What is the origin and extent of knowledge gaps within IBM (BCS) Strategy and Change Business Unit?

LAURETTA THEYS

Dennis Laxton (Supervisor)

This dissertation is submitted to the University of Natal for the partial fulfillment of the requirements for the degree of MASTER OF BUSINESS ADMINISTRATION

July 2004

JULY 2004

TO WHOM IT MAY CONCERN

RE: CONFIDENTIALITY CLAUSE

Due to the strategic importance of this research, it would be appreciated if the contents remain confidential and not be circulated for a period of five (5) years.

Sincerely,

Lauretta M. Theys

096059

DECLARATION

This research has not been previously accepted for any degree and is not currently being submitted in candidature for any degree.

Signed 

Date: July 2004

ACKNOWLEDGEMENTS

I owe a debt of gratitude to all those who have helped me in completing this dissertation.

To God without whom, this dissertation would not be possible.

To my children Molemo Christopher Theys (5 years) and Thandi Dionne Theys (1 year), for their love, patience and understanding during this difficult time.

To my husband Dion Theys, for his love and unending support.

To Dennis Laxton, my research supervisor for his time.

To my parents, Ali and Christine Mokoka who love me and taught me to believe in myself.

To my mother-in-law Kula Theys, for her love and endless support.

To my brother and sister (Michael Mokoka and Cecilia Sentson) who love and support me unconditionally.

To all the respondents for their input and patience in completing the questionnaires.

To the management team at IBM (BCS) for their support.

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EXECUTIVE SUMMARY

Introduction

The European Commission approved worldwide acquisition of PwC Consulting by IBM in 2002. IBM named the new unit Business Consulting Service (BCS), it comprises former PwC Consulting employees and former IBM Business Innovation Services employees. The acquisition was envisaged to create an organisation with the full compliment of consulting, industry and technology capabilities. The rational was that business partners required a complete knowledge set – a company which could *'do it all'* – assist them "with conceiving innovative solutions to business problems, design, implement and even operate the proposed solutions…and be accountable for the results…an end-to end play that I refer to as 'idea of benefits'" (speech by G Rometty (www.w3.ibm.com - internet 1).

Despite the good intentions at the time of acquisition, IBM (BCS) Strategy and Change solution area is losing competent professionals at an alarming rate. For example, figure 4.10 shows that over the months February, March and April 2003, BCS Strategy and Change lost 56.9% of its consultants. To date, these skills have not been replaced due to a global moratorium on recruiting in BCS, yet resignations are continuing. It is understandable that this problem is predominantly attributed to the acquisition process; however, the intention of this paper is not to address the impact of the acquisition.

Accordingly, this paper focused on Strategy & Change (S&C) business unit with IBM (BCS). It investigated the relationship between aspects of labour turnover and labour reduction as they impede effective knowledge management. The researcher derived hypotheses from the problem statement and used a combination of theory and practical experience to highlight certain findings and validate the hypotheses.

Findings

A questionnaire, which incorporated both qualitative and quantitative data revealed the following interesting findings:

- Respondents have a superior understanding of both knowledge management and knowledge preservation. They also made a clear distinction between the two concepts, with knowledge preservation, being identified as the process of achieving effective knowledge management. It was clear from the responses that all the consultants view knowledge management and knowledge preservation as critical for company success.
- The majority of respondents believed that IBM (BCS) did not have a clearly defined knowledge management strategy. They also agreed with the statement that knowledge gaps exist within strategy and change business. These findings conflict with their strong views that knowledge management and knowledge preservation is critical for company success.
- The most significant findings from this study are the large knowledge gaps which exist between core knowledge versus individual competencies. The results reveal that all respondents rated lower than core for most categories. This means that they do not posses all the core knowledge tools required by their sub-solution area. In statistical terms, this difference is displayed as the 'p' value. It quantifies the difference between individual knowledge and core knowledge. It was interesting to observe that Corporate Strategy respondents, ranked the lowest scoring 3.08 on average, although they are required to have the most specialised competencies comparatively.
- All respondents strongly agreed with the statement that labour turnover impacts knowledge management. They listed compensation, training and development and motivation as principle contributing factors.
- All respondents strongly agreed with the statement that labour reduction impacts knowledge management. They listed downsizing and the skills disparity as principle contributing factors.

Conclusion

Data analyzed and literature researched in this dissertation provided strong evidence that aspects of labour turnover and labour reduction negatively impacts knowledge management.

This paper presented 3 recommendations for management's consideration.

1. *To consider a list of recommendations made by respondents.* These recommendations can be implemented in the short to medium term and will show immediate results. They include: developing a formal knowledge management framework, appointing a dedicated knowledge manager, training and development initiatives, ensuring a culture of knowledge sharing and communication.
2. *To determine the root cause of the problem.* This recommendation suggests that management commence by addressing several issues mentioned in this paper, these include: compensation, insufficient training and development opportunities, downsizing and restructuring initiatives and the skills disparity due to changing market needs.
3. *To change the current operating model.* This recommendation will address the current misalignment of skill which is the rationale for consultants not being utilized on projects. Ever-changing market demands are resulting in specialized skills and competencies becoming redundant.

The researcher is confident that all the objectives of the research were achieved. The use of a questionnaire allowed the researcher to delve into the details of specific issues that would not have been obtained in an alternative data gathering technique had been used. The hypotheses were *accepted* and verified by means of statistical analysis.

LIST OF TABLES/ DIAGRAMS

GLOSSARY OF TERMS

IBM

International Business Machines Corp.

BCS

Business Consulting Service, a business unit of IBM Global Services. IBM (BCS) currently, comprises the following business units –

- Application Innovation;
- Business Transformation Outsourcing (BTO);
- Customer Relationship Management;
- Financial Management;
- Human Capital Management;
- Strategy and Change; and
- Supply Chain Management

PwC Consulting

PricewaterhouseCoopers (PwC) Consulting business unit, previously a business unit of PricewaterhouseCoopers Audit firm.

Knowledge

Knowledge refers to the intellectual property in the business about customers, products, processes, competitors etc., which can be locked away in the minds of people or stored on paper or in electronic form. Hence in this dissertation, knowledge can be both tacit and explicit knowledge. *Tacit* knowledge is in the minds of people and cannot be easily codified. It is hard to formalize and therefore difficult to communicate to others. It comprises mental models, beliefs, know-how and perspectives. (Nonaka 1991, p98). *Explicit* knowledge has been codified and can be easily transferred through knowledge

repositories, manuals etc. It can easily be communicated and shared. It includes blueprints, documents, product specifications, formulae and computer programmes (Edvinsson and Sullivan, 1996)

Intellectual Capital

Intellectual capital refers to the "sum everything everybody in the company knows that gives it a competitive edge" (Steward 1997 cover page). One can also refer to it as collective brainpower and experience collected by the individuals in a company – it is an asset which can be used to create wealth. Edvinsson and Sullivan (1996) define intellectual capital as knowledge that can be converted into value. It basically comprises two segments being human capital and structural capital.

Knowledge Management/Knowledge Preservation

Knowledge Management is the management of knowledge-related policies, practices, programmes and activities through which personal knowledge is converted into organisational knowledge then captured and preserved so that it is easily available at the point of need, in order to be utilised to add value. According to Duffy (1997), the main activities of knowledge management are:

- *Identification*: determining which knowledge assets are required by the organisation to support the organisation's strategic direction;
- *Acquisition*: acquiring that knowledge which has been identified as non-existent with the confines of the organisation. Acquiring knowledge may be an internal process whereby new knowledge is created through education and experience building, or an external process whereby new knowledge is acquired through alliances and joint ventures, or by purchasing new skills and knowledge from external sources;
- *Storage*: codifying personal knowledge such that it can be stored in various forms for future use by anyone in the organisation;
- *Access*: providing the necessary infrastructure and tools such that stored knowledge can be easily accessed at point-of-need;
- *Application*: the application of knowledge to work processes in order to add value to the organisation; and

- *Destruction*: ensuring that unused or out-of-date knowledge is destroyed and replaced with new and more relevant knowledge on a continual basis.

In this dissertation, the term knowledge preservation has been used by the researcher to refer to the process of retaining knowledge within an organisation and protecting organisational knowledge from use by competitors. Using this definition, knowledge preservation forms part of knowledge management and includes activities of storage, access and distribution as discussed above.

Labour turnover

Van der Merwe and Miller (1976 p38) write that "labour turnover is movement into and out of an organisation...turnover is frequently proposed as a measure of job satisfaction".

Management Consulting

The advising and assisting management in determining objectives and assisting business in achieving them through improved planning, organisation, motivation, communication or utilisation of resources. A management consultant is the person who provides these advisory services. (Institute of Management Consulting, 1998)

Downsizing

The planned removal of large numbers of personnel designed to improve organisational effectiveness.

PREFACE

This dissertation is a partial fulfillment of the requirements for the degree of Master of Business Administration from The University of Natal Graduate School of Business.

The subject of the dissertation is: to determine the ***origin*** and ***extent*** of knowledge gaps within IBM (BCS) Strategy and Change Business Solution Area. This paper will also make recommendations ensuing from responses on how to retain IBM's knowledge.

The author of the dissertation is Lauretta Theys, B.A (Hons) using Dennis Laxton, MBA, MBL, PhD as the research supervisor.

The audience for this dissertation are students and teachers, executives, management and consultants from IBM (BCS), and others interested in the subject of this dissertation.

CHAPTER ONE
INTRODUCTION

1.1 Background

Background to IBM

Thomas J Watson started his career selling cash registers in 1895 for National Cash Registers (NCR). In ***1912,*** his career at NCR came to a drastic halt when he and other executives of the firm where prosecuted and found guilty under the newly legislated federal anti-trust laws. In ***1914*** Watson joined forces with Charles Ranlett Flint who invited him to manage the Computer-Tabulating-Recording Company (CTR) based in New York. The company's products ranged from weighing machines and meat slicers, to factory clocks, telephones and tabulating machines. The most promising of CTR's products were the tabulating machines which had been invented for the US Census Bureau by an engineer, Herman Hollerith.

With Watson in charge, the Hollerith Tabulating machines grew in popularity. By the end of World War 1, CTR had "installed more than 650 tabulating machines and it was selling blank punch cards at a rate of more than 80million a month. Just as IBM would later do - until pressed to change: (DeLamarter 1986, p14). The success of CTR's tabulating machine locally gave the Watson sufficient ammunition to expand the operation, he licensed the manufacturing rights and rid the business of its non-tabulating business then changed the name to The International Business Machines Corporation (IBM) in February ***1924.***

"IBM offered three basic types of accounting machines – card punches, sorters and tabulators… All three machines evolved mechanically over the years, the most significant change was their motorization. The accounting machine, or tabulator was the most complex device and underwent the greatest improvement…What had started out in Hollerith's day as a manually driven machine, able merely to count cards with holes…had evolved into a sophisticated electromechanical calculator capable of processing dozens of cards a minute and performing fairly complex arithmetic. As IBM

and its customer discovered the seemingly infinite variety of way that data could be processed, IBM's product line expanded. Customers eagerly paid for each refinement". (DeLamarter1986, p17). Since all the machines were rented out, customers were obliged to use only IBM machines and parts. This strategy ensured that the company gained significant market share and made significant profits on the consumables purchased by these companies. Thomas Watson and his son Watson Junior who became IBM's second CEO in ***1956*** believed in the power of a monopoly.

"The ***1960's*** saw the very notion of commercial data processing change radically with the rise of interactive computing, which enabled users to communicate directly with the computer through a terminal rather than indirectly through punch cards" (DeLamarter 1986, p123) This opened the door for competition. IBM lost 3.6% market share in one year (moving from 80.0% to 76.4% between 1964 and 1965. All the other competitions (Burrough, General Electric, and Honeywell) significantly increased market share over the same period. Throughout the 1960's droves of customers moved there accounts to competitors as the believed they were being charged exorbitant rates for IBM consumable products. By ***1979*** IBM market share had fallen to 69%.

During the early ***1980's*** things were improving slightly, IBM's market share increased to 76.8%. But – by ***1994*** the company was almost crippled, it had less than 20% of the IBM-compatible market due to the successful penetration of Microsoft products into the market.

In July ***2002*** the European Commission approved the acquisition of PwC Consulting by IBM. The acquisition only involved the consulting wing of PwC, not its accounting, corporate finance or other activities. IBM bought the consulting arm for $3.5billion and named the new unit Business Consulting Service (BCS). The newly established unit comprised former PwC Consulting employees and former IBM Business Innovation Services employees. It forms a line business within IBM Global Services and is headed by Doug Elix with Ginni Rometty as General Manager.

As a result of the merger, IBM (BCS) becomes the world's largest consulting services firm, with a staff compliment of over 180 000 professionals and offices in over 160 countries worldwide.

The acquisition was envisaged to create an organisation with the full complement of consulting, industry and technology capabilities. Business partners required a complete knowledge set, a company which could *'do it all'* – that could assist "with conceiving innovative solutions to business problems, design, implement and even operate the proposed solutions…and be accountable for the results …an end-to end play that I refer to as 'idea of benefits'" (G Rometty www.w3.ibm.com - internet 1).

For the South African practice, this move would benefit employees, clients and business partners. Internally, it would merge PwC's network of competent professionals with IBM's deep information technology competencies. Externally, the new business unit with 212 local consultants would be in a position to deliver end-to-end solutions based on industry and business knowledge.

The structure of the newly formed BCS would consist of the following solution areas or business units:

- Application Innovation;
- Business Transformation Outsourcing (BTO);
- Customer Relationship Management (CRM);
- Financial Management;
- Human Capital Management;
- Strategy and Change (S&C) ; and
- Supply Chain Management.

Background to Knowledge Management

In the 21st centaury, the primary assets required to manage a business effectively are no longer land, machinery and physical labour, but rather the application of knowledge. "Knowledge has become the most important factor in economic life. It is the chief

ingredient of what we buy and sell, the raw material with which we work. Intellectual capital has become the one indispensable asset of corporations" (Steward, 1997, cover). Steward (1997) also states that, the key competitive advantage of an organisation today is not only having the best intellectual capital but also having the ability to leverage it effectively.

Management consulting firms evolved from accounting firms who identified spin-off business opportunities during audits. Over time, engineering and technology firms diversified into the field of management consulting. These companies have based their business models on providing intellectual capital. They are a perfect example of knowledge age organisations, there primary activity is that of knowledge management and dissemination. The key resource is the intellectual capital within the organisation – they trade this primary resource and are depended on effective knowledge preservation in order to survive.

1.2 Problem Statement

2002 saw IBM transformed into a business consulting and information technology organisation. According to Doug Elix, "PwC will add new and unmatched competitive depth and leadership capabilities to IBM's services-led business....With this move we are complementing and enhancing our own substantial knowledge base. Talent is a finite commodity, and IBM has just welcomed in a major lode" (www.w3.ibm.com/news - internet 1).

Despite such focus on the significant knowledge base, IBM (BCS) Strategy and Change is losing skilled professionals at an alarming rate. For example figure 4.10 (page 77), lists the IBM (BCS) resignations over the months February, March and April 2003. The highlighted areas clearly indicate the number of employees who resigned over that period - BCS Strategy and Change lost 56.9% of its consultants. To date, these skills have not been replaced due to a global moratorium on recruiting in BCS. The researcher is aware that the resignations could be attributed to other factors such as the acquisition process. However, the intention of this paper is to address knowledge management and not necessarily the impact of the acquisition (this will be

recommended as and area for future research). This paper will show that there is a relationship between the high labour turnover figures and retaining knowledge management within the business unit. Accordingly, the focus will be exclusively on the knowledge management in the S&C business unit with IBM (BCS).

The function of the S&C business unit is to fuse business strategy with technology insight to help organisations clarify and align their business vision across 3 strategic dimensions, referred to as sub-solution areas, these are: business strategy, operating strategy, organisation change strategy and technology strategy. IBM (BCS) 'markets' the knowledge and skills of its consultants to clients. These clients rely heavily on the competencies of consultants. Knowledge management is IBM's key resource capable of creating sustainable competitive advantage therefore, it is important to examine how the organisation manages its knowledge base. According to Yeates (1991), the consequences of ineffective knowledge management is costly to an organisation, often leading to client dissatisfaction, lost business, missed opportunities and internal effects such as surplus resources, de-motivated staff and loss of key personnel.

The researcher is of the opinion that IBM's primary challenge currently, is to create and transfer knowledge efficiently amongst consultants. Consequently, this study will assist the researcher in answering the research question, which is: ***what is the origin and extent of knowledge gaps within IBM (BCS) Strategy and Change?*** The goal is to determine if knowledge gaps are:

- As a result of loss of skilled consultants. Figure 4.10 (page 77) reflects the number of consultants who have resigned over a 3 month period; or
- An inability to resource the right skills. The answer will be interpreted by studying the responses in the questionnaire; or
- As a result of downsizing due to the moratorium on recruiting.

Figure 1.1 (page 23) presents the research process employed in this paper. It illustrates that once the research problem has been formulated, hypotheses should be constructed. These hypothesis are developed by studying literature on aspects of knowledge

management, labour turnover and downsizing. The researcher has developed the following hypotheses:

- Hypothesis 1 — Core Strategy and Change skills are diminishing because of inappropriate strategic consulting knowledge tools.
- Hypothesis 2 — Core Strategy and Change skills are diminishing because consultants are not competent in strategic knowledge tools required.
- Hypothesis 3 — Core Strategy and Change skills are diminishing because consultants are leaving IBM (BCS).
- Hypothesis 4 — Core Strategy and Change skills are diminishing because IBM (BCS) is downsizing by not filling vacant positions.

Figure 1.1 (page 24) also suggests that the hypothesis should be tested by developing and distributing questionnaires. The researcher developed a set of three questionnaires (Appendix 1). These questionnaires were targeted at the three specialties within the business unit – hence 3 different sets of questionnaires. The questionnaire was developed to confirm the hypotheses and answer the research question.

1.3 Rational for Research

High staff turnover and skills shortage have significantly impacted on the consulting industry in South Africa. According to Kransdorff (1998), the average South African employees switch employers at least seven times in their working lifetime. In the management consulting industry, the rate of tenure is even less, with consultants changing employers every 2 to 3 years in an attempt to grow individual knowledge and expertise. This has a significant impact since management consulting organisations invest substantially in training and development programmes. Although this is an important business imperative, these organisations are finding that as consultants gain the necessary expertise required in the industry, they tend to move out of the organisation in search of better opportunities. This results in organisational structures with inflated unskilled junior consultant base and narrow competent senior consultant knowledge apex.

