CORE PRINCIPLES FOR A
SUCCESSFUL MANAGEMENT SYSTEM:
A PROFESSIONAL JOURNEY

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Part One

Integrative Report

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Glossary

BS	British Standards
BSC	Balanced Scorecard
CD-ROM	Compact Disc Read Only Memory
CEO	Chief Executive Officer
CMS	Company Management System
CPD	Continuous personal Development
CPI	Continuous Performance Improvement
CRINE	Cost Reduction In The New Era
DPMS	Deep Panuke Management System
EEM	European Excellence Model
EFQM	European Foundation of Quality Management
EMR	Export Marketing Research
EN	European Norms
HTML	Hyper Text Markup language
IIP	Investors In People
IMS	Integrated Management System
ISO	International Standards Organisation
IT	Information Technology
KOGL	Kvaerner Oil and Gas Limited
KPI	Key Performance Indicator
MSc	Master of Science
Ofsted	Office for Standards in Education
QMS	Quality Management System
QP	Quality Procedure
SEI	Saipem Energy International
SME	Small and Medium Enterprise
TJB	Trafalgar John Brown Fabricators
TQM	Total Quality Management
TS	Technical Specification
TVEP	Tees Valley Engineering Partnership

Abstract

This integrative doctoral report describes a research project which draws from the author's experience and knowledge of management within the oil and gas sector. Core to the research is the design and development of a company management system, the CMS. The system was designed for a new business division of an international company whose strategic vision was to gain a global presence as an engineering contractor. The research uses the formal approach of reflective practice to draw principles from the experiential work. This reflection resulted in a series of principles which the author proposes are core to the successful development of a management system.

The project entailed extensive literature research which further developed and refined the core principles. The principles were compared to the ISO standard, EFQM Excellence model and several proprietary systems. A qualitative study was undertaken to investigate the management systems in use in a selection of sectors, and to explore the applicability of the derived principles. This study established the views and opinion of senior management to systems and their attitude towards quality. The synthesis of experiential data, examination of the literature, lessons learnt from the development of the CMS and the qualitative study provided further evidence to support the six derived principles, which are: Value-based, Empowerment, Team culture, Simplicity, Continuous improvement, and Added Value.

This work makes a contribution to both research and professional practice at several levels:

- *Research into professional practice.* This work demonstrates the value of undertaking a research project which is located within professional practice, and yet grounded in significant primary and secondary research.

- *The six principles.* The value and validity of the six principles has been demonstrated through reflective practice, exploration of the literature, a case study development of a system (the CMS) and a qualitative study. The six core principles are novel and have broader applicability than the oil and gas sector

- *The CMS.* The development of the CMS has demonstrated the value to be gained by developing a management system according to sound management principles.

- *Value-based vs process-based management approaches.* Finally the work demonstrates that a successful management system should be value (and culture) based, rather than process based.

This piece of professional research thus makes a valuable contribution to the research of management systems both academically and specifically within the oil and gas sector.

Acknowledgements

This work is dedicated to the memory of my parents Tilla and Ernie. They filled my life with love, happiness and inspiration.

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Chapter 1: Introduction

1.1 Background

This report presents a programme of work which investigates and integrates the areas of quality, management, management systems and corporate values. It is based upon a programme of research which reflects upon my own professional experience, sets it within an academic and professional context and proposes a set of principles which I believe to be key to to the success of any organisation. The report is supported by a portfolio of evidence, which demonstrates my contribution to professional practice over a 20 year period. Although my professional experience has been largely within the oil and gas sector, I believe that much of the work and the principles I propose are applicable within a broader organisational context.

Within my report I discuss how I used my experience, skills and qualifications to develop and implement a Company Management System (CMS) for a company operating globally in the oil and gas sector. The CMS is a core element of my submission and embodies a set of principles which I propose should be used as the basis for a successful management system.

