with you? And what about the children? 'Don't forget you are a mother', he always reminds me that in Islam woman cannot travel without Mahram'.

Case seven sees her father as her role model in life, and she believes he is always supporting her in her career.

Case eight stated, 'I am working for long hours on Thursdays, on Thursdays I am working without stress and my heart is comfortable, because during this day my mother is with my children, and I feel that I have time till Saturday to take care of them. I am sure that without my mother, father and husband, it would have been impossible to reach where I have reached, for sure! Many times my husband travelled with me as I cannot travel without my husband. I do not know what to do during my travels. I am a manager or boss! The travel! I cannot travel alone! In every duty travel he has to take leave even if he is busy at work and he accompanies. Without him I would never be able to attend any conference, go for any award ceremony or do something! And without my mother's help in taking care of my children and staying with them when I am away, I would never be able to leave them because of the work, it is impossible,

(pause) I share with them my happiness of every award I get, and they are very happy of this. Every time they found any booklet that includes my name, they take it to the school and give it to their friends and teachers. I share with them my success. Now, I feel that my daughter is a copy of me (phone call from her husband) See! Sometimes, he likes me to ask him before I decided to stay longer at work! Sometime he says, 'it is enough! It is enough! Do not give this much to your work!' yes sometimes he don't like my way of work, but he is nice and at the end he makes up his mind. 75 % of my self-confidence comes from him, 75%! He always tells me you can do it! I am sure you can do it! (Pause) Also, the future of our children pushes us to work harder, sometimes we keep working hard just because of them, you know?! The higher the income we get, the better life we can have, you know?! Do you know that every night, I ask myself what is the new thing I did today? Have I done anything new? That is in my character, I always ask myself about what I have achieved at work and at the same time at home. I build my work, and I build my home, and I build my children, I don't want any of these to be less or more than each other, I try to give equally my work and family as much as I am able to, and as much as Allah (God) gives me power'.

Case nine has described how her mother-in-law has supported her in taking care of her children when they were young, 'when they were young I was living with my husband's family, and this has helped me a lot! A lot! I was able to go to work very early and comfortable. In the morning, once they wake up they go down to their grandma on the ground floor. She takes care of them until they go to school'...'Praise be to Allah (God) blessed me with such a mother-in-law, may Allah rest her soul in peace, she helped me a lot, and my mother's house was near our house too, so I did not have any worries about the children, and this is a privilege not everyone has, so praise be to Allah (God) this thing helped me a lot, otherwise, I can say I may have decided to stop working to look after my children. I *did not quit my job* because I was relieved that my children were safe. Because of the long distance from my home to work, I used to go to work very early in the mornings even before my children wake up, and I also used to go back to home after they come from school, I am not available at home when they go to school or when they come home. My mother-in-law was looking after them and taking care about their food and all the other things when I am not at home. Leaving from the petroleum company was just a simple

sacrifice (Laugh), because even here (current workplace), I can still make large work achievements’.

Case ten noted that her parents and husband helped her in taking care of her children, ‘Praise be to Allah (God), I can say I am satisfied with the level of experience and knowledge I have now, I know if I go to a higher job position, I will not be able to balance between my home and work. When I was studying for my Masters Degree, I was a pregnant, I did not have babies, and my responsibilities were less than now. Now our work time ends at 4:30 and sometimes we have to stay longer...’ I have overcome this difficulty by keeping my children with my mother till I come home.’... ‘My mother and father really like to see their sons learn and work. Now, my father is retired and my mother quit her job after marriage. My father has instilled the ambition within me and my brothers since we were young. I have six siblings and all of us are successful in our career. My eldest brother is PhD holder and he teaches at the university, my other brother is an engineer, and my sister works in the Ministry of Education. It was very important to my father that we studied for a college degree. Also, he sees that work is necessary for a girl, for him it is a must, he cannot accept that one of his daughters sits at home and be without work or a job, he was always telling me and my sisters what a loss when the girl has a college degree but she doesn’t have a job. So, this is what we grew up with’... ‘My husband is a petroleum engineer, and he works for 24 hrs. He always encourages me to work hard and more’.

6.2.5 Recommendations

Women in this study were asked to provide recommendations for women to advance in their career in IT. The question was: *What are your recommendations to enhance women’s status/position in the IT field?*

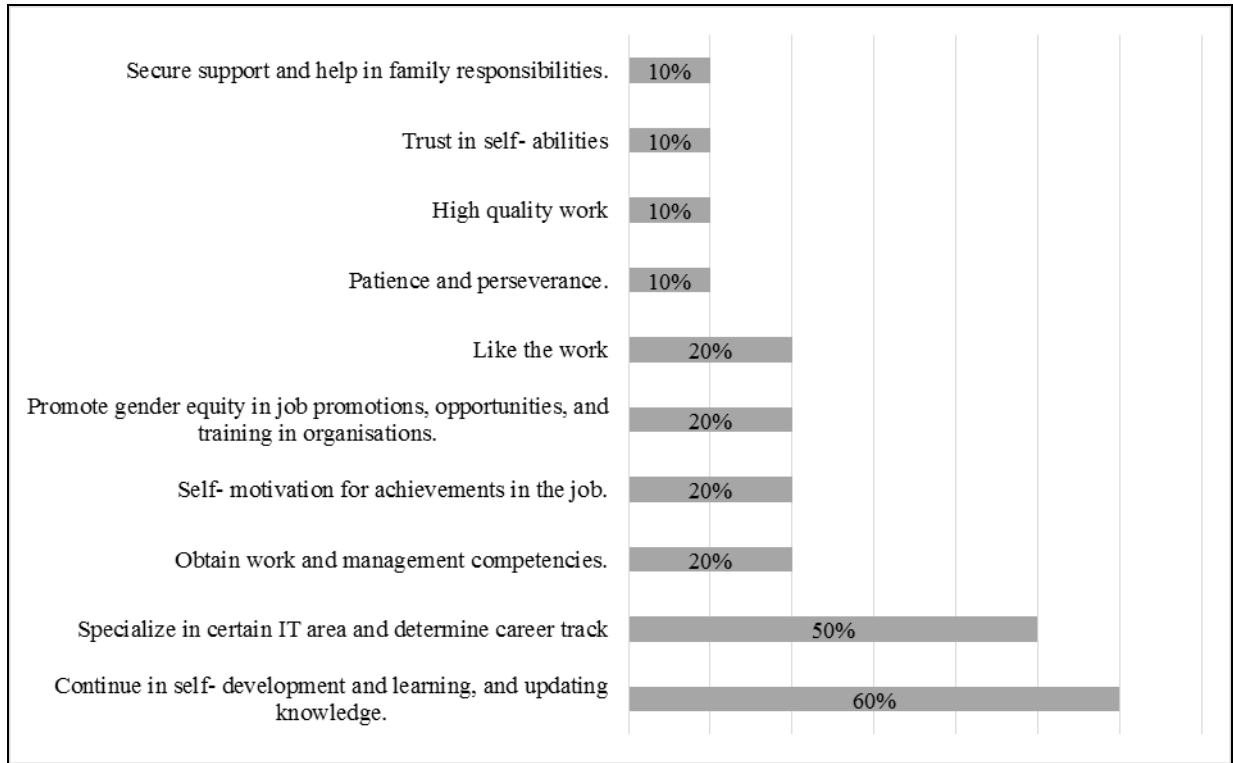
As can be seen in table 35 and figure 31, (60%) of women have recommended that women who seek career advancement in the IT field should continue in self- development and learning, and update their knowledge in order to improve their career. (50%) of women have recommended that that a woman should decide at early stage of her career which IT area she likes to specialize in, and determine her career track accordingly. (20%) of women have recommended that a woman should like the work she does and be self-motivated for work and goals achievement.

(20%) of women recommended that a woman should obtain work and management competencies needed for heading IT in any organisations. (20%) of women have recommended that organisations should consider and promote gender equity in job promotions, opportunities, and training in the work. (10%) of women have recommended that a woman should have strong patience and perseverance if she seeks to achieve work and career goals. (10%) of women have recommended that woman should always provide best and high quality work in any occupied job. (10%) of women have recommended that a woman in IT should have trust in own-abilities in managing the work and achieving its goals. (10%) of women have recommended that every woman in IT should find someone who would provide her with the support and help needed in children care and family and home responsibilities.

Table 35: Recommendations for Career Advancement in the IT Field

Recommendations	Case1	Case2	Case3	Case4	Case5	Case6	Case7	Case8	Case9	Case10
Obtain work and management competencies.	×			×						
Continue in self-development and learning, and updating knowledge.	×			×	×	×		×		×
Specialize in certain IT area and determine career track	×		×	×		×		×		
Self- motivation for achievements in the job.				×			×			
Patience and perseverance.				×						
Promote gender equity in job promotions, opportunities, and training in organisations.					×					×
Like the work.							×	×		
High quality work.									×	
Trust in self- abilities.										×
Secure support and help in family responsibilities.										×

Figure 31: Recommendations for Career Advancement in the IT Field



Case one believes that a woman in the IT field needs managerial background and skills to facilitate her career advancement. She recommended, ‘the higher the IT job position, the greater the managerial skills she needs, and the less technical skills she needs. So anyone likes to develop him/herself and advance to higher job positions, he/she should develop himself more in management. And of course, he/she always needs to look and get an overview about the new technologies and attending events relating to technologies, etc. Overall, she has to focus on the management aspects and at the same time she has to focus on certain specialisation areas in IT.

Case two does not see that women and men are different in the IT career, and she did not provide any recommendations. She stated, ‘having a low number of women in IT management positions is very normal, because the woman herself does not prefer or like to work in IT, because IT work is tough and she prefers an easier job. Having more men in IT is normal. The percentage of male in the IT field is normal’. However, she stated, ‘in our culture, it is not preferable that the woman work late, or working in certain jobs, so probably changing in the social beliefs and norms may

help a woman in her IT career, although I see that the social beliefs in Bahrain is much better than other countries, and maybe we are the best in the Gulf or even in the MENA region. For example, I went to Egypt, Lebanon, Syria and these areas, and I still can feel that we are better than them. Praise be to Allah (God) we are advanced in this aspect’.

Case three views that the IT graduates in Bahrain are unable to define which IT specialisation area is right for them, she stated, ‘what the problem is?! I have noticed that fresh female graduates are lost, especially those who came from the University of Bahrain. Although they are very smart and have a high GBA (Grade-based assessment), they don’t know what they want and which specialisation area they must choose. You see them getting themselves involved in many things, for example, they take courses from Tamkeen, networking, Microsoft, and others. They go in different and sporadic directions. Even the boys have the same problem, but girls are more in it, because boys can work in any job and any field and then continue with it. So I believe they don’t get good career guidance from the university itself, maybe it is a shortcoming in the university work that they don’t give them good guidance that make them aware about what to do after graduation. Based on their grades and the GBA, they can tell them which area they are good in and which area they have to think about and develop their self in’.

Case four provided recommendations on the personal and professional sides,’ on the personal side, she has to know what she wants and where she wants to at work. She should be serious about her work. She needs to have enthusiasm and motivation for the work. She has to balance between her family responsibilities and work. She must not give excuses. This is on the personal side, where nobody will help her except herself. If she manages her time and plans appropriately, and she has the motivation to work rather than just work to earn a salary, she will develop and improve the work. There are some things at work that you can develop by yourself, without waiting for your boss to ask you. In addition, having the necessary soft skills are very important, like team building, and how to communicate or deal with people, and how to solve problems. Even the human issues, you learn how to deal with it over time, I mean I did not go for HR courses, but if you work with a team you will know how to manage people. On the professional side, she has to develop herself; we are in the IT field which is rapidly changing, so she has to cope with these changes and the new technologies. If you are in the IT field, you have to be on

top of things and you have to be proactive. Those who sit in the back seats waiting for someone to ask them to do some work will never move from their places. But you have to take the initiative and to go and push yourself, and say I want to do this, I want to understand this, and I want to learn this. And this can be even outside your field, I mean widen your scope rather than just looking at one way, open the angle to see more and many things, you should see the work of other departments and the whole organisation, because this will help you to provide services and solutions for them. You have to work hard because it is not easy to advance in the career, and people in the IT field should never think that within four or five years they will advance to a higher job position, no! Because now many people, either men or women, are working the IT field so the competition is not easy’.

Case four also added, ‘everyone has to work very hard, nothing can be gained easily. Never! Today’s generation want an elevator to take them directly to the top, this will not work, we have climbed the stairs step-by-step, and sometimes we take one step backward then we step forward again, you know? You have to wait a long time to reach. You will not be a manager shortly after you begin working. Even when someone becomes in a high job position, but he/she lacks the understanding of how everything happens at work, it will be very difficult to him/her to manage. As I said, I began as a programmer, then systems developer and so on, I have gone through all of this and gained the required experience, specifically in software, while I have learned things about the other sides through training courses and my self-development efforts, because there are various IT occupational fields’.

Case five believes that, ‘a woman in the IT career (pause) must learn very well and like her work. Organisations should restrict any gender bias in the work, and they should give equal job opportunities for males and females. By the way, have you heard about the “Equal Opportunities Unit”?! Our organisation has enacted a law to initiate this unit in every organisation in the public sector. Part of the role of this unit is to emphasise principle of equal opportunities between the sexes in recruitment, promotion, training, provided services, and work-related activities of the organisation. I believe having this unit is very important in every organisation. It contributes to making women have a distinguished place in the society, and it conserves their dignity. It also contributes in the support of their career advancement’.

Case six believes that, 'if a woman wants to develop herself and advances in her career, she must never stop working hard and she must keep updating her knowledge and skills. She should balance between her family responsibilities and work. Also, IT is a wide field and includes a number of areas of specialisation such as networking, programming, database, multimedia, etc., she must know which area she wants to specialise in and then she has to develop her knowledge and skills in that area'.

Case seven believes that, 'changing the culture of the society is important. I see a woman is able to study and get the highest grades, but at the end she must abide by the laws of the societal culture. The field of IT requires being ready and available for the work 24 hours/day, so this might be a problem for her, and even if she doesn't mind it, her family might see it as problem. In addition, the universities must work to instil love to work in the girls. People should love the work in order to be able to work. In contrast, they must work and give, in order to make themselves love their work. For example, I have employed a girl in my department, and before she joins us she was looking for a job for seven years but she did not find any. I have employed her and she has worked in my team. After some time, she came and told me I want to transfer to another department, I asked why? I have drawn a career path for you, I want you to be a project manager, but she has refused! She has transferred to some department and now she works there and her work output is only one report in a year. Look at the people in Europe how they are working! Also, look at the Indian employees in Bahrain they work harder than the Bahraini at work! Moreover, the salary scale of IT jobs must be revised, because IT jobs in the private sector became more attractive for the qualified IT people in the public sector'.

Case eight believes that, 'she must never stop learning, training and taking professional certificates, I don't mean masters and PhD, but she must choose an IT specialisation area and improve herself in it, rather than getting lost in many things here and there, she must be a professional in a certain area. She should see what is demanded in the market, or what IT specialisation fields are mostly wanted at this time, for example today most of the workplaces are looking for people with expertise in the mobile software, they are widely wanted in many workplaces, you know? She must choose a certain technology and improve herself in it. It is like

the medicine field, the doctor must specialise in a certain area. Also, she must make the management team relies on her in her work and should never disappoint them. You should never say no, sometimes, we become under pressure, for example one time we have just known that if we want to make our organisation win the award, we have to submit the report today and not tomorrow. In such cases, I have to think and choose either to stay at work to finish the report, or to go to home. I was a specialist so I will not get overtime pay, but I didn't disappoint them and I did it. I didn't disappoint them, they needed me at that day, and I have proved to them that I am up to the responsibility. At that day either someone come and do the presentation slides for the award, or we lose, you know? So they needed me. I was able to give excuses and this will not impact on me, but if I did it my response and reaction will never be forgotten by them, you know?! Also, I don't be highly sensitive when somebody has said something about me. Nobody is perfect, and this is not a fault. It is never wrong to admit that I don't know much about something. Always when I don't know something, I admit it and I say I don't know how to do it, for example, (intervention from someone) my English is not very good, I don't shy from asking my secretary to teach me when I need to, I ask her to read after me and check whether there are mistakes, I am weaker than her in English, I don't show that I am a champion, I don't let our organisation be shown in a low level, just because I don't want to embarrass myself in front of my team. Lack of knowledge of something doesn't disgrace you'.