Consequently, the rationale behind this paper is to document sufficient information which will enlighten the executives at IBM (BCS) on the urgency of introducing and implementing knowledge preservation mechanisms to counter the effects of the ongoing loss of experienced consultants. The dissertation will test the relationship between 3 evidently unrelated elements – knowledge management/preservation, labour turnover and labour reduction initiatives such as downsizing.

1.4 Objectives of Research

The merger of PwC and IBM created an innovative IT and business consulting model. The rationale behind the model was that all areas of specialisation should be grouped under one business unit to ensure that clients receive a 'one-stop-shop' of service offerings. For example an organisation requiring business process re-engineering consulting would be offered other services such as customer relationship management, strategy and changes etc, to ensure the process is complete. The following business unit operating model was introduced:

- Application Innovation;
- Business Transformation Outsourcing (BTO);
- Customer Relationship Management (CRM);
- Financial Management;
- Human Capital Management;
- *Strategy and Change* (S&C); and
- Supply Chain Management.

These business units operate under the broader umbrella body of IBM (BCS) and each have a Partner responsible. Consultants are recruited according to skills and expertise per business unit. Therefore, one would seldom find CRM consultants involved in Financial Management projects.

This dissertation primarily focuses on the S&C Solution Area only because the researcher is most familiar with this unit and believes that knowledge management can

best benefit this section since it requires the most specialised strategic skills. The S&C solution area within IBM (BCS) is further sub-divided into:

- *Corporate and Operations Strategy* which essentially involves developing business models around strategic profit improvement and determining where and how to businesses should compete. It includes business strategies such as strategic mergers and acquisitions, asset restructuring and developing channel strategies;
- *Change and Program Strategy* involves building the change architecture and organizing people enablers to cope with technology integration and business transformation outsourcing initiatives; and
- *Technology Strategy and Management* involves using technology to set and enable business goals, create the business case, prepare for execution and manage it. This unit typically conducts IT capability assessments and IT governance and performance improvement.

Three separate questionnaires were developed for each of the 3 areas listed above because of the distinct nature of skill-set required per sub-division (Appendix 1). The objective of this paper is to demonstrate that the current Strategy and Change resource base do not posses the necessary core strategic skills required due to the impact of labour reduction and downsizing.

1.5 Limitations of the Study

This paper *will not* focus on the following:

- IBM prior to the PwC Consulting acquisition;
- The impact of the acquisition on staff and knowledge management;
- Understanding and commenting on any of the other 6 Solution Area within IBM (BCS);
- Presenting possible knowledge preservation programmes aimed at retaining the knowledge of consultants within the organisation; and
- Factors other than those listed (labour turnover and downsizing) which could be attributed to knowledge gaps in the organisation.

This paper *will* focus on the following:

- Interpreting literature on *elements of knowledge management*;
- Interpreting literature on specific *elements of labour turnover*[1]. These are listed in the questionnaire as motivation, retention programmes, affirmative action, training and development and compensation;
- Interpreting literature on specific *elements of downsizing*[2]. These are listed in the questionnaire as downsizing, natural attrition, internal transfers, outsourcing projects to external partners and skills disparity due to changing market needs;
- Identify *knowledge management gaps* through understanding current competency levels of S&C consultants; and
- Presenting recommendations arising from literature and responses, for consideration by executives at IBM (BCS).

1.6 Overview of Research Methodology

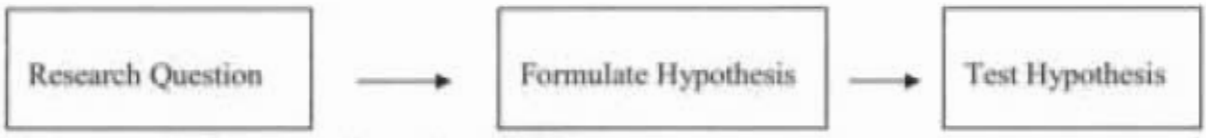

Figure 1.1 Summary of the Research Process

Figure 1.1 above demonstrates the research methodology employed. Firstly, a research question that interested the researcher was formulated. To determine whether the research question was feasible, the researcher interviewed senior executives and Sub Solution Leaders in the business and studied related documents to gain a conceptual analysis and formulate the hypothesis. A matrix of key knowledge areas in S&C was developed that assisted the researcher to test the hypothesis in a pilot study involving senior executives. The decision to carry on with the main questionnaire around the research question was dependant upon a positive pilot study feedback. Finally, the research questionnaire was designed around literature, feedback from the pilot study,

[1] Although these elements may not be theoretically linked, they have been identified by IBM (BCS) S&C Senior Partners and consultants as key elements affecting labour turnover.
[2] Although these elements may not be theoretically linked, they have been identified by IBM (BCS) S&C Senior Partners and consultants as key elements used in restructuring the business unit.

experience and questions that interested the researcher. Three separate questionnaires were distributed amongst the sub-divisions in the S&C Solution Area. The results from the questionnaire will confirm the hypotheses.

1.7 Chapter Outline

Chapter One: Introduction

This chapter sketches a brief introduction to what is expected to the rest of the academic report. It outlines what the researcher intends to do in this dissertation. The background, problem statement, purpose and scope of the dissertation are addressed.

Chapter Two: Literature Review

This chapter reviews the prevailing literature related to knowledge management, downsizing and various aspects of labour turnover in order to provide the framework for the research.

Chapter Three: Research Methodology

This section sets out the research tools adopted in this dissertation. It discusses the research methodology that was followed in undertaking the research. The reasons behind using the interview-questionnaire approach and the sample selection, data collection and data analysis processes are addressed.

Chapter Four: Results of Study

This chapter will cover the analysis of the data collected. It will present the results of the research and set out statistical analysis of the responses to the questionnaire.

Chapter Five: Recommendations and Conclusion

Chapter five will cover recommendations resulting from the interpretation of the analyses performed in chapter four. It also concludes the report with an overview of the findings.

CHAPTER TWO
KNOWLEDGE MANAGEMENT LITERATURE REVIEW

2.1 Introduction

Knowledge management has a long and distinguished history. It was as long ago as the 1960s, when Peter Drucker first coined the term "knowledge worker" (www.entovation.com/timeline - internet 2). Much literature is found on knowledge management. However, not much literature is found connecting knowledge management directly to labour turnover or labour reduction elements such as downsizing.

However, since the objective of this dissertation is to prove a relationship between these variables, meticulous investigation uncovered literature indirectly linking aspects of knowledge management to labour turnover and labour reduction initiatives. A significant portion of this literature is IBM specific and has been extracted from IBM's intranet.

2.2 Defining Knowledge Management

According to Nonaka (1991) and Steward (1997), knowledge has become the fundamental source of wealth. Management consulting firms generally view knowledge management as the art of creating value by leveraging intangible assets - people. Prusak (1997) (http://w3.knowledge.raleigh.ibm.com/archives/whatiskm.html - internet 7) says that knowledge management is an attempt to understand what is essentially a human asset hidden in the minds of individuals and manipulate it into an organisational asset that can be retrieved and used by a larger grouping of individuals on whose leadership the firm depends. A simpler understanding of knowledge management by Davenport *et al.* (1998) is that knowledge is the name given to a set of systematic and disciplined actions that organisations can take to derive the greatest value.

IBM broadly defines knowledge management as the process of leveraging and utilising the vast, untapped potential of both tacit and explicit knowledge to achieve optimal performance. Knowledge management enables individual consultants, teams and communities to exchange and optimise knowledge and project experiences.

Additionally, knowledge management can be a framework for identifying and re-using deliverables. It involves sharing and re-using learning's so that the organisation can rapidly deploy this knowledge to other teams. It includes committed people; structured processes and a value system that places a premium priority on re-use (www.w3.ibm.com – internet 1).

2.3 Implementing Knowledge Management

Implementing an effective knowledge management framework requires structure and consistency. Figure 2.1 below is an adaptation of Prof Richter's (2001) model which graphically outlines a step by step approach to a structured knowledge management framework (www.agr.informatik.unikl.de – internet 3).

i. Train information agents who are pro-active and constantly available;
ii. Design knowledge databases and directories for the organisation;
iii. Design knowledge collection and acquisition manuals;
iv. Ensure documents and databases are easily accessible;
v. Implement infrastructure to discover and disseminate information; and
vi. Implement policies and structures which encourage collaboration and sharing.

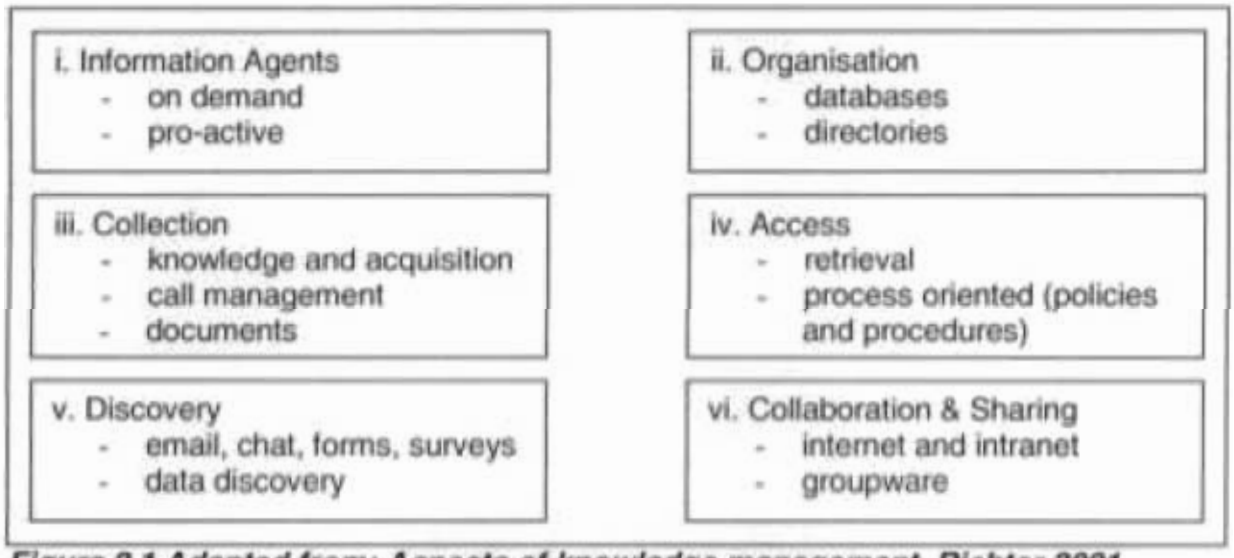

Figure 2.1 Adapted from: Aspects of knowledge management, Richter 2001

Once an effective framework has been identified and implemented, organisations have to ensure sustainability of the process. The elements of sustainability involve implementing the following sub-sets of knowledge management implementation:

2.3.1 Appreciating the Need for Knowledge Management

Knowledge management is the systematic and explicit management of an environment which optimizes knowledge. It is the management of knowledge-related policies, practices, programmes and activities, through which personal knowledge is converted into organisational knowledge, captured, preserved and re-used. Nasseri (1996) (http://www.brint.com/km/papers/submit/nasseri.htm – internet 6) writes that knowledge is the organisations most important strategic imperative and therefore its management and preservation must appreciated. He further adds that, for effective knowledge management to continue, the management of the organisation's knowledge should be integrated with overall business strategy. Organisations should develop a structured approach that appreciates the need to preserve knowledge – for example, they should establish formal knowledge management procedures to enable management of knowledge and acceptance of knowledge managers. They should also design processes for measuring the business value of intellectual capital and install systems to facilitate networking and information dissemination.

Appreciating the need for knowledge management is crucial in maintaining competitive advantage. This statement is supported by the 2002 Global Most Admired Knowledge Enterprises (MAKE) report (http://kmmag.com/images/attachments/ 2002_global _make. pdf - internet 4), which identified eight (as identified in figure 2.2 below) ways in which knowledge performance yielded competitive advantage, these include:

i. Create a corporate knowledge culture	ii. Maximize intellectual capital
iii. Develop knowledge leaders	iv. Create a learning organisation
v. Deliver knowledge-based products	vi. Focus on customer knowledge
vii. Create an environment for collaborative knowledge sharing	viii. Transform knowledge into shareholder value

Figure 2.2 Ways to achieve competitive advantage through implementing knowledge performance

The MAKE report (http://kmmag.com/images/attachments/2002_global_make.pdf - internet 4) findings listed above in Figure 2.2 (page 28) which outlines ways to achieve competitive advantage through implementing knowledge performance, ties in perfectly with the Richer's (2001) aspects of knowledge management model items listed in Figure 2.1 (page 26) that outlines the step by step approach to implementing knowledge management initiatives. Both areas focus on the importance of following a pragmatic approach to achieve a solid knowledge management framework.

Furthermore, the 2002 Global MAKE (http://kmmag.com/images/attachments /2002 _ global_make.pdf - internet 4) finalists and winners trading on the New York Stock Exchange showed that organisations pursuing shareholder value through knowledge management are out-performing the rest by more than three to one. The report also listed International Data Corporation (IDC) who developed a metric by which to measure what is referred to as "knowledge deficit." The process captures the costs and inefficiencies that result from intellectual rework, substandard performance and inability to find knowledgeable resources. According to this metric, the knowledge deficit among Fortune 500 companies costs them $12 billion annually! This demonstrates that effective knowledge management should not be underestimated. Ineffective and inefficient knowledge management affects the bottom line.

2.3.2 Identifying Knowledge Assets

Once the need for having an effective knowledge management structure has been determined, organisations have to elect relevant knowledge assets. Steward (1997, p70) writes that "knowledge assets ...exist and are worth cultivating only in the context of a strategy...intellectual capital doesn't exist without a purpose and a point of view". Steward (1997) also states that one can define and preserve those knowledge assets for which a distinct role and use has been identified. Organisation's should be cautious about embarking on a process of identify a knowledge asset preservation process without a well thought through knowledge management framework which is integrated with the overall business strategy. They should determine the information and knowledge assets critical for its long-term survival and prioritise identifying which knowledge assets to preserve. Not all knowledge in an organisation is of equal value.

What is considered knowledge to one unit may not be important to another Steward (1997). Once knowledge assets have been identified, it is then possible to catogorize internal and external knowledge retention enablers. These retention enablers stem directly from the knowledge assets identified by the business.

2.3.3 Knowledge Retention – internal and external

Knowledge retention efforts are tools and techniques used to preserve knowledge in the organisation. They can be categorized under three themes (Wiig 1998, Davenport 1998):

- *Cultural factors* – these should be in place to support and promote knowledge preservation. For example identification of knowledge champions, installing a behaviour of knowledge transfer and knowledge sharing;
- *Information technology infrastructure* – for example, email, inter/intranet, global knowledge sharing systems, corporate knowledge maps, knowledge inventory systems; and
- *Knowledge management related incentives* – for example, promotion of team work, rewarding and recognizing exceptional performance and training..

Other theorists support knowledge retention by listing management consulting firm McKinsey Consulting framework to improve its ability to retain knowledge internally - Pascarella (1997, p 38). The company focused on:

- *People enablers* – ensure successful knowledge retention by providing knowledge linked incentives in an effort to recognize and promote those consultants who are knowledge builders;
- *Process enablers* – define opportunities for knowledge building through scheduling internal conferences and informal gatherings;
- *Organisational enablers* – create synergies between organisational strategies (expansion, reduction, internal acquisition) and knowledge management initiatives; and
- *Information technology enablers* – implementing electronic libraries, knowledge sites and knowledge networks.

The knowledge retention enables presented by Wigg 1998 and Davenport 1998 (page 29) ties in perfectly with those presented by Pascarella 1997 (page 29). The central theme outlined by the authors is that knowledge retention involves addressing aspects of people, technology, process and organisation holistically.

Knowledge retention is not a simplistic process. Davenport (1998, p4) states that "knowledge management requires a knowledge contract" where the contractual rights to knowledge assets are clearly outlined. The problem with this definition is that organisations are not able to clearly distinguish who has contractual rights to employee's knowledge or intellectual capital. In the management consulting environment, this is especially tricky – who holds the right to consultants who are exposed to various projects and various industries over a period of time? Is this knowledge the property of the consultant, the consulting firm which provides employment or the client for which work is being done? Previously employers regarded this knowledge as belonging to them. However, over the years, several factors have resulted in a new approach. For example, employers have adopted the approach of entering into strategic alliances/joint ventures with contract consultants to substitute for internal knowledge gaps. This introduces difficulties when deciding the ownership of intellectual material developed whilst in the alliance. Although no clear answer will be presented at this stage, these are some of the dynamics that make this field of study so complex.

2.3.4 Knowledge Protection

Once organisations have created an appreciation for knowledge management, identified knowledge assets and implemented knowledge retention practices, they have to ensure that it all remains within the business. Knowledge protection involves developing policies and procedures to deal with issues of knowledge ownership. Edvinsson and Sullivan (1996) identify methods which can be used to deal with the issue of knowledge ownership and reducing fraudulent use of knowledge assets. These have been classified as follows:

1. *Human Capital Protection* – involves implementing legal contracts regarding the ownership and use of knowledge; and
2. *Asset Capital Protection* – entering into patent, copyrights and restraint of trade agreements.

Davenport (1998, p4) adds that "if knowledge is really becoming a more valued resource in organisations, we can expect to see more attention to the legalities of knowledge management. Perhaps the greatest problem with increased knowledge management is the increased population of lawyers it will engender! Intellectual property law is already the fastest-growing field in the legal profession, and it will only grow faster".

2.3.5 Critical Success Factors for Knowledge Preservation

The four processes outlined above (appreciating the need for knowledge management, identifying knowledge assets, knowledge retention and knowledge protection) are all built on the foundation of a successful knowledge preservation programme. Steward (1997) identifies factors for successful knowledge preservation, these are:

- *Integrate Strategy and Policy* – knowledge management strategy should be tightly integrated with corporate strategy;
- *Ensure Senior Sponsorship* – senior executives must walk the talk. "There is no greater incentive than a boss who believes" Steward (1997, p126);
- *Implementing Technology and Processes* – ensuring effective implementation of the necessary technology to support the knowledge preservation process;
- *Changing Behaviour* – the organisational climate should be conducive and reinforce positive behaviour;
- *Removing Obstacles* – removal of barriers to knowledge sharing and overcoming the 'knowledge is power' syndrome; and
- *Appointing Knowledge Champions* – a knowledge leader/champion is someone who will actively drive the knowledge agenda forward and create enthusiasm and commitment.