The motivation for this work, and for the CMS, lies within my long standing involvement with, and interest in, quality management systems. I had been involved at a detailed level with the operation and function of quality management systems during my employment with Kvarener Oil and Gas and latterly with a major change programme in the late 1990's. One of the many concerns I encountered from engineers and management was that quality management systems are often put in place to satisfy a client requirement and that they may offer little real value to the company or users. It is often stated that systems termed "quality systems" may actually offer little support to, and in some cases may detract from, the management function. Seddon (2000) for example suggests 'The Standard' (ISO 9001) encourages managers to think of "quality" and "business as usual" as separate and distinct functions.

In this report I will demonstrate how I used my experience of the oil and gas sector and my knowledge of quality management first to develop an Integrated Management System, IMS. This system was necessary to reflect a revised company structure and embodied best practice principles at that time. Building and reflecting on this initiative, I then developed and implemented the Company Management System, CMS. The CMS incorporated a core management system which mirrored the structure and objectives of the business, whilst encompassing the principles of ISO 9001: 2000. There are eight quality management principles included within the standard which aim to improve performance and achieve success. These principles are further discussed in chapter 3, section 3.3. More than this, however, the CMS embodied my own set of core principles which I propose are fundamental to good management (see section 1.4).

In 2001 a management consultancy I had set up, Business>IAM, secured a contract with SEI, Saipem Energy International. Based in London, SEI was a new business stream of a global organisation. The company was formed to secure contracts for the design and management of major facilities in the oil and gas sector. The remit to Business>IAM was quite simple. Develop and implement a Management System in accordance with the requirements of ISO 9001:2000. This period of my work was used as a further development of the CMS concept. Again the development was based upon a fundamental set of core principles, as discussed in this report.

The successful implementation of the system was very much a result of people engagement. Developing the system during the embryonic stage of the company facilitated the growth of an improvement-focused culture. This report provides evidence that with management support and a culture based on continuous improvement, an efficient and effective management system can be successfully developed and implemented.

1.2 Aim

The aim of this work has been to identify best practice in management systems and to propose a set of core principles which underpin a successful management system. To do this I initially completed a thorough reflection of my experience before undertaking an examination of quality and management literature. This strengthened and supported my evidence of how I developed and implemented a system which embodies best practice, the CMS. Finally i undertook qualitative research which examined senior management views on management systems.

1.3 Methodology

The development of this research was a continuous process with the core theme being based upon a fundamental piece of professional work, the CMS and a set of related principles. The methodology and how it relates to the structure of this report is shown in Figure 1.1.

Figure 1.1 identifies the stages of project development and the evolution of the research. The project started with an initial concept based upon a set of my own professional experiences and a management system, the CMS, which I believed to be state of the art and to embody best management practice. Following a period of initial reflection, (Seibert & Daudelin, 1999) and development of a storyboard, my analysis identified six principles of a management system which the remainder of the project explores.