Case nine believes that, 'of course, recommendation number one is to do your best at work, you have always to do your work to the best you can do, I mean you have to do your work honestly (Laugh). This per se gives the person a work quality advantage, honestly this is a reason for success. For example, I have found different kinds of people in the IT team, some of them have just been employed but their performance is very good and high, and they seem that they have been here for a long time. Also the work quality is important, for example, when I have a boy or a girl, I look at their work performance, if her performance is higher than him, I will not say I will give the job promotion for the boy, because he is householder and he needs it more than her. I will never do it! It will be she who will serves the organisation more, while he must work hard if he wants to get the promotion. I can say I don't have gender bias at work. For me, I don't think in a way that "this is a boy and this is a girl". The one who works well is the one who I will be biased for, while the one who does not work will hurt him- or herself, and should not come to me

to request anything (Laugh). Those hard workers, you find yourself want to give them without their request, while the other type of people, they come to you and they insist to give them an award or a step, and even if they should get it according to the work rules, you will give them without your desire. And when you face them about their level of performance, they will tell you about their right, based on the work rules which say they can have a job promotion because they have finished one year for example’.

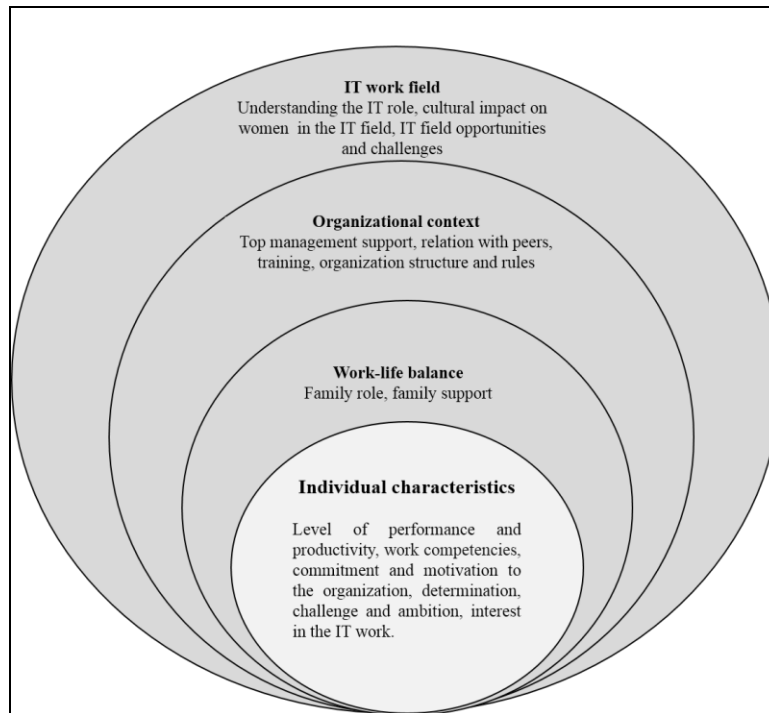
Case ten believes that, ‘maybe a woman in IT has to trust herself, she has to believe that she can reach. She has to work hard and she has to always read and be up to date by reading, attending events, reading news or by any way. Abundant resources are available online, and the work colleagues also are very helpful source for updating your information. Reading is very important in the IT field. In addition, she believes that ‘the home cannot be removed from the mind of women. Home is always in the back of the mind, but the woman who wants to prove herself and does not just work for the salary or spending some time, must use her time in work only for the work, and her time at home only for the home. This is something up to her and in her hand. She will be able to prove herself at work, and at the same time, she can look after her family very well, if she has managed her time well. For example, because our organisation is still new and at the beginning, I keep telling myself “it is a matter of time the workload will be less over time”. All of our systems are new. Therefore, when our systems and everything become stable, we will not need to be involved too much in every work and the work pressure will be less than now. Also, woman in the IT career needs support from the family, she must make sure that there is someone with her, I mean if I did not have my family to take care of my children when I am away, I would not be able to do anything. Without my husband’s understanding to this point, and if I didn’t work for long hours, I would not have been able to be in my current job position, so she must make sure to have someone in the family to support her when she needs’.

6.3 Discussion

To summarise the findings of the analysis, these factors are depicted as an ‘onion’ model –see figure 16. The model represents two main layers, are: (1) the individual characteristics, and (2) the environmental influences, consists of three sub-layers: work-life balance, organisational

context, and the IT work field. Each layer in the model includes a number of influential factors as presented in figure 32. Next, each layer will be discussed starting from the centre of the onion.

Figure 32: The Model of Findings of this Study



6.3.1 The Individual Characteristics

The analysis of data has showed that women in this study have some common individual factors that may have facilitated their career advancement. They have a high level of work performance and productivity especially at the beginning of their career. They have the necessary work competencies for the IT work, and IT management, such as team management, leadership, project management, planning, analysis, communication and problem solving. It was evident also that they are highly committed and motivated to every organisation they have worked in, and they really like their work. They have a strong desire and motivation to develop themselves and their work. Thus, they are always motivated to learn, understand and develop the work or rules, and they are always willing to put extra effort to produce high quality work, and to face

any work problems or challenges. They have strong determination and ambition to reach their goals at work. However, most women in this study have showed that they have a low level of interest in advancing more in the IT field, because they believe if they will advance more, they will not be able to balance between their family responsibilities and their IT career which needs the ability of working for long hours and coping with the rapid changes in the IT field. This will be discussed more in the work-life balance and the IT work field layers.

6.3.2 The Environmental Influences

The analysis of data has showed that the organisational context in the IT work field and work-life balance significantly influenced in the career advancement of women in this study.

6.3.3 The Organisational Context

The results showed the settings of the work organisation play an important role in women's career advancement. Specifically, the analysis of data showed that management support, relations with peers in the work, training and the structure and rules of the organisation have influenced the career advancement of women in this study. It was evident from some women that management support has significantly influenced their career advancement. The management support, which was provided either by their first-line manager and/or the top management especially at the beginning of their career, has enabled them to have high work involvement and significant work achievements. Most of the first-line managers of women in this study were also part of the top management team in their organisations. They have given the women the opportunity and support to show and prove their work abilities through assigning them significant work tasks and projects at the beginning of their career. Also they have supported them by providing them the training, authority and facilities needed for their work. Also the analysis of data showed that the first-line managers or sometimes someone from the top management team have served as a mentor or role model for these women, and they have significantly contributed into building their work experience, self-trust and professional image. Moreover, the first-line manager and/or the management support contributed to the level of work satisfaction and commitment of the women which enhanced their work performance and career.

The analysis of data showed the significant impact of peers in the career advancement of these women. For some women, work success and the top management support which they had, have caused some competition from their peers at work and conflicted with them, which have influenced their work and career advancement. While for some woman the qualified peers at work were one of the reasons of their career success.

The analysis of data has showed that training and knowledge which have been taken by women at their first job, have enhanced their level of experience and productivity at work. Most of the women in this study have taken highly professional training courses in IT or management and some of them also were sent to some organisations outside Bahrain similar to their organisations, in order to learn from their experience and the applications they use. Also, some women have been given MBA scholarships from their organisations which have enhanced their management knowledge and abilities.

The stories of some women have showed that the organisational structure and work rules of their organisation have influenced their career advancement. The merger of organisations and the change of the organisational chart have influenced the career advancement of some women. This organisational change has facilitated the career advancement of some woman while for another woman it has hindered her career advancement. Also, the career advancement of some women in this study has been hindered by the work laws of their work organisation which say that high managerial positions must be assigned to people with a certain educational level.

6.3.4 The IT Work Field

The analysis of data showed that the level of understanding of the role of IT in the organisation has played an important role in the IT career of women in this study. The analysis of data showed that some women in this study had the support and opportunities to prove themselves and to have major work achievements due to the awareness and high understanding of the top management team and people of the organisation to the IT role and rules, and how it can be

utilised in establishing and providing the business services and developing the work. In contrast, some women have mentioned that their level of performance and productivity have been affected due to the lack of understanding work of IT's role by the management team and people in their organisation. The data analysis showed that all women believe that the culture has significantly influenced women in the IT career. Culture plays a role in gender segregation in IT jobs. All women in this study saw that women can work in only certain IT jobs like software development, graphic design, and programming, while they should not work in networking and IT support. Because this kind of IT jobs requires working for long hours, coming to the work at the night, or physical movements like cabling or moving hardware, etc. Also, the data analysis has showed that the culture restricts women's work role in the IT field. The cultural beliefs associated with women influenced the career of women in this study. For example, some women are not given the acting role of the head of IT, the chance of business trips or they are not called when urgent case happened in the work, because people in their organisations assume they will not be able to do it due to some cultural reasons. Hence, women in this study have put an effort to show people in their organisation that they are able to do the work.

Most women in this study believe that there are many job opportunities and chances for career advancement for IT people in Bahrain, while some of them believe that IT career advancement is not easy with the existing abundance of IT vendors and foreign IT labour in Bahrain, and also because IT in the public sector is facing difficulties of coping with the rapid information technology change, under qualified IT graduates, and the switch of the qualified people to the private sector.

6.3.5 The Work-life Balance

The analysis of data showed that the family role and support play an important role in the career advancement of women in this study.

The data analysis showed that most women with children in this study have considered that their work role is not less important than their family role. Most of them have given many sacrifices for their jobs, like surrender part of their maternity leave and the two-hour break for breast-

feeding, they worked for long hours and sometimes they worked at home or during weekends, and they surrendered part of their time at home for searching and reading on internet in relation to their work. Most women in this study believe that the long work leave during the pregnancy and after giving birth and more importantly the two-hour break for breast-feeding have a negative influence on women's career advancement in the IT career. Most of them believe this is a part of their work responsibilities and it is commitment to the jobs and not personal sacrifices. They believe that their career success and advancement have not affected their family role, however they see that they have become a role model for their children. Although, some of them believe that if they advance more in their career, it will be hard for them, because they think they will have to give more to the work than the children and husband, and they have no desire to be in such a situation.

Unmarried women in this study have also showed that their career takes a big part of their life, and sometimes their family role affects their level of work performance and productivity. Many days they worked for long hours and sometimes they have to work at their homes or during the weekends. Sometimes they choose not to travel for holiday with their family, or they cannot share in some family events because their job needed them during those times. Some women have showed that big events in their life for example which happened to their parents or brothers, or the political crises have negatively affected their level of work performance and productivity for a period of time.

The analysis showed that most women with children in this study have strong support from their mothers, mothers-in-law or husbands in taking care of their children when they are at the work or in a business trip, and they believe this support has helped them a lot and without it they might have never been able to continue in their career. In contrast, one woman has showed that she lacks the support of her husband and how this is negatively affecting her level of work performance and training and thus career advancement.

6.4 Summary and Conclusion

This chapter presented the qualitative analysis of the semi-structured interviews conducted with the ten Bahraini women IT managers according to the procedures presented in the chapter of methodology. All the interviews were transcribed and analysed in the original language, which is Arabic, then the analytic themes and related quotations were translated into English, taking in account the cultural meaning and contexts. The researcher focused on the research questions of this study in analysing the data and presenting the findings. The analysis led the researcher to discover and develop in-depth understanding of a number of factors that influence Bahraini women in their career advancement to upper managerial levels in the IT field. A number of individual and environmental factors which were drawn out of the analysis were depicted in a model then discussed individually in this chapter. As shown in the chapter, the model represents two main layers; the individual characteristics, and the environmental influences which consist of three sub-layers: work-life balance, organisational context, and the IT work field. The next chapter will provide a summary of the findings and discussion according to the research questions, and it will make comparison with the literature review.

Chapter Seven: Critical Evaluation and Recommendations

7.1 Introduction

This chapter aims to present a summary of the study findings and discussion according to the research questions. In order to increase the credibility of the research and generalizability, this chapter links the findings to the existing literature which is provided in chapter two. First, the chapter presents a summary of the findings and discussion of the individual and environmental factors that emerged from the interview analysis. Then, based on the findings, recommendations for women's career advancement in the IT field are discussed at the end of the chapter.

7.2 Summary of the Findings

Despite significant growth in the information technology (IT) professions in Bahrain during the past decade, there remains a gender imbalance. Women in Bahrain are not achieving equal representation and opportunities in the IT field. This study has focused on women's underrepresentation in higher IT managerial positions in Bahrain. Despite the growing number of women in the IT field in Bahrain, women are under-represented in higher IT management positions. The primary purpose of this research was to gain a better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field. The research questions underpinning this study were:

1. What are the factors that hinder or facilitate the career advancement to upper managerial levels of women in the IT field in Bahrain?
2. How do those factors influence the career advancement to upper managerial levels of senior IT women managers in Bahrain?
3. How have senior IT women managers in Bahrain overcome the factors that hinder their career advancement?

In order to determine the conceptual framework that will be used to investigate the research problem, gender and information technology literature was reviewed and examined. Three theoretical perspectives were used in the gender and IT research to understand women's under-representation in the IT field, i.e. essentialism, social constructionism, and individual differences. Essentialism is the belief that men and women are different in their body, cognitive ability, and behaviour. Social constructionism focuses on the social construction of IT as a male domain that is interpreted as incompatible with the social construction of femininity. Individual differences are the unique characteristics of an individual that significantly play a role in determining his/her behaviour and performance. Unlike essentialism and social constructionism, the individual differences perspective focuses on differences among women, rather than between genders, as they relate to the characteristics of the IT work field. As the purpose of this study was to gain a better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field, the individual differences theory of gender and IT was an appropriate theoretical lens to use. The theory used in this study to analysis and understand the factors which influenced the career advancement of a group of women IT managers in IT in Bahrain. Essentialism and social constructionism do not provide an analytical framework to fully understand women's participation in the IT workforce. The theory enables conceptualising the relation between gender and IT at two different levels; one, treats women at group level of analysis (i.e., gender), and the second one treats women at an individual level of analysis (women as individuals). The individual differences theory of gender and IT inhibits the middle ground between the essentialist and social constructivist perspectives, through investigating the combination of personal (bio-psychological) characteristics and environmental (societal and cultural) influences in order to understand the participation of women in the IT workforce.

Focusing on the topic of women's career advancement in the IT field, the researcher found a small but growing body of literature. The earlier studies have proposed certain factors that can act as barriers or facilitators to women's career advancement in the IT field, however the impact of each of these factors need to be examined, tested and measured in further research over a number of conditions like different women in different career stages, workplaces and/or cultures. In this study, the researcher focused on understanding the influential factors on women's IT

career advancement to the middle and high managerial positions in the IT field within the context of Bahrain. None of the reviewed studies was conducted in Bahrain or in the MENA region; however all of them were conducted in dissimilar context in terms of the culture, economic and situation of the IT sector.