These, although not exhaustive, present some high level theoretical concepts which should be understood when examining the topic of knowledge management. It is clear that the emphasis on knowledge management will continue to be of key importance for organisations into the future. In the South African management consulting industry, organisations need to continuously adopt and formalize methods of preserving knowledge if they wish to succeed.

The next section delves deeper in addressing possible factors which have been identified by IBM (BCS) leadership as influencing knowledge management and escalating knowledge gaps.

2.4 IBM Specific Factors Impacting Knowledge Management

Attracting, developing and retaining highly skilled professionals have become critical issues form most organisation's around the world, regardless of the type or size. Organisation's employ leading edge information technology practices; they perform costly research and design studies, but tend not to apply similar principles regarding investment and retention of people who are a significant source of intellectual capital. The World Competitive Report (1995) in which 48 countries were ranked according to their relative ability to generate wealth, ranks South Africa, in 42nd place. The report further reveals that in areas of finance and infrastructure it scored relatively well (20th and 19th respectively). However, South Africa came last (48th) in the field of human resource development" (Thomas 1996, p1). It is against this backdrop that the focus of this dissertation is to address the issue of knowledge management of human resources. This section of the dissertation will identify two broad themes presented by IBM (BCS) executives as being responsible for knowledge gaps within IBM (BCS) S&C, these are labour turnover and labour reduction initiatives, specifically downsizing.

2.4.1 Labour Turnover

Labour turnover refers to employees moving in and out of a business. "Turnover of highly skilled professionals carries an enormous price tag. It is estimated that replacement cost of employees can be as much as 150% of the departing employees' salary". (Branch 1998, p101). The loss of clients, new ideas and experience is not taken

into account in this figure! Labour turnover is costly, lowers morale and productivity and tends to get worse if not dealt with. The following should be considered when studying actual labour turnover, according to Van der Merwe and Miller (1976)

- The economic conditions of a country and the financial position of a company. Turnover generally tends to be higher when the economy is healthier and when companies are experiencing an increase in earnings and possibly recruiting more;
- The impact of mergers or acquisitions which is expected to contribute to higher turnover, due to the instability created by the process; and
- The nature of work performed by the company. Management consulting firms are notorious for having higher turnover rates compared to other industries.

Labour turnover is generally classified according to avoidable and unavoidable causes. Unavoidable labour turnover refers to occurrences of ill-health, death, pregnancies, retirements or retrenchments. Avoidable turnover refers to voluntary terminations and dismissals. For the purposes of this dissertation, only avoidable turnover will be discussed. This paper will explore themes which were identified (by IBM executives) as impacting labour turnover, these are:

2.4.1.1 Motivation Strategies

The MBA's dictionary defines motivation as "an emotional stimulus that causes a person to act…Work motivation is an amalgam of factors in the working environment that foster (positively or negatively) productive efforts" (Oran and Shafritz 1983 p270). Motivation theorists attribute job dissatisfaction and labour turnover to low levels of motivation. Organisations have people as their primary asset - where the attraction, development and retention of highly skilled professional should be a priority. Once an employee is recruited, motivation plays a key role in development and retention.

Motivation theorists present these compelling arguments. *Classical* or scientific theories depicted employees as rational beings driven by the desire to earn more money for services rendered. Consequently, managers focused on implementing output-based

financial incentive schemes. Over time, adjustments were made to this theory, In 1920's, Elton Mayo suggested that interrelated variables such as lighting, temperature, frequency of breaks, etc. affected conduct at work. His theories were referred to as the *Hawthorne Effect*. These preliminary studies revolutionised motivation theories by emphasizing the importance of the individual at work. This theory paved the way for others and inspired a focus on the individual, as an effective management style for motivating employees. Other theorist such as Maslow (1954) presented the "*needs hierarchy*" which ranks human beings needs from most to least important. Hertzberg (1959) supplemented Maslow's theories by proposing that specific "*hygiene factors*" were central to satisfying the needs of employees. McGregor (1960) then introduced *Theory Y* which emphasized the need for individual job achievement and satisfaction. McClelland (1967), draw attention to achievement, *power and affiliation* as primary motivation factors.

The following case study corroborates statements made by motivation theorists above. SAS Institute in the USA is a private software company highly skilled computer technicians. The company only experiences 4% annual labour turnover in an industry where the norm is 20%. The rational behind low turnover rates are because the company is serious about implementing certain aspects of motivational theory to retain talented individuals. James Goodnight (CEO) states that the individual's happiness is paramount. The company provides a free clinic, huge recreational facilities and coffee break rooms with free drinks, fruit and candy. They also offer subsidized lunch with a pianist playing daily. Additionally, SAS also offer private school and housing subsidies to its employees. "SAS is not the highest paying employer in the industry, but instead offers a paternalistic orientation, whose value is not lost on its employees…I could make more money somewhere else, and about twice a month headhunters call, but money isn't everything, You're treated as family here" (Noe 2000 p 353). This case study clearly highlights the importance of individual job satisfaction and its correlation to motivation and labour turnover.

2.4.1.2 Affirmative Action Initiatives

Oran and Shafritz (1983 p17) write that advancement "is the requirement that an organization take specific steps to remedy the present effects of past discrimination in hiring and promotion...Affirmative action groups are segments of the population that have been identified by legislation to be specifically protected from employment discrimination". Retention is critical from various aspects, authors such as de Geus (1991) Moolman (1990) and the researchers' personal observation, identify the following elements which support the importance of black staff retention:

- The server shortage of black managers in South Africa coupled with the small ratio of managers to subordinates will become critical for participating in a global economy;
- The low levels of productivity; and
- Escalating pressure from government on organisations to reflect a more realistic ratio of black managers in their management teams. Organisations are facing a stark reality check if it wants to survive politically and economically.

The way to real rapid economic growth is to address issues of affirmative action. For example, in 1998, Ernst & Young created the 'Office Of Retention Program' which had its own separate budget and was charged with identifying a subset of people at all levels of the organisation that were central to Ernst & Young's future and doing what was necessary to keep them happy" (Noe 2000, p362). This 10-point plan was identified for successful implementation of affirmative action programmes:

1. Ensure commitment from senior executives;
2. Ensure line management accountability;
3. Assess the current utilisation pattern;
4. Forecast how these patterns will change in the foreseeable future;
5. Develop strategic processes for changes which will be implemented;
6. Implement formal training programmes;
7. Set implementation goals and timetables;

8. Set clear affirmative action targets;
9. Ensure continuous two-way communication; and
10. Evaluate end result to those set out at the beginning of the process.

In summary, organisations must take the lead to implement effective strategic programmes to accelerate black development. These are necessary to counter the effects of escalating labour mobility of skilled resources and long-term knowledge preservation.

2.4.1.3 Training and Development Programmes

Traditionally training "focused on helping employee's performance in their *current* jobs. Development focused on job experiences and abilities which assisted employees prepare for the *future*. Development helps prepare them for other positions in the company and increase their ability to move into jobs" (Noe et al 2000 p318).

Waterman (1994) writes that to create a win-win situation for employer and employee, it should be "the employee's responsibility to manger his or her own career. It is the company's responsibility to provide the tools, the open environment and the opportunities for assessing and developing the employee's skills...Employees will benchmark and update their skills constantly to maintain and enhance their employability in and outside the company. This in turn will ensure the competitiveness of the organisation by keeping close to the customer, staying on top of technology and market trends and striving for flexibility" (Waterman 1994, p88).

The researcher is of the opinion that retention of key employees is possible through effective training and development policies. Kruger (2000) (http://www.newsview@php.co.za – internet 5) writes that in the new economy the most important resource that employers need is knowledge. Employees need to be equipped with the latest up-to-date knowledge of the trends facing the industry, its competitors and new business opportunities. "Training and development play an important role in ensuring continuity of employment and is one of the ways to minimizing job mobility among existing employees" (Thomas 1999, p91). According to Thomas, the rationale for

the lack of retention among professionals in South Africa is ineffective training and development. Managers should focus on implementing training and development programmes with specific emphasis on job performance mentorship and career advancement (Thomas 1999). Organisations should take an active interest in the careers and development of highly skilled professionals to ensure retention of top-performing employees.

2.4.1.4 Compensation/Remuneration Practices

"From an employer's point of view, pay is a powerful tool for furthering the organisations strategic goals. First, pay has a major impact on employee's attitudes and behaviour. It influences the kind of employees who are attracted to (and remain with) the organisation (Noe 2000, p388). "Perceptions of inequity may cause employees to take actions to restore equity. Some of these actions such as quitting or lack of co-operation, may unfortunately not be helpful to the organisation in the long term" (Noe 2000 p422).

Literature studied on this subject presents several arguments for and against remuneration and benefits as a primary factor influencing highly skilled professions to remain with the organisation, Arguments in favour presented by Williams and Sunderland (1999) who argue that salary and benefits are two of the most important factors affecting employment decisions. To prevent highly skilled professionals from leaving the organisation, compensation systems must be designed to support the mission and culture of the organisation. Compensations systems must communicate to everyone what is important and what their role in ensuring sustained success across the organisation. Arguments against presented by Hertzberg (1959) propose that certain 'hygiene' factors are required to prevent employees becoming dissatisfied. These factors are; achievement, recognition, work itself, responsibility and advancement. These factors are principle and supercede factors such as compensation. Hertzberg (1959) proposes that extrinsic rewards such as salary and financial rewards should be a subset of the primary hygiene factors.

Although the theories presented above, differ slightly focus, they both highlight the fact that compensation policies impact labour turnover since professional staff ascribe a

significant degree of importance to this variable as it relates to their decision to terminate employment.

2.4.1.5 Variables which will be excluded from this study

Length of service

Although this variable is important as a cause of labour turnover, it will not be considered in this study because it was not identified as crucial by IBM executives.

Age

Studies by van der Merwe and Miller (1976) reveal that there is a relationship between age and turnover. Turnover is primarily a short service problem and age is closely related. New employees are the highest turnover risk because they do not stay long enough to become integrated into the organisation. Since this paper focused only on IBM (BCS) staff between levels 7 and 10, the age theory may not be relevant since BCS does not employ consultants directly from university - experience is pre-requisite.

Other variables

Personal factors such as marital status, sex, socio-economic background, educational level, family size, will not be taken into account because "research done at the University of Port Elizabeth revealed very little evidence that personal circumstances are a major factor in stability" (van der Merwe and Miller, 1976 p 75). Organisational factors (i.e. size of work group, supervision, and company climate) and environmental dimensions (i.e. location, state of the economy) are also excluded from this study as these were not identified by IBM executives.

2.4.2 Labour Reduction

The terminology 'labour reduction' was decided upon by IBM executives and consultants during the pilot study as a sub-category of factors impacting knowledge management. Loosely defined, it refers to IBM specific initiatives which have resulted in a scaled down BCS business unit. This paper will explore themes which were identified (by IBM executives) as impacting labour reduction, these are:

2.4.2.1 Downsizing

This researcher will use the term 'downsizing' purely in a business sense – that is, to restructure and shrink the organisation by stripping away layers of organisational levels. Noe (2000, p150), defines downsizing as "the planned elimination of large numbers of personnel designed to enhance organisational competitiveness". Literature presented by Harrington (1995, p407) emphasizes several issues to consider:

- Firstly, downsizing should be combined with a complete process redesign and operational re-engineering. Removing people from the organisational structure is not enough; the underlying processes should also be restructured;
- Secondly, downsizing negatively impacts corporate culture and hence impacts employee morale; and
- Finally, downsizing "continues to be an instinctive response to lost or threatened market share, but many organisations are beginning to realize that it an inadequate response to their changing environment".

2.4.2.2 Natural attrition

Natural attrition occurs where organisations intentionally reduce staff by not recruiting or replacing lost staff. According to Beer & Spector (1985) natural attrition, coupled with no new hires usually has the highest impact when downsizing an organisation.

2.4.2.3 Internal Transfers

Generally, internal transfers are used by IBM to achieve two objectives, firstly to keep the knowledge and expertise inside the organisation and secondly to capitalize on the investment it has made in recruiting, training and developing current employees. Due to changing market needs, IBM (BCS) has had to restructure it operating model. The new model resulted in surplus skills which were not appropriately aligned with the new business model. Since IBM executives appreciated the skills and expertise of these consultants, a conscious effort of internal transfers is encouraged.

An internal transfer is "placement of an employee in another job for which the duties, responsibilities, status and remuneration are approximately equal to those of the

previous job. A transfer may require the employee to change works group…or organisational units….Transfers make it possible for an organisation to place its employees in jobs where there is a greater need for their services and where they can acquire new knowledge and skills" (Sherman & Bohlander 1992, p241). Furthermore, these authors also state that internal transfers should be coupled with promotion. "Promotion serves to reward employees for past performance…it also gives employees reason to anticipate that similar efforts by them will lead to promotion, thus improving moral" (Sherman & Bohlander 1992, p148). Transfers are sometimes met with apprehension hence many organisations have difficulty getting employees to buy-into them. Research has "identified the employee characteristics associated with a willingness to accept transfers; high career ambitions, a belief that one's future with the company is promising and a belief that accepting a transfer is necessary for success in the company" (Noe 2000, p 333).

2.4.2.4 Outsourcing projects to external partners

Outsourcing refers to "the practice of having another company (known as a vendor, third-party provider or consultant) provide services" (Noe 2000, p6). Outsource companies generally provide a broader set of predefined services when the principal company is not willing or able to invest the time, effort or finances to develop those skills internally. IBM (BCS) outsources selected consulting functions to third-party providers for the following reasons:

- Government contracts require significant black representation in executive management positions. Current employment equity figures within the consulting division are very low, hence, the organisation is 'forced' to form *joint venture partnerships with black owned consulting companies in order to* participate in the public sector projects;
- The revised operational model has not been approved; therefore BCS is not able to recruit. If certain skills are not available internally, they are outsourced from third-party vendors; and
- The nature of business consulting is that all assignments are managed as projects with a defined start and end date. These projects may require costly,

specialist skills for a brief period. IBM (BCS) would then contract the services of a specialists outsource partner for this period.

Noe (2000) writes that if outsourcing is not properly implemented, it could create a downward plunge that entraps the organisation in a vicious cycle where the principal company itself is stripped of its knowledge base and produces nothing of value. Bluestein & Hill (1992) conducted a study which found that the disadvantages of outsourcing can include high cost and the outsource partner ignorance of client's business needs – which could negatively impact the corporate image of the principal company.

2.4.2.5 Operational restructuring due to changing market needs

The ever-changing complex South African business and socio-political environment have contributed to the growth of the management consulting industry. Clients require consultants who have deep industry skills. They require consultants who can manage their business problems by reducing uncertainty. The primary function of a management consultant is to provide "a professional service that helps managers analyze and solve practical problems and transfer successful management practices from one enterprise to another…it is a service provided by an independent and qualified person identifying and investigating problems concerned with policy, organisation, procedures and methods, recommending appropriate action and helping to implement these recommendations" (Greiner & Metzger 1983, p5). Ever-changing market demands call for management consulting companies who can keep pace and deliver ever-changing services and products. IBM (BCS) has experienced these market pressures and responded by proposing a restructured operating model. Two years ago, the BCS operating model showed several categories:

- Information Technology Solutions;
- SAP Consulting;
- Procurement;
- Customer Relationship Management;
- Financial Management;

- Financial Transformation
- Human Capital Solutions;
- Strategic Management;
- Shared Services;
- Change and Communications; and
- Supply Chain Management.

At the beginning of 2004, this model was redefined and read as follows:

- Application Innovation;
- Business Transformation Outsourcing (BTO);
- Customer Relationship Management;
- Financial Management;
- Human Capital Management;
- Strategy and Change; and
- Supply Chain Management

From 1st August 2004, this model will once again change to read as follows:

- On-Demand Application & Transformation;
- On-Demand Solutions; and
- Technical Applications (SAP and Websphere).

This new operating model is in response to the ever-changing market demands. It focuses on providing 'On-Demand Consulting' – which is the current catchphrase.

2.5 Conclusion

This chapter provided an intensive study of literature on knowledge management, labour turnover and labour reduction elements. It was used for building a foundation towards establishing a solid understanding of the problem statement and hypotheses. This information will be consolidated with results from the questionnaire and used as input to overall recommendations.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The objective of this section is to introduce the research design techniques employed in this study and to present the hypothesis which will be answered through analysis of the data from questionnaires collected. The research methodology takes the takes the reader through the logic used when conducting the actual research. Figure 1.1 below demonstrates the research methodology employed. Firstly, a research question that interested the researcher was formulated. Then a research questionnaire was designed around literature, feedback from the pilot study, experience and questions that interested the researcher. Three separate questionnaires were distributed amongst the sub-divisions in the S&C Solution Area to test the hypothesis. The results from the questionnaire will confirm the hypotheses.

Figure 1.1 Summary of the Research Process

3.2 Research Design

Leedy (1997) writes that the nature of data will determine the methodology to use when undertaking research. A qualitative approach to research is best when the purpose of the research is to discover, develop or enhance theory, for example, when the research is exploratory in nature. A quantitative approach is best when one wishes to test theory and where the researcher "seeks explanations and predictions that can be generalised to other persons and places" Leedy (1997, p106). Groenewald (1986) identified 5 research designs. These can be summarised as:

- *Case studies* – they comprises the study of a single unit;
- *Historical studies* – associated with the study of existing documents;
- *Typological studies* – establishing models for comparing empirical cases;

- *Experiments* – they "attempt to prove the existence of a relationship between factors by means of the comparison of two sets of circumstances which agree in all respects expect one" Groenewald (1986, p51); and
- *Surveys* – "have become synonymous with the use of indirect observation, viz. interviews and questionnaires" Groenewald (1986, p55). They can be used as a research design for both qualitative and quantitative research.

The research methodology adopted in this dissertation was a questionnaire requiring a combination of quantitative and qualitative data. Figure 3.1 below graphically illustrates the process followed in this paper. The next section will unpack the areas highlighted on this diagram. The primary focus areas have been numbered accordingly.