Completing autobiographical reflection in this manner mirrors the strategies outlined by Tenni, Smyth and Boucher (2003). Core elements of my storyboard were identified and documented, I then considered my wider experience and influences and drew out a series of themes. Finally during this phase of reflection, I engaged with my supervisors to discuss and analyse these themes and as a consequence developed my set of principles.
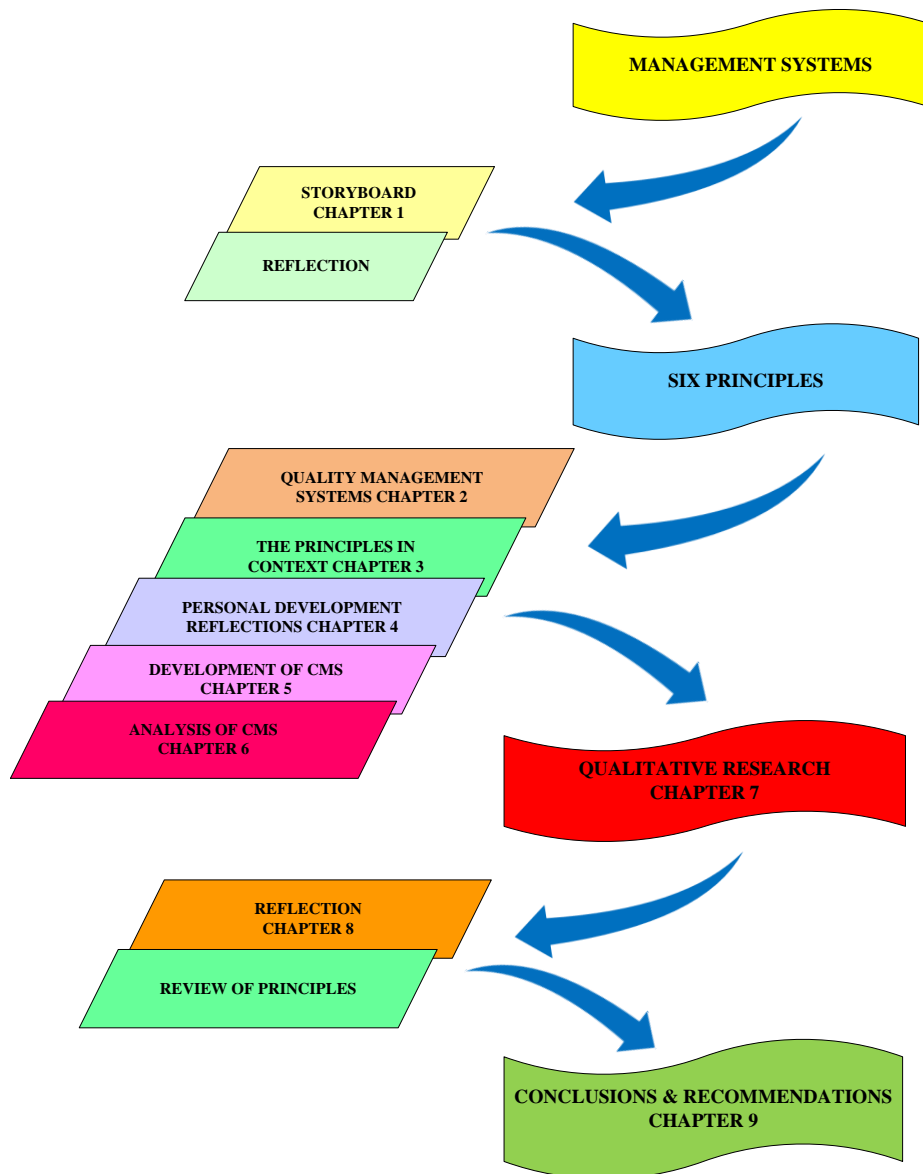
Figure 1.1 – Flow chart of the development of the project

Having identified the principles, further reflection and analysis were completed. In doing so it was possible to consider the strengths and weaknesses of the principles with respect to the stages following in the development of the CMS. I completed extensive literature research and reflected on my own personal development, the development of the CMS and the evidence presented in the Portfolio which follows this report. I also undertook a piece of qualitative research to explore current management attitudes to management and quality systems.

After completing these stages of research I revisited the original concept that a management system must take into account the six principles. In analysing the substance of my research I reviewed the validity and importance of each principle. From this final activity of reflection and evaluation, I was able to determine the legitimacy of each principle and draw conclusions as to the validity and the strength of my original proposal. In conclusion I comment on the validity of these six principles and of my own professional contribution to the development of management systems in the oil and gas sector.

1.4 Initial Reflection: Derivation of Six Principles Required for a Management System

In my experience of management systems and particularly quality management systems, many of the users have at best a disinterest, and at worst, apathy towards such tools. This need not be the case; indeed the introduction of the standard ISO 9001:2000 allowed a sea change in how management systems could be adopted for personal and company benefits.