In order to explore and understand the factors influence the IT career advancement of women in this study, the qualitative interview methodology and both of the interpretive and critical epistemology were employed to design the research. The individual differences theory of gender and IT (Trauth, 2002, 2006) was used to guide the data collection and analysis in this study. The researcher has collected the data by conducting semi-structured interviews with women at the middle and upper managerial level in the IT field in governmental, semi-governmental or private organisations in the Kingdom of Bahrain. The researcher attempted to explore the factors that influence women's career advancement in the IT field grounded in the views of these women using the constructive grounded theory analysis (Charmaz, 2006) to analyse the collected data.

The research findings were internally validated by member checks, where a summary of findings was sent to every participant woman in this study, and they were asked to provide feedback if any. None of the participants have provided a feedback that needs a change in the results. Also, the research findings were externally validated through conducting multiple case interviews, and viewing and discussing them in terms of the existing theory and literatures in women and IT.

The collected data answers the three research questions through four major themes identified in the data analysis: individual characteristics, organisational context, IT work field, and work-life conflict. Each of these themes were discussed through their sub-themes that existed within them. The subthemes identified in the individual characteristics theme were: (a) level of performance and productivity, (b) work competencies, (c) commitment and motivation to the organisation, (d) determination, challenge and ambition, and (e) the level of interests in the IT work. The subthemes identified in the organisational context theme were: (a) management support, (b) relation with work peers, (c) training, and (d) organisation structure and rules. The subthemes identified in the IT work theme were: (a) understanding the IT role, (b) cultural impact on women in the IT field, and (c) IT field opportunities and challenges. The subthemes identified in

the work-life balance theme were: (a) the family role and (b) family support. The first research question, which aims to explore the factors that hinder or facilitate the career advancement to upper managerial levels of women in the IT field in Bahrain, was answered by identifying these main themes grounded in the conducted interviews.

Research question two and three, which aim to know how these identified factors influence women's IT career advancement to upper managerial levels, and how women have faced factors that have hindered their career advancement, were answered by presenting in detail the influence of each identified factor and the discussion in chapter five. In summary, women in this study have provided rich descriptions of their career stories, which revealed a number of factors that have influenced their career advancement:

7.2.1 The Individual Characteristics

The analysis of data has shown that women in this study have some common individual factors that have facilitated or limited their career advancement:

- They have a high level of work performance and productivity specifically during the first years of their career, which have facilitated their career advancement. All women in this study have significant work achievements during the first years of their career, like building or developing important information systems in the organisation that enabled them to prove their high work abilities and build a professional image and reputation at work. The data analysis has shown that the first line manager or the management team have played a significant role in providing opportunities to the women in this study to show their capabilities and build their professional reputation at work specially during the first years of their career. Therefore, the level of performance and productivity was significantly linked with the support of the first-line manager and/or top management and the management team's level of understanding the role of IT. These findings are in agreement with Igarria & Baroudi's (1995) findings which showed that the subordinate's job performance plays such a prominent role in forming opinions about the subordinate's advancement prospects.
- They have the necessary competencies for IT management which have enhanced their career advancement, such as team management, leadership, project management,

planning, analysis, communication and problem solving. These findings are in agreement with Igbaria & Baroudi's (1995) findings which showed that work competencies play a critical role in the promotion process of the employee in the IT field. Also, they are in agreement with the findings of Wentling & Thomas (2007) and Webster (2006) which showed that solely having a technical knowledge was not enough for advancing in the IT field, but a management knowledge (e.g., finance, management and business) and a range of skills (e.g., communication and other interpersonal skills) are required to assist in an IT career. The findings are also in agreement with the findings of Jacob's (2006) study, which showed women technology professionals possess diverse and multiple skill sets that enabled them to successfully work in their field. These skills are categorized into two types i.e. core and secondary skills. Jacob (2006, p.1100-1101) describes the core skills as 'they are acquired through intensive technical training. Core skills are specialized expertise in the area of software, hardware, telecommunications, network, server, telecommunications, security, and web services'. Whereas the 'secondary skills comprise the rest of the other skill categories-creative expression, communication, mental creative, leadership/management, physical, and humanitarian skills. Other secondary skills come about through interaction with the project team and intellectual collaboration' (Jacob 2006, p. 1101). Jacob (2006) believes that to excel and succeed at work and response to the organisational and industry change, women in IT are required to acquire a diverse skill sets in addition to their conventional technical skills.

- They are highly committed and motivated to every organisation they have worked for. They have a high sense of responsibility toward their work and organisations. They like their work and organisations, and consider their job as an integral part of their life. Their strong commitment to their work and organisation has played a role in achieving a balance between their career and family responsibilities as shown in the result chapter.
- They have a strong desire and motivation to develop themselves and their work. They were always motivated to work, learn and understand more to develop their knowledge at work, or to face any work related problem or challenge. Also, they were always proactive and strived to enhance the work systems, work rules and policies, and the level of performance of their organisations. This is consistent with the findings of Birbaumer et al (2006, p.6 6), in which was found that women in their study were 'extremely hard

working. They may have a broad range of interest in their private lives but in their work they are much focused, taking extreme pleasure in mastering the intellectual challenges of their discipline’.

- They have strong determination and ambition to achieve their goals at work, which helped them to overcome many types of obstacles they faced in the work, for example, conflicts with work peers, unsupportive first-line manager or team management, socio-cultural values associated with women’s expected behaviour at work. This is consistent with the findings of Birbaumer et al (2006), in which women in their study have ambitions and strive to reach the top and they like the challenges of their work. In addition, women in this study are very ambitious regarding their career advancement whether in the IT field or another work field. Women above 40 in this study were more motivated and optimistic regarding their career advancement than younger counterparts. This is not consistent with the findings of Appelbaum et al., (2011) which found by examining the participants ages that the presence of a glass ceiling is time-bounded, and that the participants aged less than 40 years old were very motivated and optimistic regarding their careers as contrasted to their older counterparts.
- Most married women in this study have shown that they have a low level of personal interests for career advancement in the IT field comparing to the first years in their career, because they believe if they will advance to higher job position, they will not be able to maintain the balance between their family responsibilities and their IT career. Some women showed that they would be able to advance more in their career, in case they leave the IT field and work in another work field where the pace of change is slower than the IT field. They stated that working in the IT field needs long hours of working and ability of coping with the rapid changes in the IT field, which might be conflicted with their family role. This indicates that women’s level of personal interests for career advancement in the IT field is linked with the work-life conflict and the IT work field characteristics. These findings are consistent with the findings of Cross & Linehan (2006), and Wentling & Thomas (2007), in which family responsibilities limit the career aspirations of women in the IT field. However, one married woman in this study showed a high level of interest in advancing in the IT field, as she feels her knowledge and

competency in the IT field are the source of her power and what is behind her career advancement.

7.2.2 The Environmental Influences

The analysis of data has shown that some environmental factors have a significant influence in the career advancement of women in this study. These environmental factors were categorized into three themes; the organisational contexts, the IT work field and the work-life conflict.

7.2.2.1 The Organisational Context

The results have shown that some factors within the work organisations have played an important role in the career advancement of women in this study, these are management support, relations with peers in the work, training, and the structure and rules of the organisation on women's career advancement.

Management support has contributed significantly to the career advancement of women in this study. Most of women's first-line managers were also a member of the top management team of their organisations. The findings showed how the supportive relationship between women and their first-line managers and/or someone of the top management of the organisation, especially at the first years of the career, has facilitated the career advancement of women. The first-line manager and/or someone of the top management team of the organisation helped most women this study to gain significant opportunities in the work and served as a mentor and/or role model for them. They have supported women by assigning them important work projects which built their work experience and enabled them to make significant work achievements. These important work projects allowed women to show and prove their work abilities and built their professional image and reputation at the work. They also have supported women by providing the support, direction, and authorities needed to facilitate their work projects. Also, they have mentored women by providing work guidance and general advices on what to do and by helping them plan their career path. They have helped women by providing opportunities of leadership, scholarship

sponsorship, and training. Mentoring has long been associated with career advancement in business, and recently, it is associated with efforts to increase women in the field of IT (Pfleeger & Mertz, 2006).

Moreover, the feedback of management of the organisation on the work of some women in this study has made them feel more valuable at work and enhanced their work satisfaction commitment. Also, two women in this study showed that the women Directors of their organisations did not only support them, but they also see these women Directors as a role model for them. Both of them have expressed their admiration to the work and personality style of the female Directors of their work organisations, and they liked to see that they are very successful and strong women at work and in life, and at the same time they have a kind and nice personality with people.

These findings are in agreement with Igbaria & Baroudi's (1995) findings, which suggest that organisations are required to promote supportive supervisor-subordinate relationships as they have key benefits to the career development and advancement of women in the IT field. They are also in agreement with the findings Wilson-Kovacs et al., (2006), which showed the importance of the relationship between the employee and the first line manager for the career progression of women in their studies. The findings are also in agreement with the findings of Cross & Linehan (2006) which showed that networking and mentoring are essential to achieve senior management levels, as they provide access to opportunities, political information, visibility, support and upward mobility, increased career satisfaction, and greater respect and recognition.

The findings are in agreement also with the research findings of Morgan & Trauth (2006), which show the importance of the role of social networks in providing access to important individuals, information and resources in the organisation, which may result in an increase in career opportunities, satisfaction and upward mobility. They show that social networks indeed affect how women interact with others on a daily basis in the IT workforce, and good networking skills are essential for success in the career.

They are also in agreement with the findings of Wentling & Thomas (2007, 2009) studies in terms of the significant impact of the mentoring in women's career advancement in the IT field. The study findings of Wentling & Thomas (2007) show that the mentors (a senior level executive, manager, or boss/supervisor) have supported women in their study by providing them job opportunities to demonstrate their skills and abilities, suggested strategies for advancing their careers, believed in their potential, encouraged them to take risks, shared his/her expertise with them, and gave them useful career advice. Also, the findings are in agreement with the findings of Cross & Linehan (2006) in which having a mentor is useful for building women's self-confidence and provide them psychological support.

However, two women in this study have shown how a weak and damaged relationship with the first-line manager had a negative impact on them in the work. This finding supports Ahuja's (2002) proposition which proposes that lack of mentors will negatively influence women's career advancement in the field of IT. One women showed that although her first-line manager saw the important work achievements she has achieved with guidance and mentoring of some supervisor in the IT team, he didn't personally pay any attention to her work capabilities and skills, and he did not give any importance to her ideas and suggestions for work improvement after the supervisor has left the work. Since the beginning of her career she saw him as a very religious man who avoided making direct relationship and contact with her or any other female at work. The other woman has also showed the problems she has faced after someone of the IT team has worked to damage the good supportive relationship between her and her first-line manager. This lack of supportive work relationship with their first-line managers has affected on their productivity and performance and limited the opportunities they could have gained at work. Moreover, losing the support of their first-line managers or supervisor which they used to have earlier has made them feel less satisfied, respected and recognised at work. Therefore, both women have decided to join other work organisations, and this can be a strategy to be used by women who lack management support at work. Accordingly, the level of performance and productivity of women in this study was significantly linked with the support of the first-line manager and/or top management and its related opportunities at work.

The analysis of data has shown the impact of work peers in the career advancement of some women in this study. Some women believe their work peers had a positive impact as they were very friendly and supportive and served as mentors or role models for them. Some women believe that the high level of qualifications and skills of their peers in the work team were motivating them to improve their selves in order to be at the same level of competency and skills as their peers. They showed that colleagues in the IT team were also very friendly, cooperative and helpful, and were always willing to share knowledge and experience among them. These findings are in agreement with the research findings of Wentling & Thomas (2009), which showed that the career development of women in their studies have been enhanced by the collaborative and teamwork-oriented aspect of their workplace environment, working together on projects and building close relationships with colleagues. While for other women in this study, their success and achievements at work, and the support they got from their first-line manager or/and the top management, have provoked hostility, jealousy and win-lose competition from some work peers, which have caused painful experiences for these women at work, as shown in the results chapter. The win-lose competition has pushed women to work harder for more successes and achievements at work, and it has strengthened their ability to face the challenges and difficulties in their work. They fought their competitive peers and become cautious and aware of their actions, behaviours and plans. This can be a strategy to be used for women who face competition from some peers in the work. But after a long time of conflict with competitive peers, these two women have changed their work organisation, when they saw the situation became unbearable and emotionally harmful.

The analysis of data has shown that technical and management training and education taken by women in this study, especially during the first years of their career, have enhanced their level of knowledge, productivity and confidence at work, and contributed to building their work experience, which have facilitated their career advancement. Most women in this study have taken highly professional training courses and/or Masters Degree in IT or management. They believe technical training is very important and were helpful in their career. Also, they have pointed to the importance of taking business and management training or education for managerial positions in the IT field. Thus, the training and learning can be seen key strategies used by women in this study to develop their work skills, abilities and knowledge. These

findings are in agreement with the findings of Liu & Wilson (2001), Wentling & Thomas (2007, 2009), and Truath's IDTOGIT. Liu & Wilson (2001) express that women need greater access to specialist or advance training in management, and technical skills which help to boost their confidence. Wentling & Thomas (2007) and (2009) found that education was one of the most important factors to career progression of women in their studies, and they are of view that women who aspire long-term success in the IT field need to attain adequate technical skills and knowledge through training and learning. These findings about training are not consistent with the findings of Xian & Woodhams (2008) and the proposition of Ahuja (2002), in which training are used to overcome cultural values as women in the study of Xian & Woodhams (2008), or to overcome social expectations as proposed in Ahuja's (2002) model. The study findings are also in agreement with Jacob's (2006) findings, in which successful women in IT crave their niche and build a reputation for themselves during the initial 1-3 years of the work experience based on solid technical core skills. These skills are usually acquired through professional certification, licensure, advanced degrees, joining professional organisations. During the next 4-10 years of their career, they should extend their specialized skills to include diverse managerial and complementary general skills, such as analytical, financial, marketing planning, project management, decision making, and people skills (Jacob, 2006).

The data analysis showed that the organisational structure and work rules of the organisation have influenced the career advancement of some women in this study. Some woman sees that the merger of her work organisation with another work organisations and the demerger later have hindered her career advancement. During the merger and demerger phase, she was unable to identify career plans and goals in the work, because she lacked information about the changes in the organisational structure, strategies, work laws, work process and the used technologies after the post-merger/demerger phase. The uncertainty and ambiguity about what will happen in the organisation after the merger and demerger phase have led her to change her work to join another work organisation. These findings are in agreement with the proposition of Ahuja (2002) which proposes that the institutional structures will negatively influence women's career advancement in the field of IT. However, the findings of this study also showed that the changes in the institutional structures have positively influence the career advancement of some women in this study. This woman saw that the merger of her organisation with other work organisations have

created the opportunity for career advancement. She saw that the position of IT in the organisational chart, before the merger, restricted the opportunities and work achievements of the IT team. The organisational changes after the merger have corrected the position of the IT in the organisational structure, where the IT became a department rather than a section under some other operational department. This change enabled the IT management to have a budget for the IT department, and to control the IT strategies, policies and rules in the organisation, and to make work projects and improvement without control of other department, thus the IT team can have more opportunities and make more important achievements in the work.

Also, the data analysis showed that some work laws of some organisation have hindered the career advancement of some women in this study. Specifically the laws that say that senior managerial positions in the organisation must be assigned to people with a certain educational level. Two women worked in different educational organisations where their work laws say that the position of the head of IT must be occupied by a PhD holder. This work law has constituted a barrier to women's career advancement inside the organisation, as they don't have PhD degree.

7.2.2.2 The IT Work Field

The analysis of data revealed that the level of understanding of the role of IT in the organisation, cultural impact on women in the IT field, and the opportunities and challenges of the IT field, play a role in the career advancement of women in the IT field in Bahrain.