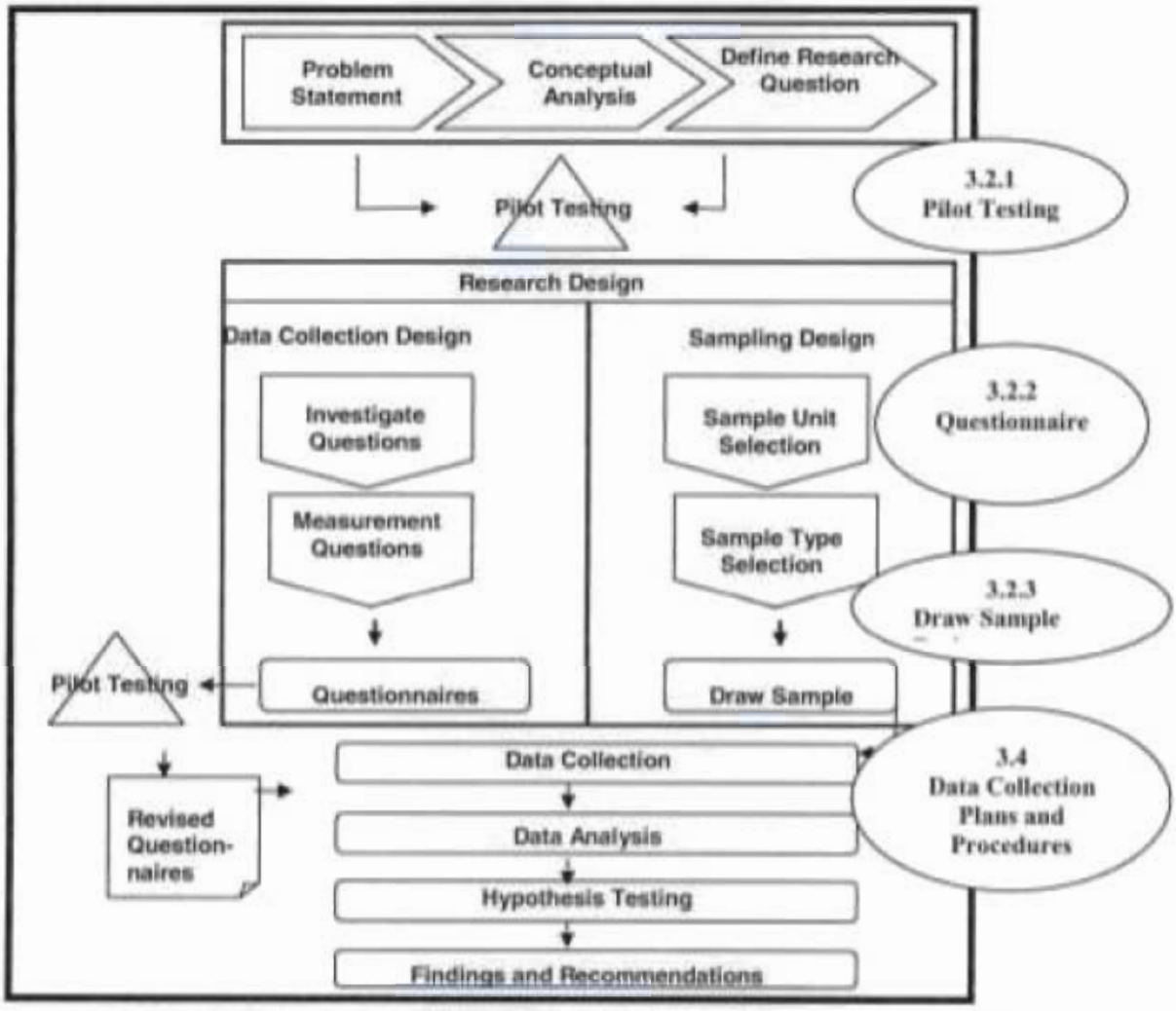

Figure 3.1 Research Process, adapted from Cooper& Schindler (1998)

3.2.1 Pilot Testing

According to Cooper & Schindler (2003, p86), "a pilot test is conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample. It should, therefore draw subjects from the target population and simulate the procedures and protocols that have been designated for data collection" The type of pilot testing used in this report is pre-testing. This is when "actual respondents are used to refine the measuring instrument" (Cooper & Schindler 2003, p86). An initial pilot study was conducted to with 2 senior Partners to obtain approval for the study and to investigate whether the hypothesis and related questionnaire were well structured.

Thereafter, another pilot study was conducted with a larger, representative group of executives and consultants, on the main questionnaire. The draft questionnaire was piloted using a focus group of 5 colleagues and 1 senior Partner. The participants were told that it was a pilot study and asked to deliver constructive comments on the questionnaire. They were specifically asked to evaluate the labour reduction and labour turnover variables listed, as they relate to knowledge management. Respondents suggested that the terminology used be IBM (BCS) specific, for example, labour reduction. They also commented on the variables presented under the headings labour turnover and labour reduction. An important aspect of the pilot study was also to determine the estimated time taken to complete the questionnaire. The participants had little trouble with most of the statements in the questionnaire. However some clarifications were required for BCS core knowledge tools. Consequently, when the final questionnaires were distributed, the researcher directed all respondents to the intranet site where detailed definitions are provided. The questionnaire was made as user friendly as possible to avoid confusion and discrepancies. Overall, the intention of the pilot study was to assess whether aspects of labour turnover and labour reduction, could intensify knowledge gaps. In addition, as part of the pilot study, participants listed additional variables they believed to be associated with knowledge gaps in strategy and change. Following the pilot study, the main questionnaire was revised before distribution to the entire IBM (BCS) S&C staff.

3.2.2 The Questionnaire

The data for this research was collected through a questionnaire. Leedy (1997, p191) defines a questionnaire as "a data gathering technique which is particularly suitable when the data needs to be obtained from geographically dispersed people". The questionnaire designed in this dissertation contained three types of measuring instruments as displayed in Figure 3.2 below.

Type of instruments	Example from Questionnaire
Administrative instruments Ask general, background information	▫ How long have you been employed by the IBM (BCS) S&C?
Classification instruments Ask demographic variables	▫ What sub-solution area are you in? ▫ What band are you currently?
Target instruments Comprise structured/closed questions. They provide a checklist of questions to choose from.	▫ I am aware that knowledge gaps exist in the S&C business unit (Strongly agree, Disagree, Neither agree nor disagree, Agree, Strongly agree). ▫ Labour turnover impacts knowledge management (Strongly agree, Disagree, Neither agree nor disagree, Agree, Strongly agree).
Target instruments Comprise unstructured/ open-ended questions. They do not limit the responses.	▫ What do you understand by the term knowledge management gaps? ▫ Do you believe Does IBM (BCS) has a strategy for knowledge management? ▫ What changes, if any, should IBM (BCS) consider in terms of knowledge management/preservation, in order to survive in the long term?

Figure 3.2 Measuring Instruments

A total of 30 questionnaires were distributed, however, not all 30 questionnaires were completed due to the number of consultants who resigned over that period.

3.2.3 Drawing a Sample

Wegner (1993, p 170) defines sampling as "the process of selecting a representative subset of observations from a population to determine the characteristics (i.e. the population parameters) of a random variable under study".

The researcher used a form of probability sampling referred to as proportionate stratified sampling. This means that the population selected for this study was drawn from a subpopulation of the broader business consulting group. The business consulting group comprises 7 clearly distinguishable subgroups, (Application Innovation; Business Transformation Outsourcing (BTO); Customer Relationship Management (CRM); Financial Management; Human Capital Management; Strategy and Change; and Supply Chain Management). The researcher selected the entire population from the Strategy and Change as a target population for this study. "In proportionate stratified sampling each stratum is properly represented so that the sample drawn from it is proportionate to the stratum's share of the total population" (Cooper & Schindler 2003, p195).

The benefit of probability sampling is more reliability and it creates a sense of comfort that the sample selected is representative of that population. The limitation with selecting stratified sampling is that results cannot be applied to any of the other solution areas or the broader IBM population.

3.3 Identifying Data Requirements

According to Cooper & Schindler (2003), data identification is generally categorized into three categories, primary, secondary and tertiary data sources. The researcher identified the following data requirements:

3.3.1 Primary Data Sources

Primary data was collected from the IBM intranet and human resources statistical records reflecting number of resignations over the period. This data source was used during the exploratory phase of the research to develop the research problem and subsequent hypotheses.

3.3.2 Secondary Data Sources

Secondary data was used for the bulk of the research. Examples include: textbooks, articles, business journals, newspapers and case studies.

3.3.3 Tertiary Data Sources

Tertiary data was collected from various internet sites.

In summary, it is important to remember that "all information is not of equal value. As the source levels indicate, primary sources have more value than secondary sources and secondary sources have more value than tertiary sources" (Cooper & Schindler 2003, p282)

3.4 Data Collection Plans and Procedures

According to Cooper & Schindler (2003), the intention of the data collection plan is to outline four important questions - who, what, when and how:

3.4.1 Who

This main questionnaire (Appendix 1) was distributed to ALL consultants employed in the S&C Solution Area as at June 2004. The questionnaire was either e-mailed or copied and handed to respondents. The original number distributed was 30 but only 23 questionnaires were completed, due to the number of consultants who resigned over that period.

3.4.2 What

The researcher attempted to confirm if labour turnover and labour reduction efforts, negatively impact knowledge management, hence the following hypotheses were derived:

- Hypothesis 1 — Core Strategy and Change skills are diminishing because of inappropriate strategic consulting knowledge tools.
- Hypothesis 2 — Core Strategy and Change skills are diminishing because consultants are not competent in strategic knowledge tools required.

- Hypothesis 3 — Core Strategy and Change skills are diminishing because consultants are leaving IBM (BCS).
- Hypothesis 4 — Core Strategy and Change skills are diminishing because IBM (BCS) is downsizing by not filling vacant positions.

3.4.3 When

The timing of this particular study is extremely important. It was conducted almost 2 years after IBM acquired PwC Consulting. The researcher is aware that certain negative responses in the questionnaire could be due to poor change management during the acquisition process. Another factor is that IBM (BCS) is experiencing significant labour turnover which may also influence the findings.

3.4.4 How

The questionnaire, (Appendix 1), was used to obtain both qualitative and quantitative data. Completed questionnaires were collected 9 business days after being distributed. The approach to each section in the questionnaire was to measure responses through either qualitative or quantitative techniques. The questionnaire was designed as follows:

Section A uses qualitative measures to determine whether respondents are familiar with concepts of knowledge management and knowledge preservation. *Section B* (first part) also uses qualitative techniques to list general information per respondent. The second part of Section B uses quantitative techniques as a basis for understanding knowledge gaps amongst individual consultants. *Section C* uses a quantitative approach to understanding individual perceptions around the elements of labour turnover and downsizing and there influence on existing knowledge gaps within IBM (BCS).

3.5 Operational Definitions of all Variables

"Confusion about meaning of concepts can destroy a research study's value without the researcher even knowing it. If words have different meanings to the parties involved, then they are not communicating on the same wavelength. Definitions are one way to reduce this danger" (Cooper & Schindler 2003, p45).

3.5.1 Operational Definitions

An operational definition is the ability to define the measurement factor used. Since this dissertation is primarily focused on measuring abstract concepts such as knowledge, commitment, motivation etc - literature presented by Cooper & Schindler (2003), states that defining operational definitions becomes even more critical.

This dissertation used the following operational definitions

- Sub solution areas or Business Units
  - Information Technology;
  - Change and Corporate Strategy; and
  - Corporate and Operations Strategy.
- Band
  - Band levels 7 to 10.

3.5.2 Variables

A variable refers to the phenomenon being researched. The following are examples of variables identified. Labour turnover (independent variable) impact knowledge management (dependent variable). Labour reduction (independent variable) impact knowledge management (dependent variable).

3.6 Reliability and Validity of Instruments

Leedy (1997) highlights the importance of testing the validity (accuracy) and reliability (consistency) of the measuring instrument. Generally, tests should measure exactly what the research requires as accurately and efficiently as possible.

3.6.1 Reliability and Validity of pilot studies

The researcher decided to use phased pilot studies as a means to test both the validity and reliability of the measuring instruments. The first phase of the pilot study focused on testing the validity of the measuring instruments by interviewing 2 senior IBM partners to determine whether:

- The research topic would be beneficial to the organisation;

- The interview questions were clear and understandable; and
- The responses were relevant.

The second phase of the pilot study involved a larger more representative group of employees who were asked to comment on the structure, content and time to complete the questionnaire. This step focused on the reliability of the measuring instrument since the researcher involved one of the original pilot study participants in answering the modified questionnaire. The focus on re-testing was to compare the responses given in both sets of questionnaires and to determine if there were any fundamental changes to the responses obtained.

3.6.2 Reliability and Validity of Questionnaire

The questionnaire was structured as follows - *Section A* introduces the respondents to concepts of knowledge management and knowledge preservation to ensure consistency and understanding. *Section B* comprises three sub-sections: firstly, to identify respondents within the 3 Sub-Solution Areas within IBM (BCS) S&C. Secondly, to rank the 20 essential knowledge tools. Finally, it required an evaluation of individual competencies across 20 primary knowledge tools. *Section C* attempts to understand the origins of knowledge gaps and invites the respondents to evaluate the role of labour turnover and labour reduction on knowledge gaps within IBM (BCS).

Reliability and validity was achieved in the design of the questionnaire, through:

- Construct validity - using a five-point Likert scale ranging from strongly disagree to strong agree;
- The questionnaire was approved by Dr D Laxton, University of Natal Business School, in order to achieve high face validity.
- Reliability was considered as questions have been asked in a similar way across all three sub-solution areas.

Apart from expected phrasing differences, the feedback on the questionnaire design was the same; therefore the degree of reliability and validity of the measuring instrument was considered to be adequate.

3.7 Conclusion

The objective of this section was to present the theory behind research design techniques employed in this study. This chapter also discussed the reasons behind using the interview-questionnaire approach. It discussed the structure of the questionnaire and presented arguments in favour of the validity and reliability of the questionnaire.

CHAPTER FOUR
RESULTS OF STUDY

4.1 Introduction

Cooper & Schindler (2003), write that data analysis is a process of consolidating and presenting data in a summarized format. This chapter covers the analysis of the data collected from the questionnaires. It also interprets statistics in support of the hypotheses. All statistics were analyzed using Excel and PHstat (Appendix 2).

4.2 Data Analysis and Interpretation

This section presents an analysis and interpretation of both qualitative and quantitative data used. The first section provides an analysis and interpretation of *qualitative* data. The second section discusses *quantitative* data.

4.2.1 Analysis and Interpretation of Qualitative Data

This section of the paper focuses on Part A of the questionnaire. However, it excludes:

- Question 5, which is dealt with under chapter 5 - Recommendations and Conclusion; and
- Question 6, which is addressed under the quantitative analysis of this chapter.

This section will be presented as follows:

- The **question**, as presented in the actual questionnaire is noted;
- The **aims of objectives** of asking that specific question is discussed;
- An **analysis** of all responses is presented in a tabular format. The first column lists the respondents reference number allocated by the researcher:
  - For example: CS1, refers to Corporate Strategy respondent 1,
  - CPS1 , refers to Change and Programme Strategy respondent 1; and
  - IT1, refers to Information Technology respondent 1.
- The **interpretation of results** is discussed where knowledge management and labour turnover literature is integrated with the actual responses.

Section A Questions 1 and 2: What do you understand by the terms knowledge management and knowledge preservation?

Question aims and objectives: These open ended questions enabled the researcher to assess the overall understanding of terminology used. A sample of responses is presented in the tables below, categorized according to each solution area. The researcher only focused on a few responses as most of the responses were similar.

Analysis:

	Corporate Strategy (sample of responses)
CS1	Knowledge gaps refer to knowledge areas not effectively managed.
CS2	The gap between the knowledge that individuals have and what is available to everybody on the databases. Knowledge preservation means to keep all info/work products/proposals etc. that was created in BCS in a database which is accessible to all employees.
CS4	It is the difference between the current status quo of knowledge management and the ideal status in comparison with best practice.
CS7	Knowledge preservation is to keep knowledge 'safe' and updated
CS8	Managing information, smart products, knowledge enriched products and knowledge services. at an organizational level, it involves implementing knowledge best practice processes, personal development programmes, e-learning and corporate portals.
CS9	Providing a regulatory framework that ensures material is available and accessible to all.

	Information Technology (sample of responses)
IT1	Knowledge preservation means introducing a portal to manage information gathered on projects and intellectual capital of experienced hires.
IT2	Information mining which is needed to make discussions. Knowledge preservation means backup knowledge to ensure availability and update the knowledge continuously to ensure relevant knowledge used in decision making.
IT4	Explicit, systematic and tactical knowledge existing (or in this case, not existing) in an organisation. Knowledge is key to an organisations survival.

IT5	Non management of peoples qualification, experience, skills, programmes etc. Knowledge preservation refers to managing skills qualification and experience of people in the company.

	Change and Programme Strategy (sample of responses)
CPS1	Human knowledge and networking information which have not been processed and managed effectively resulting in specific gaps in the organisations knowledge department. Knowledge preservation is ensuring that years of experience of a knowledgeable individual/s is correctly stored and transferred so that it can be re-used in the company.
CPS2	Knowledge preservation is having knowledge innovation – managing knowledge faster and better. Having better enabling technology – ensuring it becomes easier to assemble and share information across organisational boundaries. Minimizing uncertainty and risk – better access to relevant knowledge will help managers make better decisions and so minimize various risks that may confront the business.
CPS3	A break in the knowledge gain in projects and other work/practice management and the preservation or retention of this knowledge for re-use later. Knowledge retention of learning/ deliverables knowledge in people's heads for use in future projects/product delivery.
CPS6	Knowledge preservation is managing intellectual capital. Making sure books, projects and other deliverables are accessible to all people in an organisation.
CPS7	Using an integrated framework that manages the process of storing and retrieving knowledge and make it re-usable.
CPS8	Developing a knowledge management system where packaged KM solutions are disseminated to employees.

Figure 4.1.1 Responses from Questions 1 and 2 in Questionnaire

Interpretation of Questions 1 and 2: Figure 4.1.1 above shows that responses generally reflect superior understanding of both knowledge management and knowledge preservation. Literature supports these findings, Nonaka (1991) and Steward (1997), state that knowledge has become the fundamental source of wealth.

Management consulting firms generally view knowledge management as the art of creating value by leveraging intangible assets - people. Prusak (1997) (http://w3.knowledge.raleigh.ibm.com/n archives/whatiskm.html - internet 7)says that knowledge management is an attempt to understand what is essentially a human asset hidden in the minds of individuals and manipulate it into an organisational asset that can be retrieved and used by a larger grouping of individuals on whose leadership the firm depends. Davenport *et al.* (1998) knowledge is the name given to a set of systematic and disciplined actions that organisations can take to derive the greatest value.