This was achieved by introducing the concept of process management to monitor and optimise a company's tasks and activities, instead of just inspecting the final product.

At the start of this programme of research I first reflected upon my entire career and the development of the CMS. To help me do so I created a storyboard of all my professional experiences and clustered them into topic areas (see Figure 1.2).

	Phase 1	Phase 2	Phase 3	Phase 4
	Britannia CPI Group 1994 - 1997	**Kvaerner Oil & Gas (Trafalgar House) 1989 - 2000**	**Business>IAM 2000 - 2004**	**Current**
	CPD Training Programmes	Elf Petroland Procurement	Astute Alliance	TVEP
	Brown Papers	Innovation Scheme	Huntsman Alliance	Systems Survey
	TJB Training Programme	Business Improvement Workshops	CMS Development	
	Lessons Learnt	Master of Science Quality Management	DPMS Development	
	CRINE Conference	First Choice Programme	CMS Upgrade	
	Peer Review	IMS Development	EMR Visit Australia	

Figure 1.2 Storyboard of my professional practice

The storyboard was then coded according to the major issues which I identified as having importance for the development of the management systems. This was done initially by myself, and then reviewed by my supervisors. This exercise succeeded in determining seven issues. These were:

- ➢ The myth of complexity
- ➢ An industry in itself
- ➢ Not adding value
- ➢ The principles of ISO 9001:2000
- ➢ Personal/Organisational value
- ➢ Culture of team working
- ➢ Empowerment/ownership/flexibility

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In my opinion the issues could be best classed as three negative and four positive. The negative issues being a myth of complexity, an industry in itself and not adding value. The positive issues were underlying the principles of ISO 9001:2000, personal/organisational values, culture of team working and empowerment/ownership /flexibility.

Further reflection of aspects of my storyboard enabled me to consider and categorise these issues into six core principles. It was my initial view that these six principles were the key to a successful management system.

These are the six principles upon which I base this judgment and the remainder of the report is an exploration of these principles and my own professional contribution.

1. **Simplicity**: management systems developed to accurately document business processes to ensure clarity rather than complexity have a much greater impact on users. Enthusiasm for the use of management systems is greatly enhanced when they are simple and easy to use.
2. **Added value**: the design and operation of a management system should ensure the system adds value to the business and is able to function with a minimum amount of additional resources dedicated to its maintenance.
3. **Continuous improvement**: the main focus of the standard ISO 9001:2000 is process driven management. This provides an opportunity to introduce simpler documentation with associated performance measurements, thus promoting continuous improvement.
4. **Value based**: the opportunity to incorporate corporate and department values into a management system encourages ownership, rather than a compliance culture.
5. **Empowerment**: such ownership of the management system encourages employees and system users to become empowered, flexible and open to change.
6. **Team culture**: facilitates personnel not only to perform better in developing the system but adopt a team approach in the general execution of their duties.

1.5 Report Structure

The remainder of this report is structured as below.

In chapter 2, I present an overview of Quality Management Systems. This chapter also includes an outline description of the standard ISO 9001:2000. Following on from this the European Foundation for Quality Management, EFQM, is discussed and compared to the principles of ISO 9001:2000. Finally a summary of a survey by the International Standards Organisation is reviewed to establish and consider the current status of ISO 9001 certifications.

In chapter 3, I describe the principles in the context of a literature review, particularly with respect to academic research which underpins the principles proposed in section 1.4 above.

In chapter 4 I reflect upon my own professional experience, which provided me with the inspiration to develop the CMS. Beginning with my initial exposure to quality systems in the early 1980's, I reflect upon my career development and the experience which helped me to formulate the principles behind the system. I also describe how I set about developing the CMS, utilising process mapping, facilitating work groups and helping develop a new corporate "improvement" culture.

The development of the CMS is covered in detail in chapter 5. The chapter includes all elements and key aspects of the system development and how I incorporated the principles outlined in section 1.4.