The analysis of data has shown that the level of understanding of the role of IT in the organisation has played an important role in the career advancement of women in this study. Women showed that the level of understanding the potential of IT for improving the work efficiency and productivity was an important factor in the work organisations they have worked for. Some women see that understanding top management and people of the organisation well has the potential in improving the work performance and establishing new business services, which have led to opportunities and support in the work to make important achievements, and thus prove their abilities and skills at work. Also, some women see that the lack of enough knowledge and understanding of the management and people of the organisation to the IT

potential and role was a problem preventing them from having the opportunities to make significant achievements and show their skills and abilities and what they can do at work. This indicates the opportunities for making work achievements and the career advancement in the IT field are linked to the level of understanding the role and potential of IT in the organisation.

The data analysis presented many evidences of how the cultural expectations of women can impact women's role, choices and opportunities in the IT field. The cultural expectations of women in the IT field have influenced women's career choices and formed gender segregation in IT jobs in Bahrain. All women in this study believe that women are expected to only work in certain IT jobs, like software administration and development, graphic design, programming, database administration, multimedia, etc. They see that the characteristics of this kind of IT jobs are compatible with the women's abilities and expected behaviours at work, in contrast with the networking, computer engineering and IT support jobs, which are more compatible with men and require working for long hours, coming to the work at the night, and physical work and movements like cabling, carrying machines, checking or fixing hardware under the floor or in the ceiling. Women believe that these kinds of tasks are incompatible with the abilities and femininity of women, and there should be men's job and women's job in the IT field. These findings are not consistent with the findings of Liu & Wilson (2001), in which women in their study believe that in order to empower women in the IT field, there is a need to change in the traditional thinking toward women working in the IT which makes some jobs for men and some job for women.

The data analysis presented several issues faced by women in this study that caused inconsistency between the cultural expectations about women in the work in Bahrain and some of the characteristics and opportunities of the IT field, and how they have faced and overcome these issues. The religion and cultural/social expectations about women in Bahrain have an impact in women's career advancement in the IT field in several ways. They play a significant role in gendering the IT occupations in Bahrain, and shaping the career paths for women and men work in IT. According to Adam (2002), religion is one of the important determinants of social behaviours. Women in this study provided many evidences on the inconsistency between the nature of the IT work and the social expectations about women. The nature of the IT work

needs long working hours in most of the days, and an ability to get to and from the work easily at any time. In Bahrain, woman is not expected to stay at work after the end of the work time without informing her spouse or family, and also not to go outside at night unless she is with some man from her family. Therefore, employers and IT managers avoid assigning women, especially who have children, critical and important IT jobs. For example, a woman stated that she was not given the acting role of the head of IT when he was not available at work, because they assume she will not be able to manage the work after working hours, even though she has explained to them that her home is near the workplace and she can come to work for any problem and at any time. Sometimes, important opportunities for work, training, and education in the IT field are missed because of the cultural expectations and rules about women's travel. Women in Bahrain are expected not travel alone unless her spouse or family agreed, as in Islam women are not allowed to travel without Mahram. However, there is no consensus that women are forbidden to travel alone without Mahram. Some schools of law do not allow the woman to travel alone without Mahram, and some other schools of law allow her to travel with a large group of women or people even if her Mahram will not be present. While some other school of laws allow women to travel alone in some certain situations like for education, treatment, etc., due to the change of the circumstances of time and place. One woman was not given the opportunity by her first-manager for some training course outside Bahrain just like all of her male colleagues, even though that training was very essential for her work, because her first-line manager has assumed that her family will not agree to let her travel alone. Also, other women in this study refused to do any work mission or attended any events outside Bahrain if their husbands could not travel with them because they believe it is Haram in Islam.

The managerial and critical IT careers need a lot of interaction, work, and meetings with people inside or outside the organisation and with IT vendors. In Bahrain, women are expected to keep interaction with men at a modest level in the social context. Thus, women working in IT are not assigned to job positions that need a lot of interaction with men inside and outside the organisation. For example, some women showed that some people in their organisation don't like to interact or deal with women when they have a technical problem or need some IT assistance. Similarly, one woman in this study has mentioned that girls at the university where she worked are very conservative as most of them are from the GCC countries, thus they like to

deal with women at the IT helpdesk for any technical problem or help instead of men. She believes this cultural rule have contributed to her achievement to the position of head of IT assistance and support at this university.

In Bahrain, woman is not expected to be alone in any meeting with a man or a group of men, as Islam forbid the gathering of a woman alone with a man (or many men) who are non-Mahram. Also, Islam discourages the free mingling between men and women in any place. This cultural rule has led one of the women, after she became the head of IT, to make some changes in the offices of the IT department, by installing new windows in her office, and in several walls and doors in the offices of the department, just to have work meetings with men and to make herself, and her spouse feel comfortable about her working with men. Some women also have stated that sometimes they feel that the male heads of the organisation have their informal meetings at work, and unintentionally excluded them from these meetings because they are women. Another woman also sees that travelling for work with a group of only men was a problem for her, so she avoided any business trips with a team of only men even if her spouse is with her.

In Bahrain, the culture imposes the shape and boundaries of the relationship between men and women at work and society. One of the women stated that she saw how the strong relationship between her male colleague and her first-line manager has facilitated his career advancement. They were very close at work, and also friends outside work, they meet each other in coffee shops, clubs and malls. She stated that the cultural boundaries of the relationship between the man and woman prevented making such a relationship with the first-line manager which she believes it play an important role in the career advancement of everyone. The findings are consistent with the findings of the study of Xian & Woodhams (2008) of a group of successful women in the Chinese IT industry, which they found that women were not only required to deal with the socially-bound values systems that affect the career activity of women at work, but they also have to deal with potential conflict within their own internal culturally-bound value.

As men constitute the majority of people heading the IT departments and people working in the IT vendors in Bahrain, women are not expected to be heads of the IT department. Some women showed that some heads of departments of their organisation did not deal and work seriously

with them at the beginning after they became IT heads. One of the women showed that also some teams of some IT vendors did not deal and work seriously with her during the first meetings with them. Therefore, they have worked to show people that they are serious about the work and fully knowledgeable of the IT work and management. This finding is in agreement with the findings of Allen, et al., (2006), which found that one of the most central perceived barriers to promotion of women in the IT field was linked to lack of respect which means not paying attention to and taking another person seriously.

Although the stories of women in this study have provided many evidences of gender bias in the IT culture, they feel men and women are equal in the IT work, and women can achieve IT leadership positions just as men, through career paths available for women in the IT field in Bahrain. This result is in agreement with the findings of Demaiter & Adams (2009), which show that although women in their study have provided evidence of the masculine culture in IT, they acknowledged that gender was not a barrier for them and denied any awareness of gender-related problems. Demaiter & Adams (2009) also believe that such an attitude of denying the significance of gender in the organisational culture can be a strategy used for facilitating the ability of women to work like men in the IT field and their interaction with the men at work.

In summary, the cultural expectations about women in Bahrain play a key role in women's career advancement in the IT field in several ways. They play a significant role in gendering the IT occupations in Bahrain, and shaping the career paths for women and men work in IT. Men are employed in IT managerial and critical jobs, while women are employed in less critical IT occupations. They also play an important role in women's behaviour, shaping the relationships between them and their first-line manager, management and men at work. The stories of women in this study showed how important these relationships are in gaining access, support and opportunities at work. Women in this study have faced distinct cultural issues during their career in different conditions, as presented in detail in chapter four. They faced cultural issues and obstacles that every woman experiences in IT. However, they believe that women in IT have to do what men can do at work. They have coped with the cultural issues they have faced and seriously resisted them. They have worked to show and prove for their first-line managers and management of their organisations that the cultural expectations of women are not a problem for

them at work, and that they are able to do their work responsibilities as men despite these cultural rules and expectations. These findings point to the inter-relation between the level of work performance and productivity, the management support, opportunities and the cultural impact on women in the IT field.

Most women in this study see that the IT field in Bahrain has many job opportunities and chances for career advancement for IT people, especially in certain IT occupational fields which are required in the job market. The ICT sector is a dynamic field with continuous changes which are tightly connected to the development and the growing of new jobs and new professional areas (Birbaumer et al., 2006).

However, the gendered culture in the IT field affects the opportunities of women in the IT field. They believe that boys can find more opportunities in the IT field than girls, and the girl in the IT field has to spend more effort than the boy in seizing the opportunities to show and prove her abilities and skills in the work, which enhances the career advancement. These findings are in agreement with the findings of Demaiter et al., (2009) in which gendered organisational cultures limit women's career development and opportunities for advancement.

Moreover, women in this study pointed to a number of challenges that the IT field is facing in Bahrain, and might affect the career advancement opportunities of Bahraini IT people. They believe that it has not become easy for the Bahraini IT people in the public sector to find opportunities for career advancement, in light of a number of factors which are the present trend of IT outsourcing and using off-the-shelf software, the vast number of cheap foreign IT labour in Bahrain, and some challenges faced by IT in the public sector in Bahrain. With the existing abundance of IT vendors in Bahrain, which depend mainly on the foreign labour, and the off-the-shelf software in the market, the IT outsourcing trend has been continuously growing over the last years in Bahrain. They see that the public organisations and IT heads prefer to assign the IT support, critical IT operations and major projects to IT vendors which have a big team of experts inside and outside Bahrain and willing to work 24/7 at a low cost, than using the IT team of the organisation itself. Therefore, this can limit the opportunities for the Bahraini IT people in the public sector to have high work involvement, show their work abilities and skills, and make

significant work achievements that enhance their career advancement. The trend of offshore outsourcing of the IS/IT workers began in 1970s by computer hardware manufacturers in high-wage countries to low-wage countries, then the offshore work gradually grew to software development and then to information systems processing by the 2000s (Ferratt & Trauth, 2014). According to Ferratt & Trauth (2014), in the past 30 years the outsource decision of “buy” or hire people with the needed qualifications or to outsource to a firm which could provide the needed service, has become more complex as the offshore outsourcing has produced significant issues related to human resources issues, differences in national IT infrastructure, the role of IT in nation’s economy, public policies related to IT use, and cultural differences.

Moreover, women in this study have pointed to a number of challenges faced in the public sector that can limit the significant opportunities for career development and advancement in the IT at the public sector. These were the inability of the public sector to cope with the rapid information technology changes, low level of competencies of the new IT graduates, shortage of IT specialist skills, and the switch of the well-qualified people from the public to the private sector where the wages are higher, the privileges are more attractive, and the significant opportunities for career advancement are more in the private sector than the public sector.

7.2.2.3 The Work-Life Balance

The analysis of data has shown how the views of women with children in this study to their work, and the support they get from their family, played an important role in their career advancement. Women in this study like their work and they are keen to do their best in their work responsibilities. They see that their job responsibilities are one of the most important responsibilities in their life, and they perceive their work as part of their life that is not less important than the family part. The career for them is a source of feeling of self-worth, self-satisfaction, self-pride, and high status in their society. Women with children in this study do not see that their family responsibilities to the children and spouse are negatively affecting their career or vice versa. However, they believe that their career advancement has positive rewards on their family. They stated that their parents, spouses, or children feel proud to see them successful in their career. Also, their children look at them as a role model for many things in

their lives, such as being hard working students in school and university, and planning their education and career. Moreover, one of the women pointed that her career advancement is a way for improving the standards of living of her children at present and future. This attitude toward the job can be seen as a strategy used by women in this study that facilitated their career advancement. These findings are in agreement with the findings of Aaltio & Huang (2007) in which the Chinese women managers in their study described the career as an arena for self-development and they saw the career as a way for economic independence, high social status and self-fulfilment that could not to be found in the family.

Although they believe that they have achieved a good balanced between their work and personal life, the data analysis revealed many evidence showing how their career conflicted with their family responsibilities or personal life. As IT work requires long hours of working and continuous reading and learning, they are working long hours during most days, and they work at home or sometimes during the weekends. They showed that their career takes a big part of their life, which sometimes conflicted with their personal life and family responsibilities to their parents. For example, sometimes they cannot travel on holiday with their family, or join their families in some events when their work needs them. Also, the work performance of some women was dramatically impacted on when one of their parents was sick. Generally, women in this study showed that they give the work a higher priority than their family and personal life, especially when the work needs that, unless some member of their family really needs them. For example, they are very rarely taking days off or leaving the work early unless one of their children or parents is sick. This harmonisation between work and family role, can be considered as a strategy used by the women in this study that has enhanced their career advancement.

These findings are in agreement with the findings of Demaiter et al., (2009), in which although women (work in Canada) in their study believe that the gender is irrelevant to career advancement, they have shown evidence of the negative impact of the conflict between the family role and work role. Also they are in agreement with the findings of Aaltio & Huang (2007) in which the Chinese women managers in their study displayed that the work and career development are perceived more important for them than the family and personal life, unless there were negative aspects to their personal life. These findings are also in agreement with the

findings of Xian & Woodhams (2008) and Aaltio & Huang (2007), in which women in their studies accepted the specific characteristics of the IT industry which require working long hours and coping with the rapid changes, and also they managed the combination of work and home. They are also in agreement with the findings of Birbaumer et al., (2006, p. 66), in which the conditions for being successful- a hierarchical structure, a competitive environment, and long working hours – are accepted. For example, one woman in their study describes that ‘work had become very much a life style. The definition of her identity included late working hours and socialisation over a drink’.

Also, women in this study believe that the woman herself rather than the work policies is responsible for finding the support and help she needs to manage work and family responsibilities. Most of the married women, when they were at the reproductive stage, have not taken work leaves during their pregnancies, and they carried on working hard until the last day of their pregnancy. Moreover, they did not to take full maternity leave and did not take the daily break for breastfeeding every day. They see that some work laws and policies for mothers related to the maternity leave and breastfeeding hinder the work sometimes, and affects women’s career advancement in the IT field negatively. They have provided examples about the negative impact of taking long work leaves during pregnancy and after giving birth, and taking the daily two-hour break for breastfeeding by some women in their teams. Furthermore, they see that such issues associated with the use of mothers’ rules and policies create stereotyping about women, that make the employers or IT heads avoid employing women in critical IT job positions which need presence and readiness for the work at any time. Women’s attitude toward the way of using the policies for mothers at work can be seen as a strategy used by women in this study to facilitate their career advancement. These findings are in agreement with the findings of Aaltio & Huang (2007), in which women managers in their study seldom turned to their work organisations for support however they thought they themselves should solve any work-family conflicts. However, these findings are not in agreement with the findings of Cross & Linehan (2006) in which women in their study believe that working long hours is a barrier to their progression due to the lack of the family support policies.

The data analysis showed that most women with children in this study have strong support from their mothers, mothers-in law, husbands or nannies in taking care of their children when they are at the work. They believe this support was very important for them, if they did not have it from the first years of their career, they would have not been to continue to work. These findings are in agreement with the findings of Aaltio & Huang (2007), in which women in their study managed the work-life conflict by seeking support from parents or parents-in-law, or employing a helper to fill the roles of nanny and shared the family responsibilities with their husband. One woman in this study has shown that she lacks the moral support of her husband for her career advancement, and this has limited the level of her career aspirations and her opportunities at work for training and learning.