The respondents also made a clear distinction between these two concepts; with knowledge preservation, being identified as the process of achieving effective knowledge management. It is clear from these responses that consultants view knowledge management and knowledge preservation as critical for company success.

Question 3: Do you believe Does IBM (BCS) has a strategy for knowledge management?

Question aims and objectives: The intention of this question was to gather information in support of the *problem statement*. All responses are presented in the tables below, categorized per solution area. The interpretation has been done separately as some respondents commented negatively whilst other were positively.

Analysis of Question 3 for Corporate Strategy Respondents:

	*Corporate Strategy (**YES**)*
CS1	Management has identified a team who are currently involved with setting up a knowledge management solution area. W-3 provides consultants with significant information on the topic.
CS3	Yes
CS6	In certain areas where the solution leaser is active.
CS8	In certain areas
CS9	Yes, but not clearly defined
CS10	Yes

	Corporate Strategy ***(NO)***
CS2	They have a knowledge database where you can create your documents but it is not enforced, therefore, they do not have a strategy.
CS4	I do not believe there is a proper management of the strategy especially in BCS. The strategy could be there but the implementation thereof is lacking.
CS5	If there is a strategy it is not well communicated, therefore I am not ware of any knowledge management strategy.
CS7	Not sure of any internal initiatives.

Figure 4.1.2 Responses from Question 3 - Corporate Strategy Respondents

Interpretation of Question 3 results for Corporate Strategy Respondents: Figure 4.12. shows that some of the respondents in this solution area are unwavering in support of a clearly defined knowledge management strategy. Other respondents, although in agreement, are not unconvinced that the strategy is clearly defined. At least four respondents are unambiguous about the fact that there is no clear knowledge management strategy.

Question 3: Do you believe Does IBM (BCS) has a strategy for knowledge management?

Question aims and objectives: The intention of this question was to gather information in support of the *problem statement*. All responses are presented in the tables below, categorized per solution area. The interpretation has been done separately as some respondents commented negatively whilst other were positively.

Analysis of Question 3 for Information Technology Respondents:

	Information Technology ***(YES)***
IT1	Informally
IT2	Yes
	*Information Technology****(NO)***
IT3	No
IT4	Not clearly defined
IT5	No

Figure 4.1.3 Responses from Question 3 - Information Technology Respondents

Interpretation of Results for Information Technology Respondents: Figure 4.1.3 reflect that certain of the respondents in this solution area believe there is no clearly defined knowledge management strategy. This is interesting since this group displayed the most significant knowledge management gaps.

Question 3: Do you believe Does IBM (BCS) has a strategy for knowledge management?

Question aims and objectives: The intention of this question was to gather information in support of the *problem statement*. All responses are presented in the tables below, categorized per solution area. The interpretation has been done separately as some respondents commented negatively whilst other were positively.

Analysis of Question 3 for Change and Programme Strategy Respondents:

	Change Strategy (YES)
CPS7	Yes, especially on large projects. Recently at AngloGold we had a shared drive which was accessible to both client and consultants where articles, reports, presentations and other material was stored.
CPS8	Yes
	Change Strategy (NO)
CPS1	No. PwC had a very good KM department, BCS is still new and should appoint a KM manager.
CPS2	In progress
CPS3	No, very different environment that does not retain past project and learning on a central database that is easily accessible. No incentive to use the IBM internet.
CPS4	*Not al all, good people are leaving the organisation, especially band 9 and 10's.*
CPS5	No, if they do have, it is not well advertised.
CPS6	BCS does not have a clearly defined strategy. The broader IBM has excellent knowledge management processes. These should possibly be made available to all BCS consultants.

Figure 4.1.4 Responses from Question 3 - Change and Programme Respondents

Interpretation of Results for Change and Programme Strategy Respondents:

Figure 4.1.4 show that a significant majority of respondents in this solution area do not believe that a knowledge management strategy exists. This result was predictable since the change strategy consultants are usually responsible for knowledge management on projects and internally. Previous knowledge mangers were recruited from this solution area. Overall, the view is that consultants do not believe that an effective knowledge management strategy is in place. This is particularly concerning for IBM (BCS) because literature, Nasseri (1996) (http://www.brint.com/km/papers/submit/nasseri.htm – internet 6) writes that knowledge is the organisations most important strategic imperative and therefore its management must be equally important. He further adds that, for effective knowledge management to continue, the management of the organisation's knowledge should be integrated with overall business strategy.

Question 4: How does management in BCS identify which knowledge assets need to be managed/preserved?

Question aims and objectives: The intention of this question was to identify if a knowledge asset identification process exists and to make recommendations on possible implementation strategies. As some of the responses were similar, the researcher listed only those with unique contributions.

Analysis:

	Corporate Strategy (sample of responses)
CS1	By engaging sub-solution leaders for each practice and getting them involved in the process. Also, by ensuring knowledge management is part of their PBC's.
CS2	It is up to the individual to decide if he/she wants to add their docs to the database.
CS3	Intellectual assets or capital generated from client engagements are stored or loaded onto knowledge databases at the consultant's discretion. There does not appear to be any pre-qualification process before or after submission of documents.
CS8	Primarily done at a leadership level. Each solution area has a solution leader

	who has primary responsible for ensuring knowledge management, skills transfer and knowledge expansion.
CS10	Through IBM's knowledge board.

	Information Technology (sample of responses)
IT4	By storing knowledge on a knowledge portal, appointing a knowledge manager who is responsible for identifying key knowledge areas.

	Change and Programme Strategy (sample of responses)
CPS2	By using a standard knowledge management methodology which is available to all consultants worldwide.
CPS3	Only deliverables/proposals/SOW/PA's are retained. Knowledge carried within human capital is often lost due to lack of retention planning in HR.
CPS6	Being from the broader IBM this was clearly defined at the beginning of all projects, customers would participate in knowledge transfer processes. The IBM PwC merger resulted in this area not being effectively managed in the new BCS where there are mainly PwC consultants.
CPS7	According to each project, an IT implementation involving Change would ensure that previous projects information is used to get everyone up to speed. Typically project managers would do this on a project by project basis. Works very well on IT projects where we usually use a standard implementation approach.
CPS8	Through using the Knowledge innovation methodology. Identifying innovation insight variables (eg COP's; Global information infrastructure; NOE's;) and by identifying innovation foresight variables (Knowledge Kaleidoscope etc.)

Figure 4.1.5 Responses from Question 4 - All Respondents

Interpretation of Results: Figure 4.1.5 above reflect the brief and sometimes inaccurate responses from Corporate Strategy and Information Technology group,. This clearly demonstrates a lack of understanding of how knowledge assets are managed within the organisation. The detailed responses provided from Change and Programme Strategy indicates a clear understanding of knowledge management concepts as reflected in figure 4.1.5. This can be attributed to the fact that knowledge management

is a competence of this solution area. Generally, all groups suggests that a knowledge asset preservation process is not in place.

Steward (1997, p70) suggests that "knowledge assets ...exist and are worth cultivating only in the context of a strategy...intellectual capital doesn't exist without a purpose and a point of view". An organisation must determine the information and knowledge assets critical for its long-term survival. It should prioritize establishing effective ways of identifying what knowledge assets should be preserved. Steward (1997) says not all knowledge in an organisation is of equal value. What is considered knowledge to one unit may not be important to another.

4.2.2 Analysis and Interpretation of Quantitative Data

This section of the paper focuses on Part B of the questionnaire; it starts with question 6 from Part A and works through all the questions systematically, as presented in the questionnaire (Appendix 1). All quantitative results will be supported by graphs and statistical calculations and will be categorized according to the three sub-solution areas: Information Technology, Change and Programme Strategy and Corporate Strategy.

This section will be presented as follows:

- The **question**, as presented in the actual questionnaire is noted;
- The **aims of objectives** of asking that specific question is discussed;
- An **analysis** of all responses is presented in a tabular format. The first column lists the respondents reference number allocated by the researcher:
  - For example: CS1, refers to Corporate Strategy Respondent 1,
  - CPS1 , refers to Change and Programme Strategy respondent 1; and
  - IT1, refers to Information Technology respondent 1.
- The **interpretation of results** is discussed where knowledge management and labour turnover literature is integrated with the actual responses.

Question 6 : Please rank the importance of these key knowledge tools according to rating scale (1 to 5):

Structured Knowledge Tools

1) Knowledge Harvesting;
2) Communication;
3) Point of View;
4) Though Leadership;
5) Information Technology;
6) Books/Magazines;
7) Communities of Practice;
8) Training

Unstructured Knowledge Tools

9) Communication;
10) Company Culture;
11) Mentorship; and
12) Books/Magazines.

Question aims and objectives: This questions ranks respondents views on the importance of structured (formal) versus unstructured (informal) knowledge tools. The primary intention is to determine the preferred method for disseminating explicit knowledge amongst consultants.

Analysis of all responses: The responses to this question have been analyzed and presented in figures 4.2.1 to 4.2.3 below. The graphs list the 12 knowledge elements against the level of importance (out of 5) by all respondents, per Sub-Solution Area.

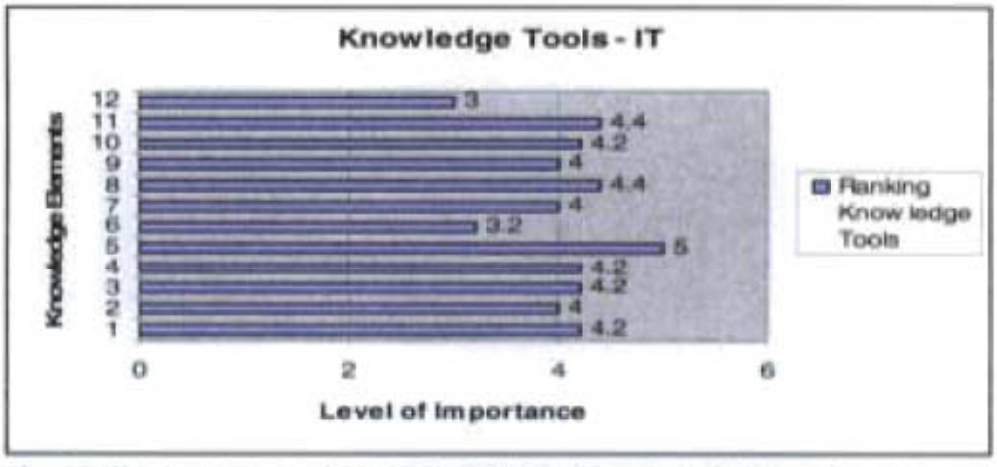

Figure 4.2.1 Knowledge Tools Rating Graphs - Information Technology Responses

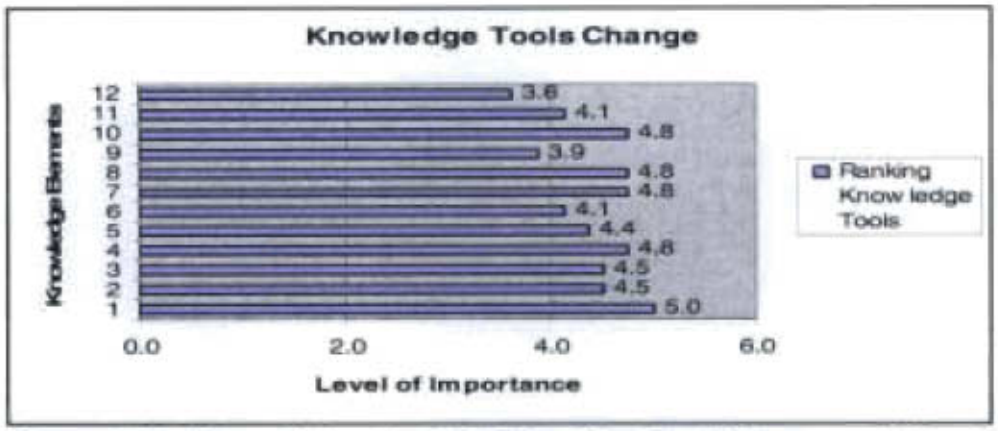

Figure 4.2.2 Knowledge Tools Rating Graphs - Change and Programme Strategy Responses

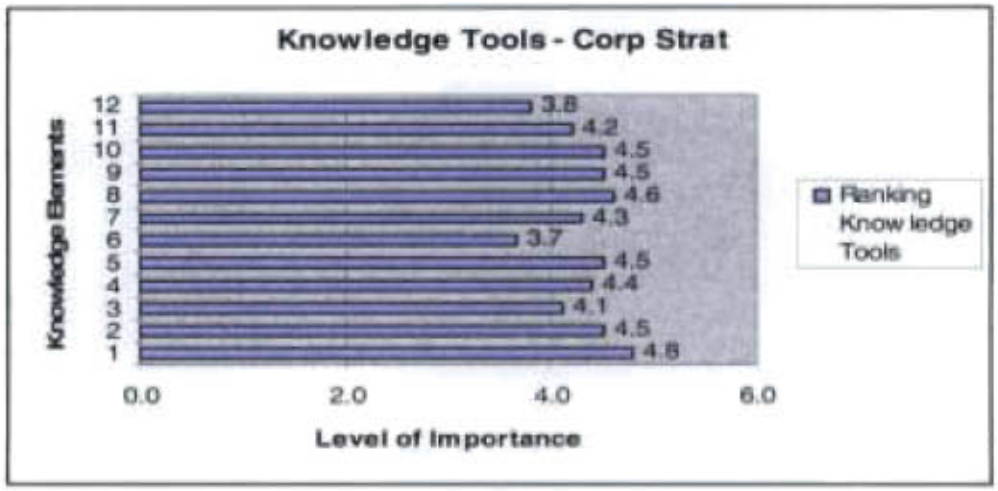

Figure 4.2.3 Knowledge Tools Rating Graphs – Corporate Strategy Responses

Interpretation of Results: Figures 4.2.1 to 4.2.3 above showed no difference in the importance of structured versus unstructured knowledge tools. Furthermore, it revealed that both forms of explicit knowledge types (structured and unstructured) are important for effective knowledge management. On average, the three groups ranked all knowledge channels as important.

The knowledge tools which ranked high scores consistently, across all three solution areas were: knowledge harvesting (achieved an average of 4.7), information technology (achieved an average of 4.6), training (achieved an average of 4.6) and company culture (achieved an average of 4.5) out of 5 – as reflected in figure 4.2.3.

These results are generally positive and are supported by (http://www.brint.com/km/papers/submit/nasseri.htm – internet 6) Nasseri (1996), who writes about the importance of creating an environment where knowledge is easily accessible through a variety of avenues.

Section B Question 1: How long have you been employed by the IBM (BCS) S&C?

Question aims and objectives: This questions aims to contextualize the responses by considering length of service. This is question is particularly relevant in the consulting industry, as noted by Schiller (1988), who writes that clients request seasoned consultants with a wealth of experience gained over a period of time. This increases the client's confidence in the consultant's services and makes for a long-term relationship.

Analysis: The responses to this question have been analyzed and presented in figure 4.3 below. The graph lists the possible number of years employed against each solution area.

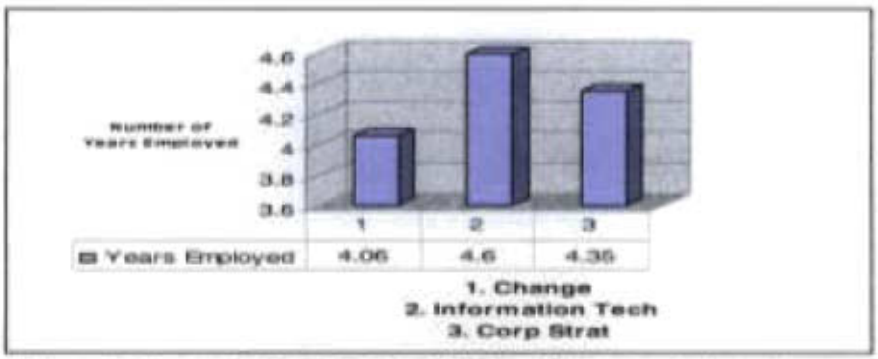

Figure 4.3 Length of Service Chart - Three Solution Areas

Interpretation of Results: Figure 4.3 shows that the *Change and Programme Strategy* team has been employed the least number of years compared to the other two sub-solution areas. This is interesting since the Change and Strategy group have the lowest skills gaps comparatively. Although the *information technology* consultants have the longest service history, they are the group that is currently experiencing the highest turnover and have the second highest skills gaps after corporate strategy. This is primarily attributed to the fact that since IBM is a technology based organisation, ex

PwC consultants within BCS do not have the same IT domain knowledge and skills as those in the broader IBM group. These findings cannot be supported by literature as it was intentionally excluded because it was not identified as crucial by IBM executives. The question was included primarily to gain a sense of service history generally.

Question 2: What sub-solution area are you in? (Some respondents also listed their area of specialisation).

Question aims and objectives: The purpose of this question is to assist the researcher to categorize the results into three sub solution areas. It was also intended to determine if respondents are familiar with the core knowledge tools required per solution.

Analysis: *Change Group* - This group rated Supply Chain and Information Technology as areas of specialisation. *Information Technology Group* - This group rated Technology Implementation as an area of specialisation. *Corporate Strategy Group* - This group rated Financial Management as an area of specialisation.

Interpretation of Results: Respondents listed both their primary sub-solution areas (for example Change, Information Technology or Corporate Strategy) as well as their areas of specialisation, listed above.

These areas of specialisation emerged primarily because of the nature of projects consultants were placed on. Some respondents (example respondent reference CS2, CS3, CS4) identified themselves only by their area of specialisation because of the demand for skilled consultants in these specialised areas. For example, the market demand for a change management consultant may not be as high as for an information technology change consultant. Typically, this consultant would be familiar with all the standard change management practices and have a deep understanding of various technology platforms, such as SAP, Websphere or Oracle. These findings support recommendations in the 2002 Global Most Admired Knowledge Enterprises (MAKE) report (http://kmmag.com/images/attachments/2002_global_make.pdf - internet 4) that highlighted developing knowledge leaders/specialists as being important in ensuring knowledge performance yielded competitive advantage.

Question 3: What band are you currently?

Question aims and objectives: Jiang et al. (1996) surveyed business consultants on the top 10 factors contributing to successful project implementation. One of the top 10 factors listed is the important of sourcing the right staff with the right skills and competence level. The purpose of this question is to assess the current skills and competency levels according to the grading system used by IBM (BCS).

Analysis:

The responses to this question have been analyzed and presented in figure 4.4 below. Figure 4.4 lists the band levels or job grade against each solution area. Respondents were asked to merely state the band they were currently in.

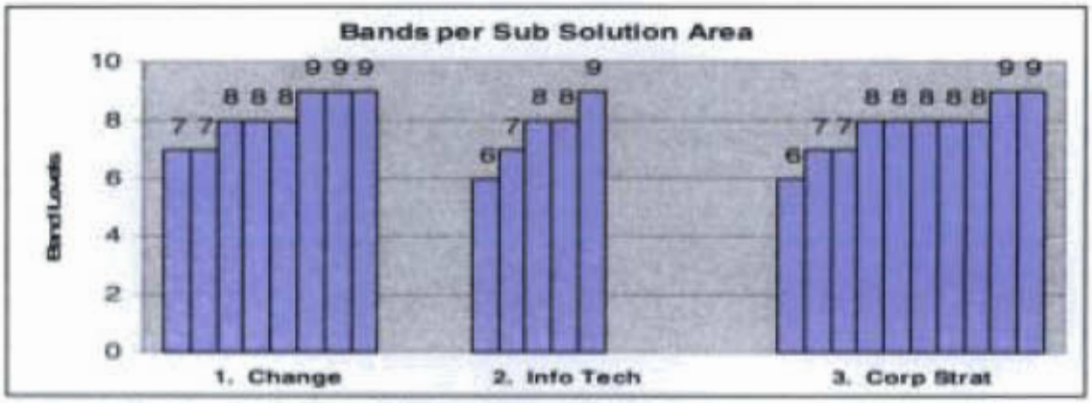

Figure 4.4 Band Rating Chart - Three Solution Areas

Interpretation of Results: Figure 4.4 shows that more *information technology consultants* are in the lower bands comparatively. This factor is evident in the overall performance of this group, through personal experience; the researcher can confirm that most of the technology consultants perform below average on projects. This can possibly be ascribed to the fact that they do not have senior consultants for mentoring and coaching activities. *Corporate Strategy* has a higher representation of consultants on the higher bands (8 and 9). This is primarily due to the recruitment strategy employed when sourcing these candidates. Consultants in this area are generally more experienced, are typically paid higher salaries and are expected to have additional financial and strategic skills compared to the other two solution areas.

The importance of having the right skills and competencies cannot be over emphasized. Davenport, (1998) demonstrates the application of skill and competency at Microsoft:

Since its founding in 1975, one of the competitive advantages of Microsoft Corporation has been the quality of its people. The highly successful software firm goes to extraordinary lengths to hire people with strong intellects and capabilities. According to the authors of a book about the company, one of Microsoft's key strategies is to find smart people who know the technology and the business. One of the reasons why Microsoft people need high levels of competence is the fast-changing nature of the industry in which it competes. The organisations' knowledge management goal is to build a competency inventory that can be used across all of Microsoft's business units.

Question 7: I am aware that knowledge gaps exist in the S&C business unit.

Question aims and objectives: An executive from IBM (Global Business), Laurence Prusak (1997) (http://w3.knowledge.raleigh.ibm.com/archives/whatiskm.html - internet 7), said: "A firm is nothing else but what it knows, how it harnesses and co-ordinates what it knows. The only thing that gives an organisation a competitive edge - the only thing that is sustainable - is what it knows, how it uses what it knows, and how fast it can know something new! Therefore, the primary objective of this question is to investigate whether the passion for effective knowledge management demonstrated at IBM (Global), is sustained within the business consulting services unit (IBM BCS).

Analysis:

The responses to this question have been analyzed and presented in figure 4.5 below. Figure 4.5 ranks the responses from 1 to 5 (5 indicating agreement with the statement prepared in the question).

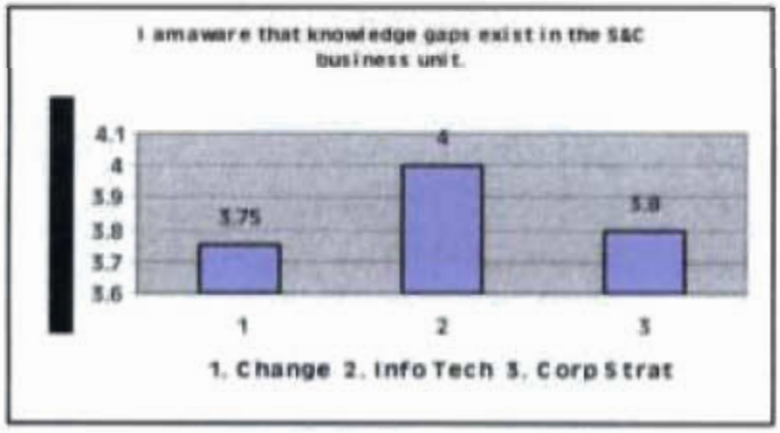

Figure 4.5 Knowledge Gap Ratings - for Three Solution Areas

Interpretation of Results:

Figure 4.5 shows that respondents from the *information technology* solution area felt particularly strongly about this statement. This may be because there are fewer information technology consultants, they are in lower band levels and therefore less experienced. This group has also had the most resignations of very senior consultants during the last year coupled with 4 changes in their senior leadership team over the same period. There is not much difference between the other groups, however figure 4.5 shows that results are slightly skewed towards higher numbers, indicating strong agreement between groups with the question statement.

Louis V. Gerstner, ex-CEO of IBM writes in the 1999 IBM Annual Report, "Going forward.... as the nature of our business changes, we will create new ways to make IBM relevant, compelling and exciting to people. Since so much of the IBM experience will be shaped by our people, I believe one of the most important tasks will be building....knowledge management systems that support the IBM workforce" (www.w3.ibm.com – internet 1). The results of this study clearly indicate that IBM (BCS) has not prioritised the process of effective knowledge management as envisioned by the ex CEO Louis Gerstner.

Question 5, 6 and 7: Please rate these top 20 knowledge tools which have been identified as core for consultants (according to your sub-solution area - Change and Programme Strategy, Corporate and Business Strategy and Technology Strategy Management).

Question aims and objectives: Theory presented in previous chapters says organisation's have to determine the information and knowledge...critical for its long-term survival. They should prioritize establishing effective ways of identifying what should be preserved. Consequently, the primary purpose of this question is to determine which knowledge tools are considered core for each solution area. Figure 4.6 (page 69) lists the knowledge tools developed in conjunction with senior Partners, operational consultants and global IBM educators for each solution area.

Change and Programme Strat	Corporate Strategy	Information Technology
1) Balanced Score-card	1) ABC	1) ABC
2) Behavioural Gap Assessment	2) Activity Analysis/Reverse Costing	2) Activity Analysis
3) Business Benefit Realisation	3) Benchmarking	3) Benchmarking
4) Change History Assessment	4) Capital Markets/Finance	4) Enterprise Architecture
5) Change Sponsorship	5) Competitive Positioning	5) Enterprise-Wide Solutions (EWS)
6) Change Leadership	6) Competitor Analysis	6) Financial Accounting
7) Change Strategy	7) Customer Value Analysis	7) Grid Computing
8) Communication Strategy	8) Financial Accounting	8) Interviewing Techniques
9) Culture Matrix	9) Industry Sector Analysis	9) IT Networks
10) e-Learning	10) Industry Structure/Value Chain	10) IT Optimization
11) Leadership Style Assessment	11) International Competitiveness	11) IT Portfolio Management
12) Organisational Design and Development	12) Interviewing Techniques	12) Industry Sector Analysis
13) Project Management	13) Market Penetration	13) Market Segmentation
14) Process Maps	14) Market Segmentation	14) On-Demand Architecture
15) Presentation Skills	15) New Market Assessment	15) Process Mapping
16) Stakeholder Management	16) Presentation Writing	16) Presentation Writing
17) SWOT Analysis	17) Process Mapping	17) Report Writing
18) Team Building	18) Report Writing	18) Scenario Planning
19) Training Design and Development	19) Reverse Costing	19) Value Proposition
20) Presentation Skills	20) Scenario Planning	20) 3-G Technology

Figure 4.6 Top 20 Knowledge Tools For IBM (BCS) Consultants – for Three Solution Areas

Analysis:

The responses to this question have been analyzed and presented in figures 4.7.1 to 4.7.3 below. The core 20 knowledge tools listed in Figure 4.6 (page 69) have been displayed as a benchmark with which to compare individual competence. Respondents were asked to rank the importance of all core knowledge tools (reflected in figure 4.7.1 yellow bars) with 5 being the most important.

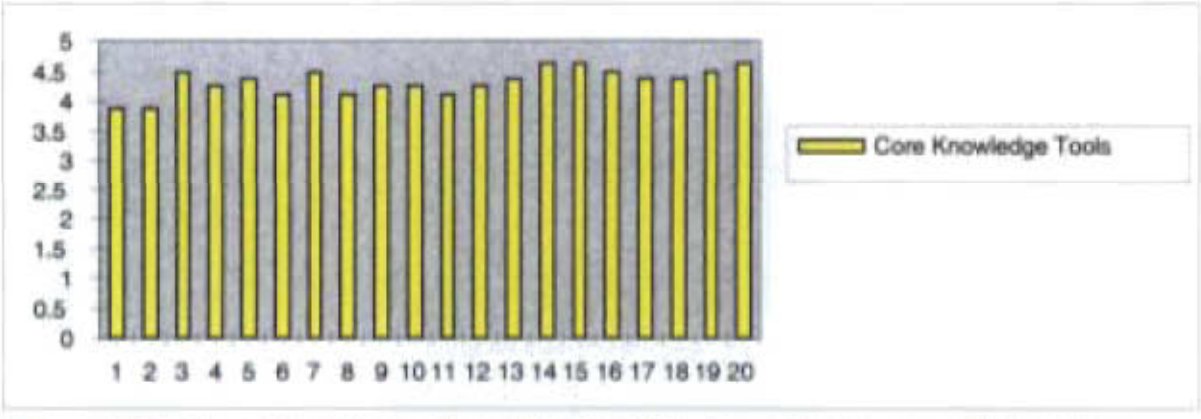

Figure 4.7.1 Core Knowledge Tools Rating Graphs – Change and Programme Strategy Responses

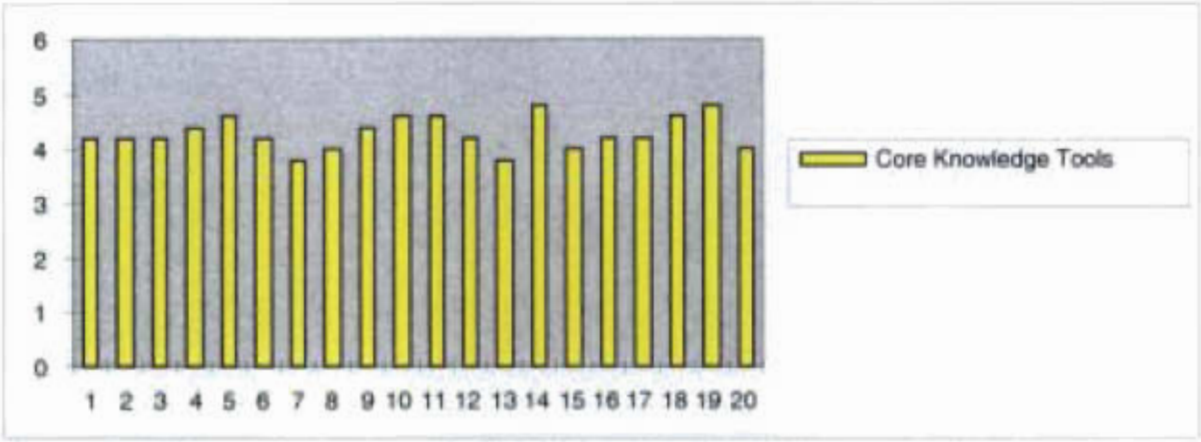

Figure 4.7.2 Core Knowledge Tools Rating Graphs - Information Technology Responses

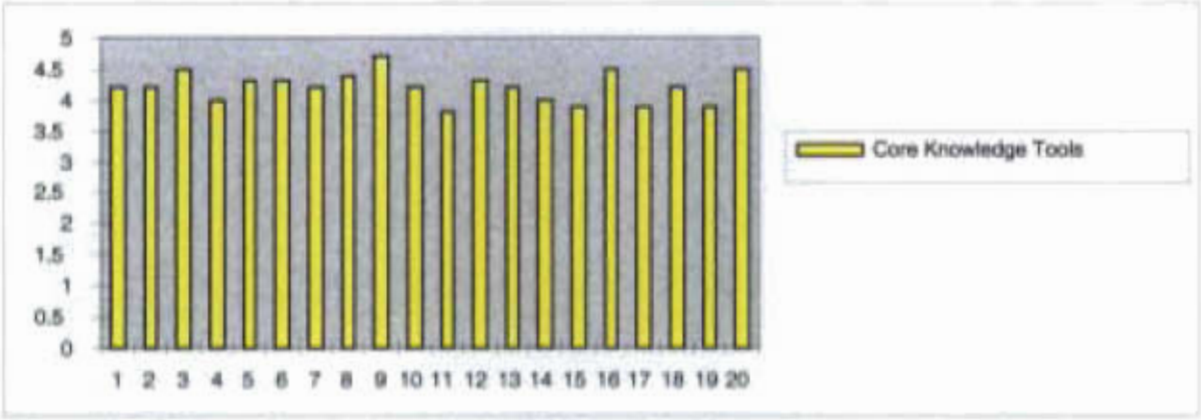

Figure 4.7.3 Core Knowledge Tools Rating Graphs – Corporate Strategy Responses

Interpretation of Results:

Overall, the respondents from all sub-solution areas ranked the top 20 knowledge tools very highly (an average of 4.073 as reflected in figures 4.7.1 to 4.7.3). This is because all new consultants are exposed to the importance of these tools during their general induction training. Additionally, these are the basic knowledge tools are necessary to be effective.

Question 8, 9 and 10: Please rate your individual competence against the following top 20 knowledge tools, for your area (Change and Programme Strategy, Corporate and Business Strategy and Technology Strategy Management).

Question aims and objectives: The primary purpose of this question was to evaluate individual competency and skills levels against core knowledge tools in order to determine the current knowledge base.

Analysis:

The responses to this question have been analyzed and presented in figures 4.8.1 to 4.8.3 below. The core 20 knowledge tools listed in Figure 4.6 (page 70) have been displayed as a benchmark with which to compare individual competence. Respondents were initially asked to rank the importance of all core knowledge tools (reflected in figure 4.8.1 yellow bars). Thereafter, they had to compare there individual knowledge and skills set against core (reflected in figure 4.8.1 blue lines).

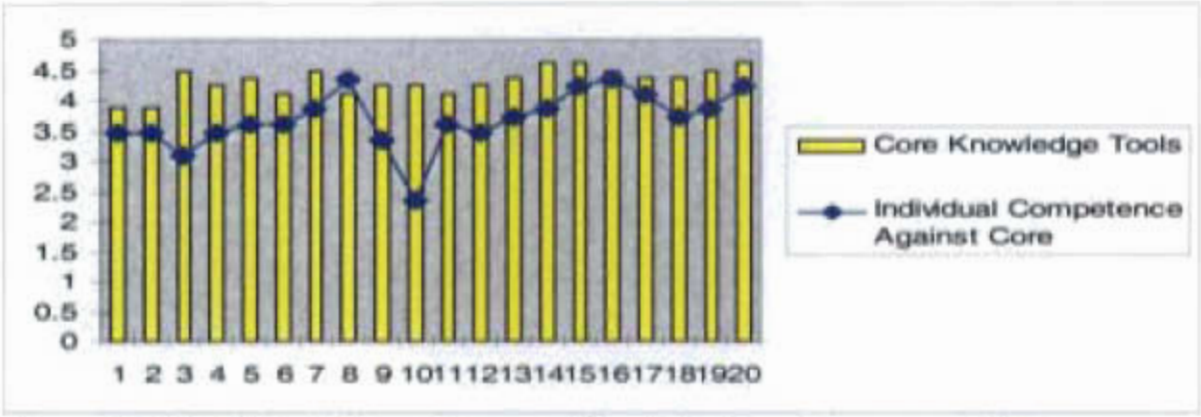

Figure 4.8.1 Individual Competence vs Core Ranking - Change and Programme Responses

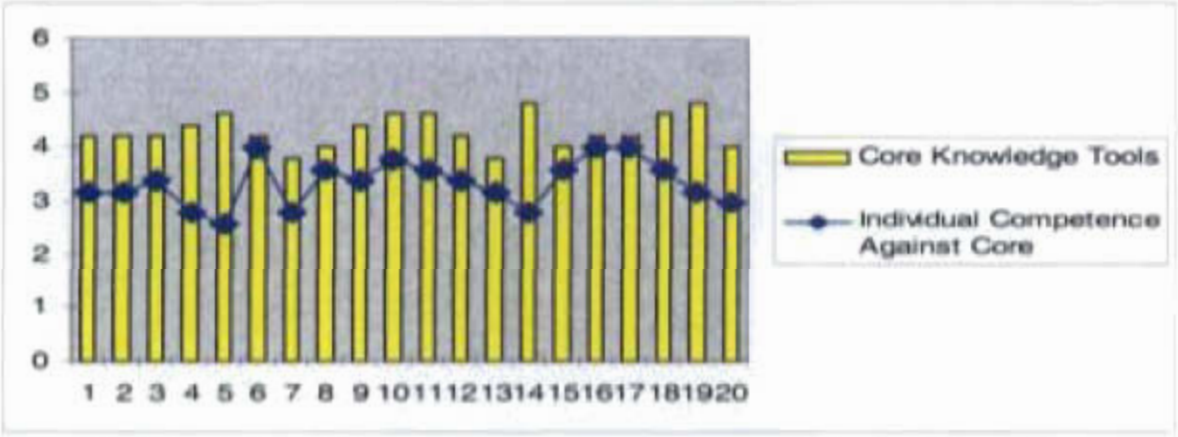

Figure 4.8.2 Individual Competence versus Core Ranking – Information Technology Responses

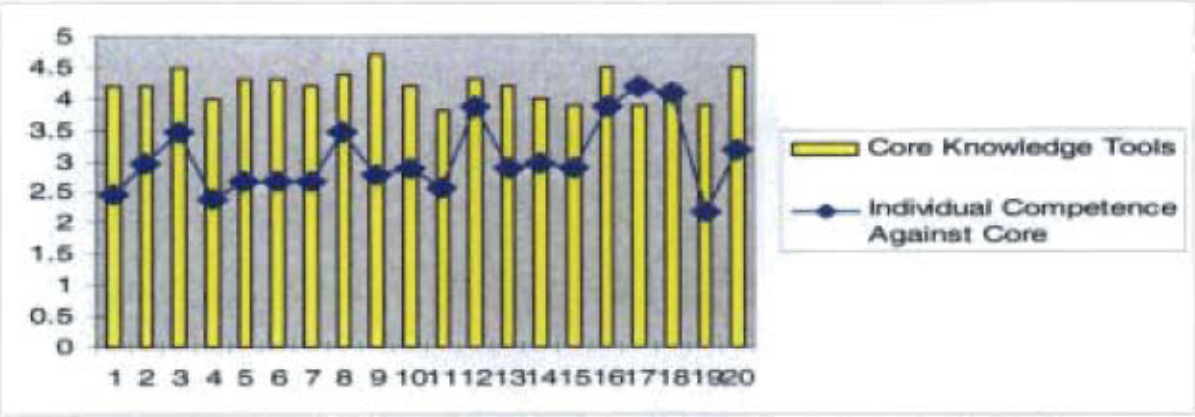

Figure 4.8.3 Individual Competence vs Core Ranking – Corporate Strategy Responses

Interpretation of Results:

Generally, all groups rated lower than core for most categories. Figure 4.9 shows this difference, it is displayed as the 'p' value. It demonstrates the degree at which individual and core values are differ. If there is a significant difference between core and individual, a 'p' value is allocated. The significant difference in 'p' value calculations correlate with hypothesis 1 and 2 which states that core S&C skills are diminishing because of inappropriate strategic consulting knowledge tools and that core S&C skills are diminishing because consultants are not competent in core strategic knowledge tools required. The 'p' value is calculated in figure 4.9.