It was evident from the data analysis that the importance of maintaining the family-work balance limits women's interest for career advancement in the IT field. Most married women in this study have shown that they have fears of being unable to give the children or family as much attention as their work if they have advanced to a higher IT job position. They think that if they will advance more in their career in the IT field, they will not be able to maintain the balance between their family and work responsibilities as it will need more effort and work hours every day. This indicates to the inter-relation between the level of interests in advancing in the IT field and the work-life conflict and the IT career characteristics. These findings support the propositions of Ahuja (2002) in which that work-family conflict will negatively influence womens' persistence in IT careers. However, one married woman in this study showed a high level of interest in advancing in the IT field, as she thinks her knowledge and competency in IT field is a main facilitator of her career advancement. These findings are consistent with the findings of Cross & Linehan (2006), in which they found that women in their study were not dismissing their career aspirations, rather attempting to have balance between achieving a particular quality of life and career advancement. They are also consistent with the findings of Wentling & Thomas (2007), in which that the executive women in their study indicated that continuous, life-long learning and continuously striving for success was a major factor in their career development, however, the work-life balance was one of the challenges they have to encounter in their career path.

7.3 Recommendations

The study offers insights into how to improve women's career advancement in the IT field. Based on the findings and recommendations provided by women in this study for women in the IT field, the researcher recommends that work organisations, educational organisations, the Supreme Council of Women, legislative bodies, women's movement organisations and women's associations in Bahrain incorporate their effort to take the following actions in order to promote women's career advancement in the IT field:

1. Provide women with the support and guidance they need for their career advancement and facing the challenges in the IT field, through the following:

- Communicate the importance of building strong relationship with the first-line manager and the top management team.
- Communicate the importance of making major work achievements or developments and being proactive in the work environment, especially during the first years of one's career.
- Emphasise the importance of obtaining IT and management skills needed for their work, the commitment to the work and organisation.
- Emphasise the importance of motivation to the work, and the determination to accomplish the tasks and achieve goals in the work.
- Emphasise the importance of updating knowledge and taking the necessary training for keeping up with the latest IT changes and trends related to their work.
- Provide them with the opportunities to communicate with successful women managers in the IT field in Bahrain, who can serve as role models or mentors. Women can learn from their experience and know how they have achieved high job positions, what issues they have faced and what their strategies to overcome these issues.
- Emphasise the importance of balancing between their family role and work role. Again, providing the opportunities to communicate with successful women managers in the IT field that can be helpful in learning from their experiences how to achieve and maintain the work-life balance.
- Provide career guidance and advice for IT students at universities based on the IT employment information and the available IT job opportunities in Bahrain. Girls should

be encouraged to aim for higher-level jobs and to pursue IT careers that suit their qualifications.

- Emphasise the importance of choosing certain IT disciplines (e.g. Software development, database, networking, security, and etc.), planning for their career path and the training they will need to improve themselves in this discipline, rather than being in dispersion among many IT disciplines.
- Emphasise the importance of facing any gender stereotyping that hinders their work, opportunities and career progression to higher levels in the IT field.

2. Enhance the work environment and systems to improve the opportunities for advancement of women in the IT field in Bahrain, through the following:

- Emphasise the importance of raising the senior IT managers and leaders' awareness of their important role and impact on women's career advancement in the IT field. As the IT is a male-dominated field, the first-line managers play an important role in women's career by giving them the opportunities, training, mentoring and support for making work achievements and developments that facilitate their career advancements. It is very important that the IT first-line and senior managers give the talented women important work opportunities and challenges, build strong mentoring relationship with them, and provide them coaching, guidance and personal support at work. In addition, the IT first-line and senior managers have to be aware not to let the gender stereotypes affect their decisions. Gender stereotypes make some IT managers assume that women are not ambitious in the IT field, or not willing to manage some IT jobs or project, which underestimate the work capabilities of women in the IT field and influenced their career advancement.
- Emphasise the importance of providing periodic training for women in the IT career, in order to help them to be up-to-date with the technological changes related to their work, and to reduce the influence of the difficulty of coping with the rapid technological change.
- Increase awareness about the effects of gender composition of people in the IT field, which is a result of cultural expected behaviours for genders, on women's role, behaviours, attitudes, relations, opportunities and advancement in the IT field. Emphasize

to the work organisation the importance of addressing and challenging the negative stereotypical perceptions of women in the IT work, and paying attention to the behaviours, cultural assumptions and norms in the organisational environment that resulted from the incorrect way of understanding some religious and cultural rules and work against women's inclusion, opportunities and career advancement in the IT field.

- Increase the importance of improving programmes, policies and systems to maintain a balanced gender ratio at all levels in the IT field.

7.4 Summary and Conclusion

This chapter summarised the study findings according to the research questions. As with any interpretive research, bias and subjectivity of the researcher is possible in the research process. Therefore, in this chapter the researcher discussed the findings in light of the existing theory and literature, which were provided in chapter two, to increase the credibility and generalizability of the research.

The study findings offered insights into how to improve women's career advancement in the IT field. Accordingly, the researcher provided in this chapter a number of recommendations to the stakeholders and decision makers in Bahrain for promoting women's career advancement in the IT field. Recommendations focused on how to provide women with the support and guidance they need for their career advancement to overcome the challenges in the IT field, and how to enhance the work environment and systems to improve the opportunities for advancement of women in the IT field in Bahrain.

The next chapter concludes the thesis, provides contribution and limitations of the study, role of the researcher, and recommendations for future studies in women and IT careers in Bahrain are provided in the next chapter.

Chapter Eight: Contribution to knowledge, Future Work and Conclusion

8.1 Introduction

This chapter aims to provide the main conclusions of the study. The chapter starts with presenting the contribution to knowledge, limitations of the study, and makes recommendations for future studies. Then the chapter gives the final conclusion of the study.

This study has addressed the topic of women's underrepresentation in the IT management positions in Bahrain. The purpose of the study was to gain a better understanding of the factors that hinder or facilitate Bahraini women in their career advancement to upper managerial levels in the IT field. The research questions underpinning this study were:

1. What are the factors that hinder or facilitate the career advancement to upper managerial levels of women in the IT field in Bahrain?
2. How do those factors influence the career advancement to upper managerial levels of senior IT women managers in Bahrain?
3. How have senior IT women managers in Bahrain overcome the factors that hinder their career advancement?

8.2 Contribution to Knowledge

This study makes a contribution to the gender and IT research, in general, and to the literature of gender and IT within GCC context. It also confirmed some previous research findings on women's career advancement in IT. In addition, it also contributed to the literature of women and management and leadership in Bahrain. It has filled the research gap in the literature of women's career advancement in the IT field in general, and the career advancement of women in the IT field in Bahrain, in particular.

The study represents a substantial contribution to knowledge. There are few studies that address the factors influencing women's career advancement in the IT field. The literature review chapter offers an extensive review of the earlier studies of women's career advancement in the IT field focusing on the influential factors. Also, this study contributes to our understanding of how the factors of Trauth's individual differences of gender and IT theory, which was used as a conceptual framework in this study, are influencing women's participation in the IT field. The analysis also contributes to our understanding of how some social and structural determinants of women's career choice, persistence and advancement in IT of Ahuja's (2002) model, like mentoring, informal structures and organisational structures can affect women's advancement in the IT field.

The study represents an original contribution to knowledge. It fills the research gap in the gender and IT field literature of the Kingdom of Bahrain through providing an understanding of the factors influence women in IT careers in Bahrain. The study contributes to knowledge through its emphasis on listening to the voice of Bahraini women managers in the IT field, through giving them the opportunity to describe their work experience. The study presents analysis of interviews with the ten Bahraini women managers in the IT field, focusing on the factors that have hindered or facilitated their career advancement to upper managerial levels. The analysis of the study offers a model for understanding the career advancement of women in the IT field in Bahrain, and helps the decisions and policies makers in making strategies for enhancing Bahraini women's participation and career advancement in IT.

The study contributes to our understanding of why some Bahraini women persisted and advanced in IT careers and others did not and changed to other work areas, The analysis provides rich details of how their individual characteristics and the contextual influences have influenced the career of the women in this study, and identifies the strategies they used to overcome the obstacles they have faced at work. Therefore, any woman in the IT field who seek to be a leader at work will have much to understand and learn from the rich descriptions that women in this study have provided about their work experience.

Also, this study makes a contribution to the gender and IT field literature in the Eastern context through providing an understanding of the influential factors in women's career advancement in IT within the contexts of an Eastern, Arabic and Islamic country which reflects different socio-cultural and economic factors from the Western context. In addition, this study makes a contribution to the research of women's underrepresentation in management and career advancement in Bahrain and the MENA region. There are few studies that address the factors influencing women's career advancement in the IT field in the MENA region. The study showed that the factors that affect women's career advancement in the IT field in Bahrain are not too different from the factors affecting women in other countries like the US and UK, but the differences lie in the impact of culture, the work laws and policies related to woman, and the opportunities in the IT field in Bahrain.

The findings of the study raised the importance of considering some important opportunities and challenges in the IT field in Bahrain:

- Examining and improving the quality of the IT education and learning in public and private universities in Bahrain, and the need to pay better attention to the level and type of qualifications and skills of IT graduates.
- Improving IT professional training as there is a shortage of IT specialist skills in Bahrain.
- Investigating the impact of outsourcing IT in public and private originations in Bahrain to IT vendors on the production, employment structure, and future of the IT sector in Bahrain.
- Investigating the causes and impact of the reluctance of qualified IT people in Bahrain, and especially men, to remain in the public sector, where they see that the IT jobs in the private sector are more attractive than in the public sector.

8.3 Limitations of this Study

This study has some limitations that need to be noted:

- Lack of previous studies covering the issue of women's in the IT careers in Bahrain, make it difficult for the researcher to find secondary data that could have been used to address the

research problem of the study, and to make comparison between the findings of the study with findings of earlier studies conducted in Bahrain.

- Lack of published data related to IT employment in Bahrain, like number of males and females in the IT colleges and IT careers in the public and private sector. Such data was necessary to serve the purpose of this study; therefore the researcher relied mainly on collecting it from certain organisations as mentioned in chapter three. However, the researcher could not update the data after three years from the same organisations, because the two persons who have helped in getting the data from the CSB have changed their jobs, and made it very difficult to have access to up-to-date data.

- This study was designed to examine only the experiences of women in IT managerial positions in Bahrain. In order to gain a comprehensive understanding of the factors affecting women's career advancement in the IT career, the experiences of women at lower IT job positions need to be investigated as well. This may call for further studies targeting women in different career stages in the IT field.

- As this study was designed to collect data from a sample of women IT managers in Bahrain, it was difficult to find the participants and their contact details from some official source. Also it was difficult to contact and make appointments with some of them, especially the women in the higher-ranking positions due to work load. Moreover, the richness of data obtained through the interviews in this study depended significantly on the level of responses to the questions of the interview which varied between one woman to another and one question to another. Some women have described deeply their personal feelings and views, and have provided rich descriptions about their experience in the work, while some women were very careful and gave conservative answers, and expressed briefly their points of view during the interviews. Moreover, the small number of cases studied in the research limit the generalisability of the findings as mentioned in chapter three. The selection of cases were limited to those women at the middle and upper managerial level in the IT field in Bahrain, which limit the generalisability to other women in different environments.

- As with any research employs interpretive approach, the experience and prior knowledge of the researcher is an integral element of the research. Prior knowledge and experience of the researcher provided a background guiding the research design, interview questions and analysis,

allowed for probing questions and enhanced searching for deeper meanings within women's responses. The researcher worked in an IT job since 2005, and her BSc was in information systems management from university of Bahrain, and her MSc was in IT also. The researcher is aware of the issues faced by women work in the IT field in Bahrain. Thus, the familiarity of the researcher with the IT field has helped in probing interview questions, drawing out vital data from the women who participated in the study, and constructing and interpreting their data.

However, although the researcher's expertise is important in any interpretive research, it requires awareness and to be cautiously utilized. Researchers in interpretive research are the primary data collection instrument, thus, unintentional bias or subjectivity of the researcher is possible in any phase of research process, for example in data collection, interpreting and reconstructing, and shaping the findings. Researcher's subjectivity cannot be separated from interpretations made of the data (Guba & Lincoln, 1994).

Therefore, to minimize the bias of the researcher of this study, the researcher made every effort to challenge her subjectivity and to remain objective. In order to minimize the influence of the bias in this study, the researcher used open-ended questions to allow women to tell their stories in their own words and the free flow of their revelations and insights. Member checking was also employed after all data were analysed and interpreted. The researcher created a summary of the thematic analysis of the data and the findings and sent it to every woman who participated in the study and gave them the opportunity to review and offer suggestions for greater clarity or provide any objection.

- The researcher brought to this study a commitment to help women realize and understand challenges encountered and strategies for career advancement in the IT field, based on viewpoints of successful women in the IT field. However, the researcher believes that to enhance the understanding of factors impacting career advancement in the IT field, viewpoints of men in the IT should be explored and understood as well, as they represent the majority in the IT management. Men are the key player in the IT workforce in Bahrain, as in other countries as seen in chapter one and two. Thus, understanding men's viewpoints, can help in creating a complete picture of the men's and women's behaviours, issues and challenges related to women, and discovering the opportunities of promoting women in the IT field in Bahrain.

8.4 Further Studies

The study is an original contribution to the body of knowledge by establishing the basis of further studies in women in the IT careers in Bahrain focusing in the career advancement. This, may call for further studies targeting women in different career stages in the IT field and also who quit the IT field, in order to gain a deep understanding of the effect of the factors discovered in the analysis, or exploring other factors that might affect the career advancement of women in the IT field in Bahrain.

The study suggests several issues for further investigation for the most important individual and contextual factors found in this study, in order to explore the tactics and strategies that can be used to improve women's career development in the IT field in Bahrain. The findings encourage further studies in examining the effect of the first-line manager on women's career in the IT field, which contribute in changing the behaviour of managers with women in the IT field. They also encourages further studies in examining the effect of the culture and stereotypes on women in IT in Bahrain, which contribute in changing the behaviour of women and the view of people to women in IT careers. As all women in this study have pointed to the negative impact of the two-hour break for breast-feeding on some women in their work team, there is a call for further studies in examining the effects of the two-hour break for breast-feeding in women's career advancement in the IT field, which was increased in 2005 from one to two hours a day for a two-year period after giving birth.

8.5 Summary and Conclusion

After carrying out the study it is concluded that the number of females in the IT education in Bahrain is high and almost double the males'. However, they are underrepresented in the IT workforce compared to men and especially in the high technical jobs and upper IT managerial positions. It is clear from the findings that the personal characteristics and the environmental influences are vital in determining woman's capability to succeed in the work and advance to higher technical and managerial positions, and face challenges associated with the IT field.

The findings of the study have showed a number of individual factors that have facilitated the career advancement of women in this study. They showed that the high level of work

performance and productivity, especially at the beginning of the career, is a key facilitator for career advancement of women in the IT field. Having the necessary competencies of IT work in a certain specialisation area and management competencies is another facilitator for IT career advancement. Moreover, having a high level of work commitment and motivation to understand and develop the work, and the willingness of self-development and learning, high level of determination, ambition and interest in the IT work are also facilitate the IT career advancement.

Furthermore, the findings of this study have showed a number of contextual factors that can facilitate or hinder the career advancement of women in the IT field. The supportive relation of the first-line manager and/or the top management plays a key role in women's career. The manager serves as a mentor and/or role model, and provides the opportunities for work experience, achievements, important training and etc. In contrast, the lack of such supportive relation between the management and woman, can limit the opportunities for building the work experience and making achievements and thus the career advancement.

The findings also indicated that the relation with the work-peers is an influential factor in women's career advancement as they can be either helpful and mentors, or competitors that hinder the achievement in the work. The study findings have indicated the importance of adequate training to the career advancement in the IT. The professional training and knowledge which have been taken by women at their first job have enhanced their level of experience and productivity, and have enabled them making significant achievement and development in the work. The study findings have also showed that the organisational structure and work rules of the organisations can have an influence in the career advancement. For example, the changing in the organisational chart due to organisations merger and demerger process, and the conditions of holding the managerial position have negatively impacted the career advancement of women in this study.

The study findings have showed that understanding the role of IT in organisations, cultural impact on women in the IT field, and IT field opportunities and challenges have an influence in the career advancement of women in the IT field. The high level of understanding of the top management and people to the role of IT in the work, opens the door to utilise IT in developing

the work process and productivity at an advanced level, hence, this has offered opportunities for women to use their knowledge, making major achievements, and proving their self in the work.

The social culture which is significantly associated with the Islamic religion plays a significant role in women's career advancement in the IT field in Bahrain. Bahraini society is conservative and women who work are not expected to stay or go to the work late at night, have meetings with the male peers and bosses for unnecessary work or outside the work times, travel alone without a man from relatives. Such social expectations of women, influence the behaviours of women at work and the opportunities they can gain in the IT field, which is male-dominated and requires long working hours, willingness to work late nights and weekends, travel for the work or training. Moreover, the gender stereotyping limits the role of women in the IT work as IT occupations are gender segregated. The study findings indicated that women in IT in Bahrain are expected to work in jobs which are seen compatible with what is perceived as the feminine abilities, such as the software administration and development, graphic design, programming, database administration, and multimedia, etc. In contrast, IT jobs such as the networking, computer engineering and IT support jobs, are seen more compatible with men as they require working for long hours, coming to work at night, and physical work and movements like cabling, carrying machines, checking or fixing hardware under the floor or in the ceiling, etc. In addition, the study findings showed that, in Bahrain, the growing tendency of IT services outsourcing especially in the public sector, the growing number of IT vendors, and the high availability and low cost of the Non-Bahraini IT labour, have limited the opportunities of women for work achievements, and thus the career advancement in the IT field.

Finally, the findings of the study showed that the family role of women significantly influence their career advancement in IT, and the support, which women get from their family, plays an important role in the ability of balancing between the family and job responsibilities. Family and motherhood responsibilities, and related issues such as the pregnancy, maternity leave, and two-hour break for breast-feeding, are conflicting with the nature of the IT work, which needs high commitment to the job responsibilities, long full-time working hours, working at homes, and sometimes in the night and weekends, and the willingness of continues reskilling and coping with the changes in the IT field. However, understanding, help and support of parents, spouses,

parent in laws or relatives play an important role in women's willingness and ability of balancing between the family/life and the job responsibilities and the desire of career advancement in the IT field.

In conclusion, women's interviews in this study have revealed a number of insights that can be successful strategies for promoting women's participation in the IT field in Bahrain. Promoting women's participation in the IT field is needed as the IT field is a critical component of the economy and development of every country in the world. Hence, the problem of women's underrepresentation in the IT field needs attention by the government and organisations leaders in Bahrain. Given the absence of data on women in the IT workforce and education in Bahrain, it is critical to collect and analyse such data periodically by stakeholders, in order to be able to track and assess the progress, to adopt targets, and develop strategies for promoting women in IT in Bahrain. Finally, Bahraini women themselves also need to be conscious and aware of the challenges facing women in the IT field in Bahrain and how to respond to them, and to the opportunities for their career development and advancement.

References

- Aaltio, I. (2006a). Managerial careers, gender, and information technology field. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 876-881). Hershey, PA: Idea Group Reference.
- Aaltio, I., & Heilmann, P. (2006). Information and communication technology sector characteristics in Finland – a challenge for women. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 780-785). Hershey, PA: Idea Group Reference.
- Aaltio, I., & Huang, J. (2007). Women managers' careers in information technology in China: high flyers with emotional costs? *Journal of Organisational Change Management*, 20(2), pp. 227-244.
- ACT. (2013). Australian ICT statistical compendium 2013. Retrieved 5 November, 2014, from the Australian Computer Society (ACT) website: https://acs.org.au/__data/assets/pdf_file/0004/28570/Australian-ICT-Statistical-Compendium-2013.pdf
- Adam, A. (2001). Gender, emancipation and critical information systems. In *Proceedings of the European Conference on Information Systems: 27-29 June 2001* (pp.139-147). Bled, Slovenia.
- Adam, A. (2002). Exploring the gender question in critical information systems. *Journal of Information technology*, 17(2), pp.59-67.
- Adam, A., & Richardson, H. (2001). Feminist philosophy and information systems. *Information Systems Frontiers*, 3(2), pp.143-154.
- Adam, A., Howcroft, D., & Richardson, H. (2004). A decade of neglect: reflecting on gender and IS. *New Technology, Work and Employment*, 19(3), pp. 222-240.
- Adam, A.E., Griffiths, M., Keogh, C., Moore, K., Richardson, H., & Tattersall, A. (2006). Gender and information systems research at the University of Salford. In E. Trauth (Ed.),

Encyclopedia of Gender and Information Technology. Hershey, PA: Information Science Reference.

Ahmed, D. (2010). Bahrain. In Sanja Kelly & Julia Breslin (ed.), *Women's rights in the Middle East and North Africa: progress amid resistance* (pp.59-87). Lanham, MD: Rowman & Littlefield Publishers.

Ahuja, M. (2002). Women in the information technology profession: a literature review, synthesis and research agenda. *European Journal of Information Systems*, 11(1), pp. 20-43.

Al Azali, R., Quaddus, M., & Xu, J. (2011). Knowledge creation and corporate sustainability: empirical evidence from Bahrain's service industry. In Quaddus M.A. & Siddique M.A. B. (ed.), *Handbook of corporate sustainability: frameworks, strategies and tools* (pp.138-149). UK: Edward Elgar Publishing.

Al Marzouqi, A. H., & Forster, N. (2011). An exploratory study of the under-representation of Emirate women in the United Arab Emirates' information technology sector. *Equality, Diversity and Inclusion: An International Journal*, 30(7), pp.544-562.

Allen, M. W., Armstrong, D. J., Riemenschneider, C. K., & Reid, M. F. (2006). Making Sense of the Barriers Women Face in the Information Technology Work Force: Standpoint Theory, Self-disclosure, and Causal Maps. *Sex Roles*, 54(11-12), pp. 831-844.

Altinay, L., & Paraskevas, A. (2009). *Planning Research in Hospitality and Tourism*. Oxford: Routledge.

Al-Munajjid, M. S. (n.d.). Islam Questions and Answers. Retrieved 12 June 2013, from <http://islamqa.info/en/ref/5538>.

Apel, M. (2003). *Careers in information technology* (Rev.ed.). New York: The Rosen Publishing Group.

Appelbaum, S., Asham, N., & Argheyd, K. (2011). Is the glass ceiling cracked in information technology? A qualitative analysis (part 2). *Industrial and Commercial Training*, 43(7), pp. 451-459.

- Appelbaum, S., Asham, N., & Argheyd, K. (2011). Is the glass ceiling cracked in information technology? A qualitative analysis: part 1. *Industrial and Commercial Training*, 43(6), pp. 354-361.
- Armstrong, D., Riemenschneider, C., Allen, M., & Rei, M. (2007). Advancement, voluntary turnover and women in IT: a cognitive study of work? family conflict. *Information & Management*, 44(2), pp. 142-153.
- Astin, H. (1984). The meaning of work in women's lives: A socio-psychological model of career choice and work behavior. *The Counseling Psychologist*, 12(4), pp. 117-126.
- Bagilhole, B., Powell, A., Barnard, S., & Dainty, A. (2008). *Researching Cultures in Science, Engineering and Technology: an analysis of current and past literature*, UKRC Research Report Series, No.7. UK Resource Centre for Women in Science, Engineering and Technology (UKRC).
- Bahrain Authority for culture & antiquities (2014). Retrieved 17 February, 2015, from http://www.moc.gov.bh/en/visitingbahrain/about_bahrain/
- Berger, P., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. New York: Anchor Books.
- Birbaumer, A., Tolar, M & Wagner, I., (2006). Biographical Stories of European Women Working in ICT. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 64-69). Hershey, PA: Information Science Reference.
- BLS. (2013). Computer and information technology occupations. Retrieved 1 October, 2014, from <http://www.dol.gov/wb/stats/Computer-information-technology.htm>
- BLS. (2013a). Labor force statics from the current population. Retrieved 10 November, 2014, from <http://www.bls.gov/cps/cpsaat39.htm>
- Braa, K., & Vidgen, R. (2001). An information systems research framework for the organisational laboratory. In M. Kyng & L. Mathiassen (Eds.), *Computers and Design in Context* (pp. 381-400). Boston, Massachusetts: MIT Press.

Branaman, Ann. (2011).Feminism and Identity. In Anthony Elliott (.Ed.), The Routledge Handbook of Identity Studies (pp. 30-48). London and New York: Routledge.

Brayton, J. (2006). History of Feminist Approaches to Technology Studies. In E. M. Trauth (Ed.), Encyclopedia of Gender and Information Technology (pp. 759-764). Hershey, PA: Idea Group Reference.

Burger et al. (2007). Gender equity in science, engineering, and technology. In Susan S. Klein (2nd ed.), Handbook for achieving gender equity through education (pp.255-279). New York: Taylor and Francis Group.

Burke, R. J., & Mattis, M. C. (2005). Supporting Women's Career Advancement: challenges and Opportunities. Cheltenham: Edward Elgar.

Butler, J. (1990). Gender Trouble: Feminism and the Subversion of Identity. New York: Routledge.

Catalyst (2014).Women in the labour force in India. Retrieved 5 November, 2014, from <http://www.catalyst.org/knowledge/women-labour-force-india>

Charmaz, K. (2006). Constructing grounded theory: a practical guide through. Thousand Oaks, CA: Sage.

CIO. (2012). Foreign trade. Retrieved 3 February, 2015, from the Central Informatics Organisation (CIO) website: http://www.cio.gov.bh/cio_eng/SubDetailed.aspx?subcatid=705

CIO. (2013). Population. Retrieved 3 February, 2015, from the Central Informatics Organisation (CIO) website: http://www.cio.gov.bh/cio_eng/Stats_SubDetailed.aspx?subcatid=604

CIO. (2013a). Technology & Communication. Retrieved 3 February, 2015, from the Central Informatics Organisation (CIO) website: http://www.cio.gov.bh/cio_eng/Stats_SubDetailed.aspx?subcatid=604

Cockburn, C. (1985). Machinery of dominance: women, men and technical know-how. London: Pluto.

Cockburn, C. (1983). Brothers: male dominance and technological change. London :Pluto.

- Craig, A. (2006). A historical perspective of Australian women in computing. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 752-758). Hershey, PA: Idea Group Reference.
- Creswell, J. (2003). *Research design: qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Creswell, J. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Upper Saddle River, NJ: Pearson.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle Creek, NJ: Pearson.
- Creswell, J. W., & Clark, V. L. (2010). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications, Inc.
- Creswell, J., & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory into practice*, 39(3), pp. 124-130.
- Cross, C., & Linehan, M. (2006). Barriers to advancing female careers in the high-tech sector: empirical evidence from Ireland. *Women in Management Review*, 21(1), pp. 28-39.
- Demaiter, E., & Adams, T. (2009). 'I really didn't have any problem with the male-female thing until...': Women in IT Organisations". *The Canadian Journal of Sociology*, 34(1), pp. 29-51.
- Dlabay, L., Burrow, J., & Kleindl, B. (2011). *Principles of business* (8th ed.). South-Western: Cengage Learning.
- EDB. (2013). Kingdom of Bahrain: economic yearbook 2013. Retrieved 7 February, 2015, from the Economic Development Board (EDB) website: <http://www.bahrainedb.com/en/EDBDocuments/Bahrain-Economic-Yearbook.pdf>

EDB. (2013a). Women-living and working in Bahrain. Retrieved 17 February, 2015, from the Economic Development Board (EDB) website:
<http://www.bahrainedb.com/en/EDBDocuments/EDB-Women-in-Bahrain-May-2013.pdf>

EDB. (2014). Information and communication technology. Retrieved 16 February, 2015, from the Economic Development Board (EDB) website:
<http://www.bahrainedb.com/en/EDBDocuments/ICT%202014.pdf>

EGA. (2014). Bahrain is the only state in Middle East honored by UN at the 2014 Global eGovernment Forum. Retrieved 18 February, 2015, from the eGovernment Authority (EGA) website:
http://www.ega.gov.bh/wps/wcm/connect/f2fafa00487c40cab4d8bf0304bf950d/Main_%28english%29.pdf?MOD=AJPERES&CACHEID=f2fafa00487c40cab4d8bf0304bf950d

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), pp. 532-50.

El Gody, A. (2006). ICT and gender inequality in the Middle East, towards active participation. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 772-779). Hershey, PA: Idea Group Reference.

El Louadi, M., & Everard, A. (2006). Women and ICTs in the Arab World. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1230-1237). Hershey, PA: Idea Group Reference.

Elnaggar, A. (2007). The status of Omani women in the ICT sector. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 3(3), pp. 4-15.

Elnaggar, A. (2008). Towards gender equal access to ICT. *Information Technology for Development*, 14 (4), pp. 280-293.

Enns, C., & Sinacore, A. (2002). Feminist theories. In Judith Worell (Ed.), *Encyclopedia of Women and Gender: Sex similarities and differences and the impact of society on gender* (pp. 469-480). San Diego: Academic Press.

ESCWA. (2011). National profile of the information society in the Kingdom of Bahrain. New York: United Nations. Retrieved from Economic and Social Commission for Western Asia website: <http://www.escwa.un.org/WSIS/reports/docs/Bahrain-11-E.pdf>

e-skills. (2008). Women in IT scorecard: a definitive up to date evidence base for data and commentary on women in IT employment and education. London, UK. Retrieved from European Centre for Women and Technology website: http://www.womenandtechnology.eu/digitalcity/servlet/PublishedFileServlet/AAABGWCP/wf1_it-scorecard-bcs_2009.03.26-01.19.28.pdf

e-skills. (2014). The women in IT SCORECARD: a definitive up to date evidence base for data and commentary women in IT employment and education. London, UK. Retrieved from e-skills website: http://www.e-skills.com/Com/Research/WomeninIT_Scorecard_Jun14.pdf

Eurostat. (2009). Tertiary programmes with academic orientation - all first degrees and second degrees. Retrieved 25 April, 2012 from <http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database>

Farmer, H. (1985). Model of career and achievement motivation for women and men. *Journal of Counseling Psychology*, 32(3), pp. 363-390.

Faulkner, W. (2001). The technology question in feminism: a view from feminist technology studies. *Women's studies international Forum*, 24(1), pp.79-95.

Ferratt, T.W., & Trauth, E.M. (2014). IS/IT human resource development and retention. In Heikki Topi & Allen Tucker (Ed.), *Computing handbook*. Boca, Raton: Taylor and Francis.

Gallivan, M. (2006), Diversity in studying gender and IT. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 216-223). Hershey, PA: Idea Group Reference.

Galpin, V. (2006) Women in Technology in Sub-Saharan Africa. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1279- 1285). Hershey, PA: Idea Group Reference.

Gelvanovska , V., Rogy, M., & Rossotto, C. (2013). Broadband networks in the Middle East and North Africa: accelerating high-speed internet access. The World Bank. Retrieved from The World Bank website: <http://elibrary.worldbank.org/doi/book/10.1596/978-1-4648-0112-9>

Ghoshal, L., & Passerini, K. (2006). Analyzing Gender Segregation in Computing. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 25-30). Hershey, PA: Idea Group Reference.

Glass Ceiling Commission. (n.d.). Retrieved 9 November, 2014, from https://scout.wisc.edu/archives/r4599/glass_ceiling_commission

Gottfredson, L. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28(6), pp. 545-579.