CHANGE AND PROGRAMME STRATEGY

KNOWLEDGE TOOLS	*CORE*	*INDIV*	*T-TEST FOR DIFF BETWEEN MEANS*	
BALANCED SCORE CARD	3.875	3.5	accept	**ACCEPT = NO SIGNIFICANT DIFFERENCE**
BEHAVIOURAL GAP ASSESSMENT	3.875	3.5	accept	**REJECT = THERE IS A DIFFERENCE**
BUSINESS BENEFIT REALISATION	4.5	3.125	reject	p=0.012 difference
CHANGE HISTORY ASSESSMENT	4.25	3.75	accept	
CHANGE SPONSORSHIP	4.375	3.625	accept	
CHANGE LEADERSHIP	4.125	3.625	accept	
CHANGE STRATEGY	4.5	3.875	accept	
COMMUNICATION STRATEGY	4.125	4.375	accept	
CULTURE MATRIX	4.25	3.375	accept	
E-LEARNING	4.25	2.375	reject	p=0,0001
LEADERSHIP STYLE	4.125	3.625	accept	
ORGANISATIONAL	4.25	3.5	accept	

DESIGN				
PROJECT MANAGEMENT	4.375	3.75	accept	
PROCESS MAPS	4.625	3.875	accept	
PRESENTATION SKILLS	4.625	4.25	accept	
STAKEHOLDER MANAGEMENT	4.5	4.375	accept	
SWOT	4.375	4.125	accept	
TEAM BUILDING	4.375	3.75	accept	
TRAINING DESIGN	4.5	3.875	accept	
PRESENTATION SKILLS 2	4.625	4.25	accept	
average	4.325	3.7125		
Standard Deviation	0.23	0.47	reject	p=6.36E-06
CORPORATE AND BUSINESS STRATEGY				
KNOWLEDGE TOOLS	**CORE**	**INDIV**	**T-TEST FOR DIFFERENCE BETWEEN MEANS**	
ABC	4.2	2.5	reject	p=0.0003
ACTIVITY ANALYSIS	4.2	3	reject	p=0.,0035
BENCHMARKING	4.5	3.5	reject	P=0.002
CAPTIAL MARKETS	4	2.4	reject	P=0.0002
COMPETITIVE POSITIONING	4.3	2.7	reject	P=0.0003
COMPETITOR ANALYSIS	4.3	2.7	reject	P=0.0001
CUSTOMER VALUE ANALYSIS	4.2	2.7	reject	P=0.0001
FINANCIAL ACCOUNTING	4.4	3.5	accept	
INDUSTRY SECTOR ANALYSIS	4.7	2.8	reject	P=0.0013
INDUSTRY STRUCTURE	4.2	2.9	reject	P=0.004
INTERNATIONAL COMPETITIVENESS	3.8	2.6	reject	P=0.004
INTERVIEWING TECHNIQUES	4.3	3.9	accept	
MARKET PENETRATION	4.2	2.9	reject	P = 0.01
MARKET SEGMENTATION	4	3	accept	
NEW MARKET ASSESSMENT	3.9	2.9	reject	P = 0.019
PRESENTATION WRITING	4.5	3.9	accept	
PROCESS MAPPING	3.9	4.2	accept	
REPORT WRITING	4.2	4.1	accept	
REVERSE COSTING	3.9	2.2	reject	P=0.003
SCENARIO PLANNING	4.5	3.2	reject	P=0.003
average	4.21	3.08		
Standard Deviation	0.24	0.61	reject	p=2.67E-09
TECHNOLOGY STRATEGY AND MANAGEMENT				
KNOWLEDGE TOOL	**CORE**	**INDIV**		
ABC	4.2	3.2	reject	P=0.0469
ACTIVITY ANALYSIS	4.2	3.2	accept	
BENCHMARKING	4.2	3.4	reject	P=0.011

ENTERPRISE ARCHITECTURE	4.4	2.8	reject	P=0.001
EWS	4.6	2.6	reject	P=0.03
FINANCIAL ACCOUNTING	4.2	4	accept	
GRID COMPUTING	3.8	2.8	accept	
INTERVIEWING TECHNIQUES	4	3.6	accept	
IT NETWORKS	4.4	3.4	accept	
IT OPTIMIZATION	4.6	3.8	accept	
IT PORTFOLIO MANAGEMENT	4.6	3.6	accept	
INDUSTRY SECTOR ANALYIS	4.2	3.4	accept	
MARKET SEGMENTATION	3.8	3.2	accept	
ON-DEMAND ARCHITECTURE	4.8	2.8	reject	P=0.001
PROCESS MAPPING	4	3.6	accept	
PRESENTATION WRITING	4.2	4	accept	
REPORT WRITING	4.2	4	accept	
SCENARIO PLANNING	4.6	3.6	accept	
VALUE PROPOSITION	4.8	3.2	reject	P=0.03
3G TECHNOLOGY	4	3	accept	
average	4.29	3.36	reject	p=2.03E-09
Standard Deviation	0.3	0.44	accept	

Figure 4.9 'p' Value Calculation – All Solution Areas

Figure 4.9 shows that the most pronounced skills gap is evident in the *Corporate Strategy Group* (average 3.08 competence out of 5), less pronounced within *Information Technology* (average 3.36 competence out of 5) and least in the *Change Group* (average 3.71 competence out of 5). The significant gaps within Corporate Strategy can be attributed to the following factors:

- These consultants are required to have additional business and financial knowledge;
- They generally recruit consultants with specialized skills (ie. they do not have many generalists); and
- Originally this business unit's organisational structure was skewed with a larger proportion of senior consultants and less at junior levels. Due to current labour turnover patterns, a significant amount of senior consultants (with specialists' skills) have left the company.

Hypothesis 1, which states that Core Strategy and Change skills are diminishing because of inappropriate strategic consulting knowledge tools is accepted. Hypothesis 2, which states that Core Strategy and Change skills are diminishing because consultants are not competent in strategic knowledge tool required, is also accepted. Prusak (1997) (http://w3.knowledge.raleigh.ibm.com/archives/whatiskm.html - internet 7) writes that knowledge management is an attempt to understand what is essentially a human asset hidden in the minds of individuals and manipulate it into an organisational asset that can be retrieved and utilized. The responses to this question highlight the fact that BCS consultants may not have the necessary deep skills required. In a highly competitive consulting industry where skills and knowledge seem to be worshipped, employee's lack of knowledge can comprise an organisation. According to Yeates (1991), the consequences of ineffective knowledge management is costly to an organisation, often leading to client dissatisfaction, lost business, missed opportunities and internal effects such as surplus resources, de-motivated staff and loss of key personnel.

Question 11: Labour Turnover impacts knowledge management.

Question aims and objectives: The purpose of this question is to confirm if a correlation can be drawn between labour turnover and knowledge management.

Analysis: The responses to this question have been analyzed and presented in the interpretation section below.

Interpretation of Results:

All respondents strongly agreed with this statement. The *Change Group* had a mean of 4.875, *Information Technology* 4.4 and *Corporate Strategy* 4.4 out of 5. The strong opinions expressed by all respondents corroborate theory offered by Pascarella (1997), that organisations should implement people enablers which ensure successful knowledge retention by providing knowledge linked incentives in an effort to recognize, promote and therefore retain those consultants who were knowledge builders. The results also confirm that IBM (BCS) consultants support a correlation between labour turnover and its impact on knowledge management.

The strong opinions collected from the questionnaire confirm hypothesis 3 which states that core Strategy and Change skills are diminishing because consultants are leaving IBM (BCS). A specific example from the questionnaire is (questionnaire reference CPS4) a respondent that wrote 'good people are leaving the organisation, especially band 9 and 10's'. Figure 4.10 below reflects the number S&C resignations over a 3 month period. This table highlights all the consultants who have resigned from S&C. To date, no effort has been made to replace these skills.

Strategy and Change SA
Change and Programme Strategy
Adelfang, M
Baba, W
Brown, R
Chikowore, FC
Egnal, A
Hauman, GW
Hill, BE
Littlejohn, I
Louw, W
Mageza, T
Meeding, IA
Runck, PG
Schlebusch, F
Siwahla, NM
van Wyk, JD
von Wielligh, N
Zissis, C
Information Technology
Bouwer, SJ
Nel, W - no contract yet
Siemers, P
Simpson, M
Twomey, GK
Mokoka, M
Corporate Strategy
Allderman, M
Angelos, CT
Ayerst, C
Burnett, SV
Chikoto, E
David, VJ
Drayton, FH
Einhorn FD
Emmett, MP
Hull, WL

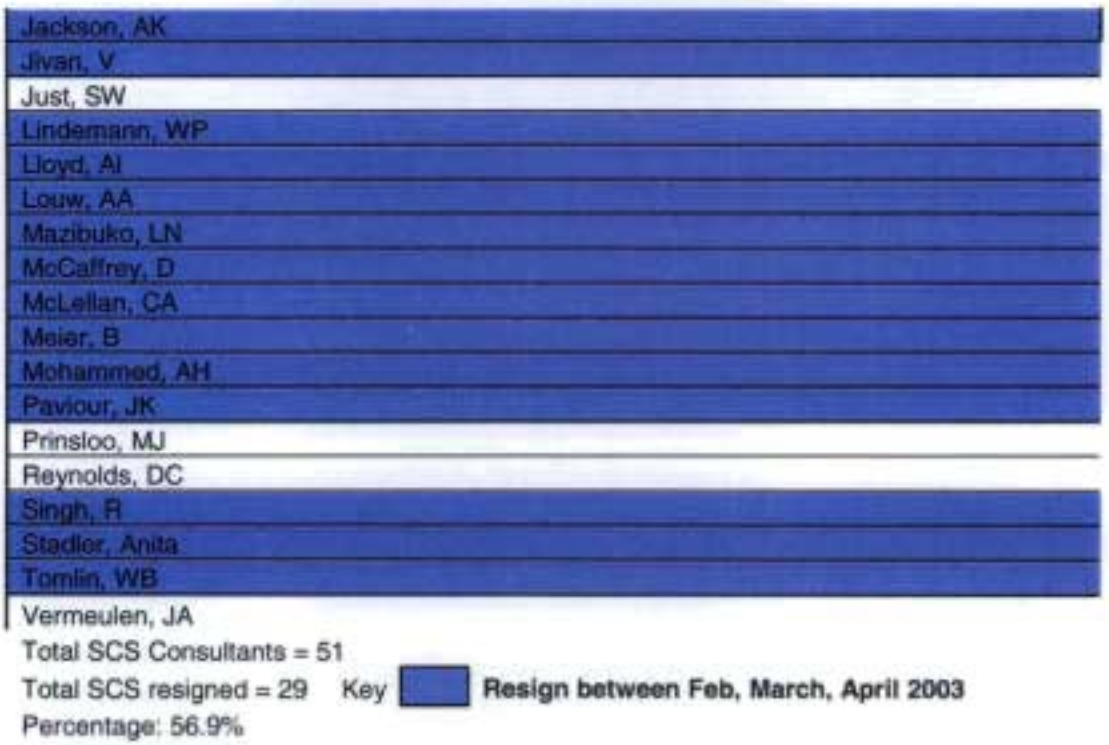

Figure 4.10 BCS (S&C) Resignations from Feb to April 2003 – All Solution Areas

Question 12: Please rate the importance of the following labour turnover elements you believe contribute to knowledge gaps in the S&C business unit. These are:

1) Motivation
2) Retention Programmes
3) Affirmative Action
4) Training & Development
5) Compensation

Question aims and objectives: The objective of asking this question is to substantiate a IBM (BCS) specific variables (as developed with senior executives and operational consultants) which are believed to be the root cause of current knowledge gaps.

Analysis:

The responses to this question have been analyzed and presented in figure 4.11 below. The pie chart presented in figure 4.11 allocates responses according to the 5 labour turnover elements presented.

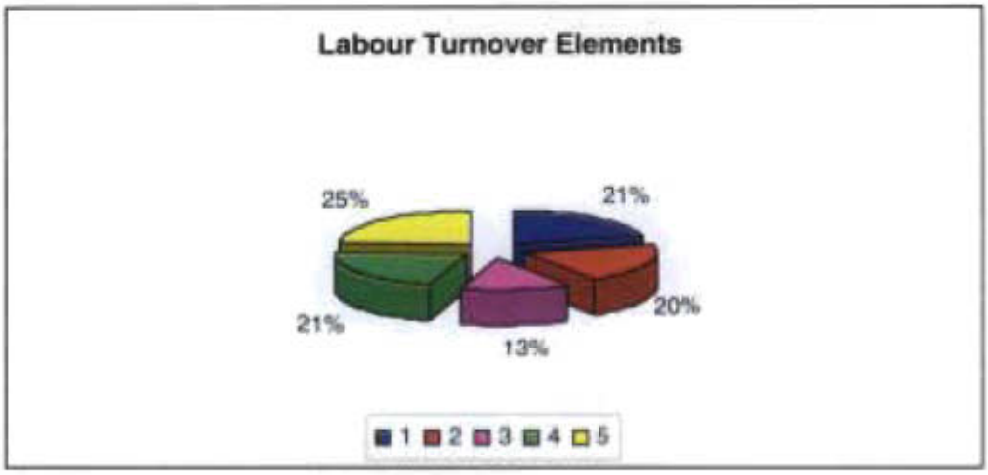

Figure 4.11 Labour Turnover Chart

Interpretation of Results:

All groups share the same concerns. Generally, they believe that compensation is the primary cause of labour turnover, and low motivation levels and training and development requirements are secondary as reflected in figure 4.11.

Theory presented in previous chapters support these findings. Williams and Sunderland (1999) argue that salary and benefits are two of the most important factors affecting employment decisions. To prevent highly skilled professionals from leaving the organisation, compensation systems must be designed to support the mission and culture of the organisation. Compensations systems must communicate to everyone what is important and what their role in ensuring sustained success across the organisation.

Question 13: Labour Reduction impacts knowledge management.

Question aims and objectives: The purpose of this question is to confirm if a correlation can be drawn between labour reduction and knowledge management.

Analysis: The responses to this question have been analyzed and presented in the interpretation section below.

Interpretation of Results:

All respondents strongly agreed with this statement. The *Change Group* had a mean of 4.62, *Information Technology* 4.2 and *Corporate Strategy* 4.4 out of 5. The strong opinions expressed by all respondents confirm the theory offered by Pascarella (1997), that organisations should concentrate on implementing organisational enablers which establish synergies between organisational strategies (expansion, reduction, internal acquisition) and knowledge management initiatives. The results also confirm that IBM (BCS) consultants support a correlation between labour reduction and its impact on knowledge management.

Question 14: Please rate the importance of the following elements related to labour reduction you believe contribute to knowledge gaps in the S&C business unit. These are:

1) Downsizing
2) Natural Attrition
3) Internal Transfers
4) Outsourcing
5) Skills disparity

Question aims and objectives: The objective this question is to substantiate a list of IBM (BCS) specific variables (as developed with senior executives and operational consultants) which are believed to be the root cause current knowledge gaps.

Analysis:

The responses to this question have been analyzed and presented in figure 4.12 below. The pie chart presented in figure 4.12 allocates responses according to the 5 labour reduction elements presented.

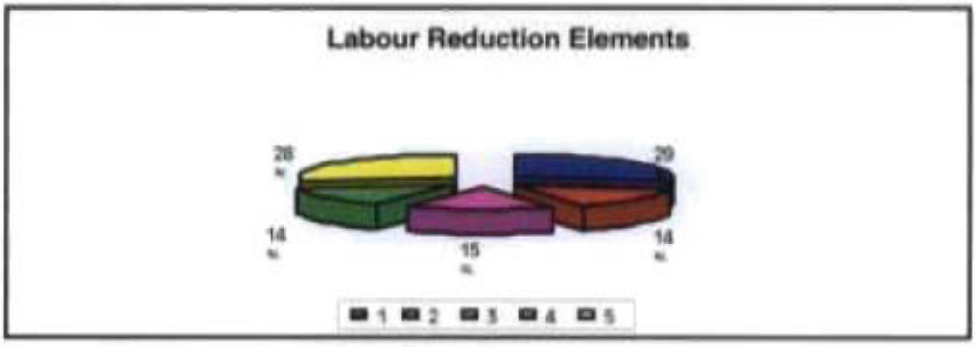

Figure 4.12 Labour Reduction Chart

Interpretation of Results:

Figure 4.12 displays the allocation of labour reduction elements listed by respondents. Generally, respondents felt that downsizing is the primary cause of labour reduction (29%). The strong opinions collected from the questionnaire confirm hypothesis 4 which states that core Strategy and Change skills are diminishing because IBM (BCS) is downsizing. The skills disparity due to changing market need is ranked second as reflected in figure 4.12.The impact of the skills disparity has inadvertently resulted in downsizing. IBM (BCS) was not able to market existing skills; hence consultants were not being fully utilized. This created a situation where revenue was significantly below expenses. The business took a decision to correct the situation by transferring redundant skill to other business units and to freeze all recruitment until a new operating model is approved.

4.3 Conclusion

This chapter presented both qualitative and quantitative data analysis. Generally the results revealed that IBM (BCS) consultants lack the most fundamental knowledge tools to render an effective service. Certain of the qualitative data will be outlined in the recommendations sections for management consideration. The graphic display of core versus individual knowledge tools is an effective management summary and can be used to develop a training strategy to assist with retention of existing consultants.

CHAPTER FIVE
CONCLUSION/DISCUSSION

5.1 Introduction

In this chapter, the researcher will connect findings discussed in Chapter 4, to literature presented in Chapter 2. This section will also make recommendations for management consideration. This section provides a framework for senior management which could assist in developing a much needed retention and knowledge preservation strategy. This section is a culmination of literature, responses from the questionnaire and personal observation.

5.2 Highlights from the research

The results of the research confirmed the researcher's view that certain variables significantly impact knowledge management within IBM (BCS). For example, the results confirmed specific elements such as compensation and motivation as principle causes of knowledge management disparities.

Another important issue that surfaced from the research was the degree of knowledge gaps which exist in all three sub-solution areas. This paper was able to quantify the impact of these variables on the organisation. For example the 'p' value illustrated the severity of the knowledge gap (Figure 4.9). This has implications for the future of the business unit because the existing pool of consultants are not able to effectively deliver according to the current operating model.

These knowledge gaps are significant to the business, because as discussed Chapter 1, management consultant's core business is knowledge management and dissemination. They trade this primary resource in order to survive.

5.3 Recommendations / Way Forward

To ensure future business success in this competitive market, the following recommendations should be considered by BCS. These recommendations are sourced

from responses in the questionnaire which provide a practical approach to the problem and from literature studied which support practical experiences.

5.3.1 Implement recommendations made by respondents

The questionnaires provided the following suggestions which could be implemented in the short to medium term:

- Develop formal knowledge management policies and procedures to ensure that when people leave the organisation, a clear knowledge transfer procedure is in place;
- Appoint a dedicated knowledge manager who would ensure that knowledge databases are maintained;
- Ensure the proposed knowledge manager is trained in core knowledge management practices;
- Enforce a culture of formal and informal knowledge sharing;
- Once effective knowledge management processes are in place, communicate and market these to all consultants; and
- Incorporate the best of the current IBM knowledge principles into the new knowledge management practice.

These recommendations are supported by literature offered by Nasseri (1996) (http://www.brint.com/km/papers/submit/nasseri.htm – internet 6) who states that knowledge is the organisations most important strategic imperative and therefore its management and preservation must be equally important. He further adds that, organisations should develop a structured approach that recognizes the need to preserve knowledge – for example, they should:

- Establish formal knowledge management procedures to enable management of knowledge and acceptance of knowledge managers;
- Design processes for measuring the business value of intellectual capital; and
- Install systems to facilitate networking and information dissemination.

5.3.2 Determine the root cause of the problem

Management should focus on the origin of the knowledge management problem. Although implementing a knowledge management programme has been recommended, this should not necessary be the first step.

Respondents ranked specific labour turnover and labour reduction elements which they believe were contributing to knowledge disparities in the unit. *compensation* was ranked as the primary cause and ineffective *training and development* second. Management should initially address these issues in an attempt to curb the current turnover rates.

5.3.3 Change the current operating model

The misalignment of skill has serious implications for the survival of IBM (BCS). The respondents were requested to rank specific labour reduction elements which they believe were contributing to knowledge gaps in the unit; the *skills disparity* was rated uppermost as problem.

The way forward would be to re-align existing skills to a new business model. This recommendation is currently considered, and a new business model will be implemented effective 1st August 2004. The new model business model contains:

- On-Demand Application & Transformation;
- On-Demand Solutions;
- Technical Applications (SAP and Websphere).

This model is more aligned to market demands and takes into account current skills.

5.4 Implications for management

All the literature studied for this paper highlighted the importance of knowledge management for future competitive advantage. This would imply that knowledge management must feature as an specific objective in the strategy and business plans of the organisation. This is not the case within IBM (BCS).

Respondents suggested 5 short term solutions to assist management effect knowledge management, for example:

1. Provide a regulatory framework to ensure material is available and accessible to all (questionnaire reference CS9);
2. Engaging the sub-solution leaders of each practice and ensure that knowledge management is part of their PBC's. (questionnaire reference CS1);
3. Implement Knowledge Innovation Methodologies (questionnaire reference CPS8);
4. Adapt behaviour impacted by PwC acquisition (questionnaire reference CPS6); and
5. Appointing a knowledge manager who is responsible for identifying key knowledge areas. (questionnaire reference IT4).

Literature presented by Steward (1997) tie in with these recommendations by stating organisations should:

- *Integrate Strategy and Policy* – knowledge management strategy should be tightly integrated with corporate strategy;
- *Ensure Senior Sponsorship* – senior executives must walk the talk. "There is no greater incentive than a boss who believes" Steward (1997, p126);
- *Implementing Technology and Processes* – ensuring effective implementation of the necessary technology to support the knowledge preservation process;
- *Changing Behaviour* – the organisational climate should be conducive and reinforce positive behaviour;
- *Removing Obstacles* – removal of barriers to knowledge sharing and overcoming the 'knowledge is power' syndrome; and
- *Appointing Knowledge Champions* – a knowledge leader/champion is someone who will actively drive the knowledge agenda forward and create enthusiasm and commitment.

5.5 Attainment of research objectives

The researcher believes that all the objectives of the research were achieved. The use of a questionnaire allowed the researcher to delve into the details of specific issues and would not have been obtained in an alternative data gathering technique had been used.

This paper commenced by stating that IBM's primary challenge currently, is to create and transfer knowledge efficiently amongst employees. The primary goal of this paper was to determine if knowledge gaps are as a result of labour turnover through a loss of skilled consultants and/or labour turnover initiatives such as finding the right skills and/or downsizing. Subsequently, the research question was developed that read as follows: ***what is the origin and impact of knowledge gaps within IBM (BCS) Strategy and Change?***

From this main research question, hypotheses were constructed. The hypotheses were **accepted** and verified by means of statistical analysis discussed in previous chapters. These were:

- *H1 - Core S&C skills are diminishing because of inappropriate strategic consulting knowledge tools.* This hypothesis is **accepted** because individual scores are consistently below core knowledge tool ratings as discussed in previous chapters.
- *H2 - Core S&C skills are diminishing because consultants are not competent in strategic knowledge tools required.* This hypothesis is **accepted** because individual scores are consistently below core ratings as discussed in previous chapters.
- *H3 - Core S&C skills are diminishing because consultants are leaving IBM (BCS).* This hypothesis is **accepted** because the Strategy and Change unit is losing skilled professionals at an alarming rate. For example, over the months February, March and April 2003, Strategy and Change lost 56.9% of its consultants (Figure 4.10).
- *H4 - Core S&C skills are diminishing because IBM (BCS) is downsizing.* This hypothesis is **accepted** because of the results of the survey where downsizing was identified as the primary cause of labour reduction (rated at 29% amongst

- *H4 - Core S&C skills are diminishing because IBM (BCS) is downsizing.* This hypothesis is **accepted** because of the results of the survey where downsizing was identified as the primary cause of labour reduction (rated at 29% amongst four other elements listed – figure 4.12). This hypothesis is also supported by the fact that the business is not able to replace lost skills due to a global moratorium on recruiting in BCS.

5.6 Research Findings

The findings presented in this research paper, clearly demonstrated that a correlation can be drawn between elements of labour turnover and elements of labour reduction (as defined in this paper) and knowledge management. Some of the key findings were:

- Respondents have a superior understanding of both knowledge management and knowledge preservation. They also made a clear distinction between the two concepts, with knowledge preservation, being identified as the process of achieving effective knowledge management. It was clear from the responses that all the consultants view knowledge management and knowledge preservation as critical for company success.
- The majority of respondents believed that IBM (BCS) did not have a clearly defined knowledge management strategy. They also agreed with the statement that knowledge gaps exist within strategy and change business. These findings conflict with their strong views that knowledge management and knowledge preservation is critical for company success.
- The most significant findings from this study are the large knowledge gaps which exist between core knowledge versus individual competencies. The results reveal that all respondents rated lower than core for most categories. This means that they do not posses all the core knowledge tools required by their sub-solution area. In statistical terms, this difference is displayed as the 'p' value. It quantifies the difference between individual knowledge and core knowledge. It was interesting to observe that Corporate Strategy respondents, ranked the lowest scoring 3.08 on average, although they are required to have the most specialised competencies comparatively.

- Respondents strongly agreed with the statement that labour turnover impacts knowledge management. They listed compensation, training and development and motivation as principle contributing factors.
- Respondents strongly agreed with the statement that labour reduction impacts knowledge management. They listed downsizing and the skills disparity as principle contributing factors.

In summary, IBM (BCS) management team is faced with a sinking ship unless immediate action is taken. The rationale for conducting this research was to present management with a clear understanding of the nature and scope of the knowledge management problem. The researcher hopes that the findings in this paper will highlight the urgency of introducing and implementing a structured knowledge preservation framework aimed at countering the effects of the past two years.

5.7 Limitations

Limitations to this study are:

- The researcher's full-time employment in the industry at the time of the research may have led to certain research bias. However, every attempt was made to ensure that the research was conducted as objectively as possible by including all consultants employed in Strategy and Change.
- It cannot be ensured that the person who was sent the questionnaire actually completed it.
- Of the 30 questionnaires sent, the researcher received only 23 responses because of resignations in the unit. The high rate of labour turnover in this unit may skew the results because of low motivation levels and small sample size.

5.8 Areas for future research

This dissertation managed to show some evidence of relationships between labour turnover and downsizing as they impact knowledge management. However, these results cannot be generalized to all consulting environments. The researcher believes that this paper opened doors for deeper research into areas of knowledge management

in the management consulting industry and its relationship with labour turnover and labour reduction in a consulting environment.

The following are possible areas of future research to explore:

1. Broadening the population to other management consulting firms which have been involved in mergers or acquisitions;
2. Establishing if effective knowledge management can increase the effectiveness of organisations. Furthermore, those effectiveness and efficiencies (if any) could be translated into monetary terms to justify knowledge management initiatives.
3. Studying knowledge preservation enablers – this would look at investigating whether changes in technology have resulted in changes in the types of knowledge assets being preserved.
4. Most importantly, exploring the impact of the PwC Consulting acquisition process on knowledge management.

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Appendix 1

Questionnaire

GENERAL QUESTIONS – PART A

Name:_____(optional) Date:_____

PART A: ASPECTS OF KNOWLEDGE MANAGEMENT IMPORTANT TO BCS

1. What do you understand by the term knowledge management gaps?

2. What do you understand by the term knowledge preservation?

3. Do you believe Does IBM (BCS) have a strategy for knowledge management? (If Yes, answer question 4)

4. How does management in BCS identify which knowledge assets need to be managed/preserved?

5. What changes, if any, should IBM (BCS) consider in terms of knowledge management/preservation, in order to survive in the long term?

6. Please rank these key knowledge tools according to the rating scale below

1= extremely unimportant	2= very unimportant	3= important
4= very important	5= extremely important	

Structured Knowledge Tools	Rating	***Unstructured*** Knowledge Tools	Rating
a) Knowledge Harvesting		a) Communication	
b) Communication		b) Company Culture	
c) Point of View		c) Mentorship	
d) Though Leadership		d) Books/Magazines	
e) Information Technology		e) Other	
f) Books/Magazines			
g) Communities of Practice			
h) Training			
i) Other			

QUESTIONNAIRE – PART B

KNOWLEDGE MANAGEMENT GAPS IN S&C BUSINESS UNIT

Name:_____ Date:_____

1. How long have you been employed by the IBM (BCS) S&C?

2. What sub-solution area are you in?

3. What band are you currently?

4. I am aware that knowledge gaps exist in the S&C business unit.

Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

5. Please rate these **top 20** knowledge tools which have been identified as core for consultants in **S&C (Technology Strategy and Management) Sub Solution Area.**

1= extremely unimportant 2= very unimportant 3= important
4= very important 5= extremely important

Knowledge Tools	1	2	3	4	5
a) ABC					
b) Activity Analysis					
c) Benchmarking					
d) Enterprise Architecture					
e) Enterprise-Wide Solutions (EWS)					
f) Financial Accounting					
g) Grid Computing					
h) Interviewing Techniques					
i) IT Networks					
j) IT Optimization					
k) IT Portfolio Management					
l) Industry Sector Analysis					
m) Market Segmentation					
n) On-Demand Architecture					
o) Process Mapping					
p) Presentation Writing					
q) Report Writing					
r) Scenario Planning					
s) Value Proposition					
t) 3-G Technology					
u) Other					

6. Please rate the **top 20** knowledge tools which have been identified as core for consultants in **S&C (Corporate and Business Strategy) Sub Solution Area.**

1= extremely unimportant 2= very unimportant 3= important
4= very important 5= extremely important

Knowledge Tools	1	2	3	4	5
a) ABC					
b) Activity Analysis/Reverse Costing					
c) Benchmarking					
d) Capital Markets/Finance					
e) Competitive Positioning					
f) Competitor Analysis					
g) Customer Value Analysis					
h) Financial Accounting					
i) Industry Sector Analysis					
j) Industry Structure/Value Chain					
k) International Competitiveness					
l) Interviewing Techniques					
m) Market Penetration					
n) Market Segmentation					
o) New Market Assessment					
p) Presentation Writing					
q) Process Mapping					
r) Report Writing					
s) Reverse Costing					
t) Scenario Planning					
u) Other					

7. Please rate the **top 20** knowledge tools which have been identified as core for consultants in **S&C (Change and Program Strategy) Sub Solution Area.**

1= extremely unimportant 2= very unimportant 3= important
4= very important 5= extremely important

Knowledge Tools	1	2	3	4	5
a) Balanced Score-card					
b) Behavioural Gap Assessment					
c) Business Benefit Realisation					
d) Change History Assessment					
e) Change Sponsorship					
f) Change Leadership					
g) Change Strategy					
h) Communication Strategy					
i) Culture Matrix					
j) e-Learning					
k) Leadership Style Assessment					
l) Organisational Design and Development					
m) Project Management					
n) Process Maps					
o) Presentation Skills					
p) Stakeholder Management					
q) SWOT Analysis					
r) Team Building					
s) Training Design and Development					
t) Presentation Skills					
u) Other					

8. Please rate your **individual** competence with the following **S&C (Technology Strategy and Management)** knowledge tools.

1= completely unaware 2= have heard of 3= competent
4= very competent 5= Expert

Knowledge Tools	1	2	3	4	5
a) ABC					
b) Activity Analysis					
c) Benchmarking					
d) Enterprise Architecture					
e) Enterprise-Wide Solutions (EWS)					
f) Financial Accounting					
g) Grid Computing					
h) Interviewing Techniques					
i) IT Networks					
j) IT Optimization					
k) IT Portfolio Management					
l) Industry Sector Analysis					
m) Market Segmentation					
n) On-Demand Architecture					
o) Process Mapping					
p) Presentation Writing					
q) Report Writing					
r) Scenario Planning					
s) Value Proposition					
t) 3-G Technology					
u) Other					

9. Please rate your **individual** competence with the following **S&C (Corporate and Business Strategy)** knowledge tools.

1= completely unaware 2= have heard of 3= competent
4= very competent 5= Expert

Knowledge Tools	1	2	3	4	5
a) ABC					
b) Activity Analysis/Reverse Costing					
c) Benchmarking					
d) Capital Markets/Finance					
e) Competitive Positioning					
f) Competitor Analysis					
g) Customer Value Analysis					
h) Financial Accounting					
i) Industry Sector Analysis					
j) Industry Structure/Value Chain					
k) International Competitiveness					
l) Interviewing Techniques					
m) Market Penetration					
n) Market Segmentation					
o) New Market Assessment					
p) Presentation Writing					
q) Process Mapping					
r) Report Writing					
s) Reverse Costing					
t) Scenario Planning					

10. Please rate your **individual** competence with the following **S&C (Change and Program Strategy)** knowledge tools.

1= completely unaware 2= have heard of 3= competent
4= very competent 5= Expert

Knowledge Tools	1	2	3	4	5
a) Balanced Score-card					
b) Behavioural Gap Assessment					
c) Business Benefit Realisation					
d) Change History Assessment					
e) Change Sponsorship					
f) Change Leadership					
g) Change Strategy					
h) Communication Strategy					
i) Culture Matrix					
l) e-Learning					
k) Leadership Style Assessment					
l) Organisational Design and Development					
m) Project Management					
n) Process Maps					
o) Presentation Skills					
p) Stakeholder Management					
q) SWOT Analysis					
r) Team Building					
s) Training Design and Development					
t) Presentation Skills					
u) Other					

11. ***Labour Turnover*** impacts knowledge management

Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

12. Please rate the importance of the following ***labour turnover*** elements you believe contribute to knowledge gaps in the S&C business unit.

1= extremely unimportant	2= very unimportant	3= important
4= very important	5= extremely important	

Labour Turnover Elements	**1**	**2**	**3**	**4**	**5**
Motivation					
Retention Programmes					
Affirmative Action					
Training and Development					
Compensation					
Other					

13. ***Labour Reduction*** impacts knowledge management

Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

14. Please rate the importance of the following elements related to ***labour reduction*** you believe contribute to knowledge gaps in the S&C business unit.

1= extremely unimportant 2= very unimportant 3= important
4= very important 5= extremely important

Elements of Labour Reduction	**1**	**2**	**3**	**4**	**5**
Downsizing					
Natural attrition					
Internal transfers					
Outsourcing projects to external partners					
Skills disparity due to changing market needs					
Other					

Thank You

Appendix 2

Letter from Statistician

PO Box 411959
Craighall
2024
Tel/Fax: +27 (0)11 886-5409
e-mail: dawnbez@icon.co.za

2 June 2004

To Whom It May Concern

This is to certify that the statistical analyses of Lauretta Theys's thesis have been checked and validated.

Yours faithfully

DC Bezuidenhout