Greenhill, A., & Wilson, M. (2005). Flexibility, freedom and women's emancipation: a Marxist critique of at-home telework. In D. Howcroft, & E. M. Trauth (Eds.), *A Handbook of Critical Research in Information Systems: Theory and Application* (pp.152-173). Cheltenham, UK: Edward Elgar. Weedon, C. (1997). *Feminist Practice and Poststructuralist Theory* (2nd .ed.). Oxford, England: Blackwell Publishers.

Griffiths, M., & Moore, K. (2006). Issues raised by women in IT (WINIT) Project in England. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 832-836). Hershey, PA: Idea Group Reference.

Gürer, D. & Camp, T. (2001) . Investigating the Incredible Shrinking Pipeline for Women in Computer Science. Final Report (NSF Project 9812016). Retrieved from <http://womendev.acm.org/archives/documents/finalreport.pdf>

Hackett, G., & Betz, N. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, 18(3), pp. 326-339.

Hair Jr, Joseph F., Wolfinbarger, Mary., Money, Arthur H., Samouel, Phillip., & Page, Michael. (2015). *Essentials of Business Research Methods* (2nd .ed.). NY: Routledge.

Haraway, D. (1985). A manifesto for cyborgs: science, technology, and socialist feminism in the 1980s, *Socialist Review*, 15(80), pp.65-107.

Harding, S. (1987). *Feminism and methodology: Social science issues*. USA: Indiana University Press.

Harding, S. (1991). *Whose science? Whose knowledge?: Thinking from women's lives*. Milton Keynes: Open University Press.

Harding, S. (Ed.). (2004). *The feminist standpoint theory reader: intellectual and political controversies*. New York: Routledge.

Hartsock, N. (1983). *Money, sex and power: Toward a feminist historical materialism*. Boston: Northeastern University Press.

Hartsock, N. (2004). The feminist standpoint: Developing the ground for a specifically feminist historical materialism. In S. Harding (Ed.), *The feminist standpoint theory reader: Intellectual and political controversies* (pp.35-53). New York: Routledge.

Haynes, A. (2006). The Glass Ceiling in IT. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 733-738). Hershey, PA: Idea Group Reference.

Hazzan, O., & Levy, D. (2006). Women, Hi-tech and the Family-Career Conflict. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 7-12). Hershey, PA: Idea Group Reference.

Heilman, M.E. (2001). Description and prescription: how stereotypes prevent women ascent up the organisational ladder, *Journal of Social Issues*, 57(4), pp.657-674.

Hoonakker, P., Carayon, P., & Schoepke, J. (2006). Reasons for women to leave the IT workforce. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1068-1074). Hershey, PA: Idea Group Reference.

Howcroft, D., & Trauth, E. (2004). The choice of critical IS research. In Kaplan, B., Truex, D., Wastell, D., & Wood-Harper, A. (Eds.), *Relevant theory and informed practice—Looking*

forward from a 20 year perspective on IS research (pp. 195-211). Boston: Kluwer Academic Publishers.

Howcroft, D., & Trauth, E.M. (2008). The implications of a critical agenda in gender and IS research. *Information Systems Journal*, 18(2) pp.185-202.

Huang, H. (2006). The Cross-Cultural Dimension of Gender and Information Technology. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 147-153). Hershey, PA: Idea Group Reference.

Huberman, A., & Miles, M. (2002). *The qualitative researcher's companion*. London :Sage Publications Ltd.

Human Rights Watch. (1997). Routine abuse, routine denial, civil rights and the political crisis in Bahrain. Retrieved 20 February, 2015, from <https://books.google.com.bh/books?id=6ezOZzab5u8C&pg=PA13&dq=governed+by+Al+Khali+fa+family&hl=ar&sa=X&ei=CBvjVJGxD5fbapezgNgD&ved=0CCAQ6AEwAg#v=onepage&q=governed%20by%20Al%20Khalifa%20family&f=false>

Igbaria, M., & Baroudi, J. (1995). The impact of job performance evaluations on career advancement prospects: An examination of gender differences in the IS workplace. *MIS Quarterly*, 19(1), pp. 107-123.

ILO. (n.d). Country brief: Bahrain. Retrieved 17 February, 2015, from the International Labour Organisation (ILO) website: <http://www.ilo.org/public/english/bureau/dwpp/download/bahrain/countrybriefbah.pdf>

International Business Publications. (2013). Bahrain mineral, mining sector: investment and business guide. Retrieved 16 February, 2015, from https://books.google.com.bh/books?id=4a9FkAxWodkC&pg=PA23&dq=bahrain+economy&hl=ar&sa=X&ei=YdHhVKvGMezX7Qbo2YDgCw&redir_esc=y#v=onepage&q=bahrain%20economy&f=false

ITAA. (2003). Report of the ITAA blue ribbon panel on IT diversity. Paper presented at the National IT workforce convocation, Arlington, VA, 5 May 2003.

ITAA. (2005). Adding values: growing careers, ITAA's 2004 workforce study. Arlington, VA.

ITU. (2014). Bahrain ICT market overview. Retrieved 17 February, 2015, from the International Telecommunication Union Website: <http://www.itu.int/en/newsroom/gsr-14/Documents/bahrain-ict-market.pdf>

Jacob, M.E. (2006). Skills of women technologists. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1099-1104). Hershey, PA: Idea Group Reference.

Jaggar, A. M. (1983). *Feminist politics and human nature*. Totowa, NJ: Rowman & Allanheld.

Karolak, M. (2011). Female emancipation in Bahrain: A tool for social reform? Paper presented at the symposium: Gender transformations in the Arabian Peninsula and the Horn of Africa, Cairo, 16-17 November 2011. Retrieved from http://www.academia.edu/1101627/FEMALE_EMANCIPATION_IN_BAHRAIN_A_TOOL_FOR_OR_SOCIAL_REFORM

Khalili, Y. (2008). Quality issues affecting higher education in Bahrain. In Christopher Davidson & Peter Mackenzie Smith (Eds.), *higher education in the Gulf States: shaping economics, politics and culture* (pp.136-143). London: Sagi books, in association with the London Middle East Institute at SOAS.

Khreisat, L. (2009). The under-representation of women in information technology and computing in the Middle East: A perspective from Jordan. *Technology in Society*, 31(3), pp. 287-294.

Kingdom of Bahrain, Labour Law (No.63 of 2012)

Klein, H., & Myers, M. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS quarterly* 23(1), pp. 67-93.

Kumar. P, & Anita. (2014). ICT and its development in India. *International Journal of IT, Engineering and Applied Sciences Research (IJIEASR)*,3(2), pp.6-19.

Kvale, S. (1996). *Interviews: an introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.

- Kvasny, L., & Chong, J. (2006). Third World Feminist Perspectives on Information Technology. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1166-1171). Hershey, PA: Idea Group Reference.
- Kvasny, L., & Trauth, E. M. (2002). The “digital divide” at work and home: discourses about power and underrepresented groups in the information society. In E. Wynn, M.D. Myers, & E.A Whitley (Eds.), *Global and organisational discourse about information technology* (pp. 273-291). Boston, Massachusetts: Kluwer Academic Publishers.
- Kvasny, L., Greenhill, A. & Trauth, E. (2005). Giving voice to feminist projects in management information systems research. *International Journal of Technology and Human Interaction*, 1(1), pp. 1-18.
- Lee, A., & Baskerville, R. (2003). Generalizing generalizability in information systems research. *Information System Research*, 14(3), pp. 221-243.
- Light, B. (2006). Theorizing masculinity in information systems research. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1160-1165). Hershey, PA: Idea Group Reference.
- Liu, J., & Wilson, D. (2001). Developing women in a digital world. *Women. In Management Review*, 16(8), pp.405–416.
- LMRA. (2014). Estimated total employment (female) by citizenship and sector: 2013-2014. Retrieved 19 February, 2015, from the Bahrain Labour Market Regulatory Authority (LMRA) website: http://blmi.lmra.bh/2014/09/data/lmr/Table_A2.pdf
- Lohan, M., & Faulkner, W. (2004). Masculinities and technologies. *Men and Masculinities*, 6(4), pp. 319-329.
- Lorber, J. (2001). *Gender inequality: Feminist theories and politics* (2nd ed.). Los Angeles: Roxbury Publishing Company.
- Lorber, J. (2005). *Gender inequality: Feminist theories and politics* (3rd ed.). Los Angeles: Roxbury Publishing Company.

- Lorber, J. (2010). *Gender Inequality: Feminist theories and politics* (4th ed.). New York: Oxford University Press.
- Major, D. A., & Germano, L. M. (2006). Survey feedback interventions in IT workplaces. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1134-41). Hershey, PA: Idea Group Reference.
- Mandour, D.A. (2009). Impact of ICT gender gap in Egypt (Working paper #004). Retrieved from The American University of Cairo website: http://www1.aucegypt.edu/src/wsite1/pdfs/rewebsite_cida/Dina_No4.pdf
- Margolis, J., & Fisher, A. (2002). *Unlocking the Clubhouse: Women in Computing*. Cambridge, MA: MIT Press.
- Marini, M. (1990). Sex and gender: What do we know? *Sociological Forum*, 5(1), pp.95-120.
- McCarthy, J., MA., & M.S.N. (2004). Bahrain. In Francoeur, R. & Noonan, R. (Eds.), *The continuum complete international encyclopedia of sexuality* (pp.59-88). New York: The continuum international publishing.
- Merriam, S., (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey- Bass.
- Michie, S., & Nelson, D. (2006). Barriers women face in information technology careers: self-efficacy, passion and gender biases. *Women In Management Review*, 21(1), pp. 10 - 27.
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis: a sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage publications.
- Mills, A. J., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of Case Study Research*. (Eds.). Thousand Oaks, CA: Sage.
- Ministry of Education. (2013). Number of government schools by the type of school, governorate and sex: 2012/2013. Retrieved 19 February, 2015, from the Ministry of Education website: <http://www.moe.gov.bh/archive/statistics/2013/1.pdf>

Ministry of Education. (2013a). No. of Students and Classrooms at Government Education by Level, Type of Education and Sex: 2012/2013. Retrieved 19 February, 2015, from the Ministry of Education website: <http://www.moe.gov.bh/archive/statistics/2013/3.pdf>

Ministry of Education. (2013b). Number of Students & Classrooms in Non-Government Education by Educational Level: 2012/2013. Retrieved 19 February, 2015, from the Ministry of Education website: <http://www.moe.gov.bh/archive/statistics/2013/9.pdf>

MOFA. (2014). People and culture. Retrieved 25 February, 2015, from <http://www.mofa.gov.bh/Default.aspx?tabid=130>

Moghaddam, G. (2010). Information technology and gender gap: toward a global view. *The Electronic Library*, 28(5), pp. 722-733. doi: 10.1108/02640471011081997

Morganson, V.J., Jones, M. P., & Major, D. A. (2010). Understanding women's underrepresentation in science, technology, engineering, and mathematics: the role of social coping. *The Career Development Quarterly*, 59(2), pp.169-179.

Morgan, A., & Trauth, E. (2006). Women and social capital networks in the IT workforce. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1245- 1251). Hershey, PA: Idea Group Inc.

Muthumani, S., & Saranya, R. (2014). Perceived work environment of women employees in information technology industry with reference to Chennai city. *International Journal of Business and Administration Research Review*, I(3), pp.184-189.

Myers, M. (2013). *Qualitative research in business & management* (2nd ed.). London: Sage Publications Ltd.

Myers, M., Moody, J., Beise, C., & Woszczynski, A. (2006). The Pipeline and Beyond. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1005- 1011). Hershey, PA: Idea Group Inc.

Nelson, K., & Veltri, N. (2011). Women in information technology careers: a person-process-context-time framework, In *Proceedings of the European conference on information systems (ECIS):10 June 2011. Helsinki, Finland.*

Nielsen, S., & von Hellens, L. (2006). The social construction of Australian women in IT. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1105-1111). Hershey, PA: Idea Group Publications.

Nieuwenhuizen, C., Rossouw, D., & Tersia, B. (2009). *Business management: a contemporary Approach*. South Africa: Juta & co Ltd.

Nzomo M. (2003). Women and democratization struggles in Africa: what relevance to post-modernist discourse?. In M. Marchand, & J. Parpart (Eds.) *Feminism Postmodernism Development* (pp.131-141). New York: Routledge.

Office of National Statistics. (2013). Annual survey of hours and earning 2013. Retrieved 9 November, 2014, from <http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings/2013-provisional-results/stb-ashe-statistical-bulletin-2013.html#tab=Earnings-by-occupation>

Ohio Department of Education. (n.d.) Information technology career field. Retrieved 15 March, 2012, from <http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?page=2&TopicRelationID=1773>

Olatokun, W. M. (2006) Gender and national IT Policy in Nigeria. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 440-445). Hershey, PA: Idea Group Reference.

Orlikowski, W., & Baroudi, J. (1991). Studying information technology in organisations: research approaches and assumptions. *Information systems research*, 2(1), pp. 1-28.

Oxford Business Group. (2008). The report: Bahrain 2008. Retrieved 18 February, 2015, from: <https://books.google.com.bh/books?id=HHmo2jjb2AC&pg=PA160&lpg=PA160&dq=bahrain+%22IT+sector%22+%22information+technology%22%27&source=bl&ots=amOO7yaFTL&sig=67yxqZrt2j8GeZTOWEtZ-MsrT0M&hl=ar&sa=X&ei=6WLgVOrZNo38aIXWgeAK&ved=0CCAQ6AEwAw#v=onepage&q=bahrain%20%22IT%20sector%22%20%22information%20technology%22'&f=false>

Oxford Business Group. (2011). The report: Bahrain 2011. Retrieved 18 February, 2015, from: <https://books.google.com.bh/books?id=10yGU0GRnjEC&pg=PA13&dq=bahrain+country+islamic+culture+social+norms&hl=ar&sa=X&ei=LBTjVM36Jubg7QaAwYDICA&ved=0CBoQ6AEwAQ#v=onepage&q=bahrain%20country%20islamic%20culture%20social%20norms&f=true>

Pande, R. (2012) Gender gaps and information and communication technology: A case study of India. In R. Pande, R., & T. Van der Weide (Ed.), *Globalization, technology diffusion and gender disparity: social impacts of ICTs* (pp.277-291). Hershey, PA: Information Science Reference.

Parasuraman, S., & Greenhaus, J. (1997) . *Integrating work and family: challenges and choices for a changing world*. Westport, CT: Quorum Books.

Patton, M. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage Publications.

Pfleeger, S., & Mertz, T. (2006). Making executive mentoring work in IT p.863. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 863-869). Hershey, PA: Information Science Publishing.

Portes, A. (1998). Social capital: its origins and applications in modern sociology. *Annual Review of Sociology*, 24(1), pp. 1-24.

Ragins, B., Townsend, B., & Mattis, M. (1998). Gender gap in the executive suite: CEOs and female executives report on breaking the glass ceiling. *Academy of Management Executive*, 12(1), pp. 28-42.

Ratliff, C. (2006). Feminist Standpoint Theory. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 335-340). Hershey, PA: Information Science Publishing.

Ratliff, C. (2006). Postmodern feminism. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1018-1022). Hershey, PA: Information Science Publishing.

Reynolds, G. W. (2010). *Information technology for managers*. Cengage Learning. Boston: MA.

Ridge, N. (2014). *Education and the reverse gender divide in the Gulf States: embracing the global, ignoring the local*. New York: Teachers college press.

Robinson, B., & Richardson, H. (1999). The historical meaning of crisis in information systems: A Vygotskian analysis. In Proceedings of the 1st Critical Management Conference. Manchester, UK.

Roldan, M., Soe, L., & Yakura, E.K. (2004) Perceptions of chilly IT organisational contexts and their effect on the retention and promotion of women in IT. In Proceedings of the ACM SIGMIS conference on computer personnel research: careers, culture, and ethics in a networked environment: 22 April 2004 (pp. 108-113).New York: ACM.

Rosser, S. V. (2005). Through the lenses of feminist theory: focus on women and information technology. *Frontiers: A journal of Women Studies*, 26(1), pp.1-23.

Rosser, S. V. (2005). Through the lenses of feminist theory: focus on women and information technology. *Frontiers*, 26(1), pp.1-23.

Rosser, S. V. (2006). Using the lenses of feminist theories to Focus on women and technology. In M.F. Fox, D.G. Johnson, & S. V. Rossner (Eds.), *Women Gender, and Technology* (pp.13-46). Urbana: University of Illinois Press.

Rudman, L. A., & Glick, P. (2008). *The social psychology of gender: how power and intimacy shape gender relations*. New York: Guilford.

Schwandt, T. (1994). Constructivist, interpretivist approaches to human inquiry. In Denzin, N. K., & Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research* (pp. 118-137). Thousand Oaks: Sage Publications.

Schwandt, T. (2001). *Dictionary of qualitative inquiry* (2nd ed.). London: Sage Publications.

SCW. (2013). Bahraini women in numbers. Retrieved 18 February, 2015, from the Supreme Council for Women website:
http://www.scw.bh/UploadFiles/pdf/BahrainiWomen_inNumbers2013.pdf

Secretariat General of the Higher Education Council. (2012). High level analysis of higher education and future needs of Bahrain. Retrieved 19 February, 2015, from the Secretariat General of the Higher Education Council website:
<http://moedu.gov.bh/hec/UploadFiles/Reports/Future%20Needs-HE.pdf>

Shakeshaft, C., Brown, G., Irby, B., Grogan, M., & Ballenger, J. (2007). Increasing gender equity in educational leadership. In Susan S. Klein (2nd ed.), *Handbook for achieving gender equity through education* (pp. 103-130). Florence KY: Lawrence Erlbaum Associates.

Shuttleworth, T. (1992). Women and computer technology. Have the promises of equal opportunities been fulfilled?. *Women in Management Review*, 7(7), pp. 24-30.

Staehr, L., Byrne, G., & Bell, E. (2006). Gender and the Australian IT industry. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 467-473). Hershey, PA: Idea Group Publications.

Stake, R. (1994). Case studies. In Denzin, N. K., & Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research* (pp. 236-247). Thousand Oaks: Sage Publications.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research Grounded theory procedures*. Newbury Park: Sage Publications.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Procedures and techniques for developing grounded theory* (2nd ed.). Thousand Oaks: Sage Publications.

Swanborn, p. (2010). *Case study research: What, why and how?*. London, UK: Sage.

Tapia, A. H., & Kvasny, L. (2004). Recruitment is never enough: retention of women and minorities in the IT workplace. In *Proceedings of the SIGMIS Conference on Computer Personnel Research: Careers, Culture, and Ethics in a Networked Environment* (pp.84-91). Tucson, AZ: ACM Press.

Tattersall, A., Keogh, C., Richardson, H., & Adam, A. (2006). Women and the IT workplace: issues from North West England. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1252-1257). Hershey, PA: Idea Group Publications.

Tharenou, P. (1997). Managerial career advancement. In Cary Cooper, & Ivan T. Robertson (eds), *International Review of Industrial and Organisational Psychology* (pp.39-93). New York: Wiley.

Telecommunications Regulatory Authority (2012). Telecommunications markets indicators in the kingdom of Bahrain. Retrieved 5 February, 2015, from the Telecommunication Regulatory Authority (TRA) website: <http://www.tra.org.bh/media/document/2011TelecommunicationsMarketsIndicators-ForPublic1.pdf>

Telecommunications Regulatory Authority (2014). Telecommunications markets indicators in the kingdom of Bahrain. Retrieved 5 February, 2015, from the Telecommunication Regulatory Authority (TRA) website: <http://www.tra.org.bh/media/document/2014%20Telecommunications%20Markets%20Indicators%20Report%20-%20Public%20version.pdf>

The World Bank. (2013). Bahrain data. Retrieved 14 June, 2013, from: <http://data.worldbank.org/country/bahrain>

The World Bank. (2014). World Bank Search. Retrieved 9 January, 2015, from: <http://search.worldbank.org/all?qterm=bahrain+size+land>

Tijdens, K. (1997). Gender segregation in IT occupations. In A.F. Grundy, D. Kohler, V. Oechtering, & U. Petersen (Eds.), *Women, work and computerization: spinning a Web from past to future* (pp.449-462). Berlin: Springer.

Trauth, E. (2002). Odd girl out: an individual differences perspective on women in the IT profession. *Information Technology & People*, 15(2), pp. 98-118.

Trauth, E. (2006). Theorizing gender and information technology research. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1154-1159). Hershey, PA: Information Science Reference

Trauth, E. M. (2011). What can we learn from gender research? Seven lessons for Business research methods. *Electronic Journal of Business Research Methods*, 9(1), pp. 1-9.

Trauth, E. M., & Quesenberry, J. L. (2007). Gender and Information Technology workforce: issues of theory and practice. In P. Yoong, & S. Huff (Eds.), *Managing IT professionals in the Interent Age* (pp. 18-36). Hershey, PA: Idea Group INC.

Trauth, E. M., Kvasny, L., & Greenhill, A. (2007). Conducting Feminist Gender Research in the information systems field. In B. Carsten Stahl (Ed.), *Issues and Trends in Technology and Human Interaction* (pp. 1-24). Hershey, PA: IRM Press.

Trauth, E. M., Quesenberry, J. L., & Huang, H. (2009). Retaining women in the U.S. IT workforce: theorizing the influence of organisational factors. *European Journal of Information Systems*, 18(5), pp. 476-497.

Trauth, E. M., Quesenberry, J., & Huang, H. (2006). Cross-cultural influences on women in the IT workforce. In *Proceedings of the ACM SIGMIS CPR conference on computer personnel research: Forty four years of computer personnel research: achievements, challenges & the future: April 2006* (pp.12-19). New York: ACM.

Trauth, E., & Howcroft, D. (2006). Critical empirical research in IS: an example of gender and the IT workforce. *Information Technology & People*, 19 (3), pp. 272-292.

Trauth, E., Quesenberry, J., & Huang, H. (2008). A multicultural analysis of factors influencing career choice for women in the information technology workforce. *Journal of Global Information Management*, 16(4), pp. 1-23.

Trauth, E., Quesenberry, J., & Morgan, A. (2004). Understanding the under representation of women in IT: Toward a theory of individual differences. In *Proceedings of the ACM SIGMIS conference on computer personnel research: careers, culture, and ethics in a networked environment: 22 April 2004* (pp. 114-119). New York: ACM.

Trauth, E.M. & Howcroft, D. (2006). Critical Research on Gender and Information Systems. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 141-146). Hershey, PA: Idea Group Reference.

UN. (2014). E-Government Survey 2014 E-Government for the future we want. Retrieved 17 February, 2015, from http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf

UNESCO. (2011). The education for all development index. Retrieved 19 February, 2015, from <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/gmr2011-efa-development-index.pdf>

Von Hellens, L., & Nielsen, S. (2006). Facing and Changing Reality in the Australian IT Industry. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. xxxiv-xxxvi). Hershey, PA: Idea Group Publications.

Wajcman, J. (1991). *Feminism confronts technology*. University Park, PA: The Pennsylvania University Press.

Wajcman, J. (2000). Reflections on Gender and Technology Studies: In What State is the Art?, *Social Studies of Science*, 30 (3), pp. 447-464.

Wajcman, J. (2007). From women and technology to gendered technoscience. *Information, communication & society*, 10(3), pp.287-298.

Wajcman, J. (2010). Feminist theories of technology. *Cambridge Journal of Economics*, 34 (1), pp.143-152.

Walsham, G. (1995). Interpretive case studies in IS research: Nature and method. *Eur. J. Inform. Systems*, 4(2), pp. 74-81.

Walsham, G.(1993). *Interpreting information systems in organisations*.New York:John Wiley.

Webster, J. (2006). IT work in European organisations. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 844-849).Hershey, PA: Idea Group Reference.

Weinberger, C. J. (2006). Earnings of women with computer science or engineering college majors. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 224–227). Hershey, PA: Idea Group Publications.

Wentling, R., & Thomas, S. (2007). The career development of women executives in information technology. *Journal of Information Technology Management*, XVIII(1), pp. 33-48.

- Wentling, R., & Thomas, S. (2009). Workplace culture that hinders and assists the career development of women in information technology. *Information Technology, Learning, and Performance Journal*, 25(1), pp. 25-42.
- Whitehouse, G. (2006). Women and computing careers in Australia. In E. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1223-1229). Hershey, PA: Idea Group Reference.
- Wilson-Kovacs, M., Ryan, M., & Haslam, S. (2006). The glass-cliff: women's career paths in the UK & Private IT sector. *Equal Opportunities International*, 25(8), pp. 674-687.
- Wolfson, W. (2006). *Analysis of Labour force Survey Data for the Information Technology Occupations 2000-2005*, Ottawa: Software Human Resource Council.
- Woodfield, R. (2002). Women and information systems development: not just a pretty (inter)face?. *Information Technology & People*, 15(2), pp.119-138.
- Woodfield, R. (2006). Women and recruitment to the IT profession in the UK. In E. M. Trauth (Ed.), *Encyclopedia of Gender and Information Technology* (pp. 1238-1244). London, Pennsylvania State University Press: Idea Group Reference.
- Xian, H., & Woodhams, C. (2008). Managing careers: the experiences of women working in the Chinese IT industry. *Gender in Management: An International Journal*, 23(6), pp. 409-425.
- Yin, K. (1989). *Case Study Research: Design and methods*. Newbury Park, CA: Sage Publications.
- Yin, R. (1994). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.
- Yin, R. K. (2003). *Case Study Research: design and methods* (3rd ed). London, England: Sage Publications.
- Zineddine, M., & Kindi, H. (2011). The Status of Emirati Women in the ICT Sector. In the International Conference on Technology and Business Management. Dubai, UAE.

Appendixes

Appendix A Interview protocol

Interview protocol

Study: women's career advancement in the IT field.

Interview number:

Interviewee:

Time:

Date:

Place:

Work place descriptive data:

Position of interviewee and the workplace:

Number of years in the last position:

The total number of years in the work field:

[Describe the purpose of the study purpose and how they relate to the study, then tell the interviewee:

- The interview will last for approximately 60 minutes.
- During the interview, if there are any questions you don't prefer to answer, you can ask me to move to another question.
- You are able to withdraw from the interview at any time and with no questions asked.
- After analyzing the interview, an executive summary will be sent to you.
- Please be assured that the interview will be completely confidential and are used for academic purpose only.

- You may choose to go by real name or by a false name in the study.
- All efforts will be made to exclude data that may in anyway identify the participants in the thesis or further academic publications.
- You and the researcher will be audio taped during the interview.
- Audio record tapes and the note papers will be in locked cabinets. Electronic data will be password protected and stored in my laptop computers or on my removable storage media with password protection. Personal data will be removed as soon as is practicable once the study is completed.

[Have the interviewee read and sign the (Research Participation Consent Form) (see appendix C)].

[Turn on the tape recorder and use it].

First level questions:	Second level question:
13. What is your job title? How many subordinates do you have and what is their gender? How many people you are reporting to and how they are?	
14. Please tell me about your educational background and work experience especially in relation to your current position.	
15. Tell me about your abilities that influence your work.	
16. What things do you feel have a negative impact on your career progress?	h. Describe your exposure to work in IT field.
17. How have you overcome them?	i. How the training courses have assisted your work experience?

<p>18. What things do you feel have a positive impact on your career progression and help you to become a senior IT manager?</p>	<p>(number, frequency)</p> <p>j. Describe your involvement in the informal networks in the workplace (person's positions, nature, level of contact, closeness, help, emotional support, length of time they know each other, etc.).</p> <p>k. Whose persons (mentors, role models, parents, other) have influenced your career development? (Closeness, direction for help, emotional support, length of time they know each other, and etc.) (Parents, family, friends, work peers)</p> <p>l. Describe the nature of relationship with your male peers in the workplace (nature, level of contact, closeness, help, emotional support, length of time they know each other, and etc.).</p> <p>m. What events in your life have influenced your career development? How?</p> <p>n. -If married, how many children you have and how do you manage the work-life conflict?</p>
<p>19. What is your attitude toward the role of women (in general)?</p>	

20. What is your attitude toward women in IT?	
21. What is your workplace attitude toward women in general and IT?	
22. What is your opinion about the IT occupational culture? (Challenges and opportunities).	
23. What are your recommendations to enhance women's status/position in the IT field?	
24. Demographic section: age, nationality, place of birth and grow, and place of study.	

Appendix B
Individual differences theory of gender and IT constructs (IDTOGIT)

High-Level Construct	Subcategory Construct
Personal data	Personal demographics(e.g., Age, Race, and Ethnicity) Lifestyle (e.g., Socioeconomic Class, Parental Background) Workplace (e.g., Job Title, Technical level).
Shaping and influencing factors	Personal characteristics(e.g., Educational Background, Personality Traits and Abilities) Personal influences (e.g., Mentors, Role Models, Experiences with Computing)
Environmental context	Cultural Attitudes and Values (e.g., Attitudes about IT and/or Women) Geographic Data (e.g., Location of Work) Economic and Policy Data (e.g., about the Region of Work)

Source: Trauth, E.M., Quesenberry, J.L., Morgan, A.J. (2004). "Understanding the Under Representation of Women in IT: Toward a Theory of Individual Differences." *ACM SIGMIS Conference on Computer Personnel Research*. 114-119

Appendix C

Research Participant Consent Form

Dear Madam,

I am conducting a PhD study on women's career development in the information technology (IT) field, which aims to explore the way of how some individual, social and cultural factors act as barriers or facilitators to women's IT career advancement, specifically in the Kingdom of Bahrain context. As a woman at a senior level in IT, you can provide valuable information that will assist me reaching the purpose and goals of my study. I would like to interview you to ask some questions about your work experience and perceptions toward women's work in the field of IT.

If you are interested in participating in my study, please notice the followings:

- The interview will last for approximately 90 minutes.
- During the interview, if there are any questions you prefer not to answer, you can ask me to move to another question.
- You are able to withdraw from the interview at any time and with no questions asked.
- After analyzing the interview, an executive summary will be sent to you.
- Please be assured that the interview will be completely confidential and are used for academic purpose only.
- You may choose to go by real name or by a false name in the study.
- All efforts will be made to exclude data that may in anyway identify the participants in the thesis or further academic publications.
- You and the researcher will be audio taped during the interview.
- Audio record tapes and the note papers will be in locked cabinets. Electronic data will be password protected and stored in my laptop computers or on my removable storage media with password protection. Personal data will be removed as soon as is practicable once the study is completed.

Should you request further information you may contact me at mobile 36588835 or email falsebaie@gmail.com.

Thank you for your consideration. If you agree to participate in this study, please sign below.

Sincerely,

Fatima Alsebaie (student researcher)



Prof. Haifa Takruri MBE (Supervisor)



Address: Villa 191 Road 5705 Zallaq 1057

University of Salford

I agree to be interviewed for this study. [circle one]:

Yes No

I agree to participate in this study by. [circle one]:

Real name False name

I agree to be audio taped during this interview. [circle one]:

Yes No

Participant name-----, email -----

Signature ----- Date -----