An evaluation of the CMS is the main content of Chapter 6. In this chapter I undertake a reflective view of the CMS. As it is several years since I first began work on the system it is evident that advances of technology alone could have a significant impact of the current viability of the system. As an additional review of the system I invited Leighton Corporation, a leading software and systems development company to undertake a review and

analysis of the CMS. My analysis of their findings is included in chapter 6 section 6.7.

In chapter 7 I discuss a piece of qualitative research which I undertook to explore management systems currently in place within different sectors. The results and analysis of this research is included within this chapter. I have also compared the results of this research to the CMS.

In support of this project report there is a Portfolio of Evidence which sets out key areas of my personal development and achievements. The portfolio is referred to throughout the report; however a summary of the contribution made by the work within the Portfolio, particularly in relation to my points of reflection and contribution to practice, is included within chapter 8.

The final chapter of the report, chapter 9, includes a final review of and reflection upon the six principles detailed in section 1.4. It also includes recommendations and areas for further work identified from the research.

Chapter 2: Quality Management Systems

2.1 Quality Management Systems

A Quality Management System is typically defined as: *"A set of co-ordinated activities to direct and control an organisation in order to continually improve the effectiveness and efficiency of its performance,"* (www.businessballs.com).

Although inspection of products had been present in manufacturing for quite some time, it was not until the early 1950's that quality management practices became popular. The Department of Business, Innovation and Skills report "From Quality to Organisational Excellence", (www.businessballs.com), states that Japan in particular had a reputation for producing substandard products and a poorly educated workforce. The report goes on to suggest that; assisted by gurus such as Juran and Godfrey (2000), Deming (1982) and Feigenbaum (1991); the use of quality systems in Japan increased rapidly. In the early 1960's quality control and management became almost a national preoccupation in Japan.

Recognition of these developments first reached the western world in the late 1960's, although it was not until the early 1980's that companies began to introduce their own quality programmes into business. In 1979 the British Standard for quality, BS 5750 was introduced and in 1983 this became the main reference for the National Quality Campaign. The aim of the campaign was to bring to the attention of industry the importance of quality for competitiveness and survival in the world market place.

Accreditation to BS 5750 was rapidly recognised as a prerequisite for undertaking contracts within most sectors and was particularly prevalent within the oil and gas industry in which I was employed. What was not recognised by many of the oil and gas contractor senior management teams was the fact that implementing such a system effectively would require substantial resources. One key factor often overlooked at this time was the

necessity to train company personnel in what quality management meant to them and how it impacted on their roles. Other than quality managers and engineers, this was a completely new phenomenon to most staff and it was often imposed without induction or explanation. Consequently without understanding the requirements it was difficult for people to conform to the system requirements (Principle 1).

Within the oil and gas sector quality management focused on inspection and quality control. Certification requirements for many projects became excessive and the bias was towards inspection rather than the implementation of preventative measures of quality assurance. Within a very short space of time in the mid 1980's, inspection almost became an industry in itself. It was not uncommon for the personhours expended on inspection, testing and documentation of results to exceed the personhours used during the fabrication or manufacturing of the component or item being inspected, (Principle 2).

As organisations became used to quality management and the requirements of BS 5750 became clearer, many organisations became aware of the potential advantages of Total Quality Management, or TQM as described by Deming (1986). He described the basis of TQM is to '*reduce the errors produced during the manufacturing or service process and increase customer satisfaction, streamline supply chain management, aim for modernization of equipment and ensure workers have the highest level of training*'. The success of Ford Motor Company in comparison to the performance of rivals General Motors and Chrysler drew attention to the potential of this approach to quality.

TQM is a way of managing people and business processes to ensure complete customer satisfaction at every stage, internally and externally. The HM Government, DTI in their document, From Quality to Excellence (2000), describe TQM as follows:- "*TQM, combined with effective leadership, results in an organization doing the right things right, first time*". Figure 2.1 portrays the core principles of TQM as set out in the same paper.
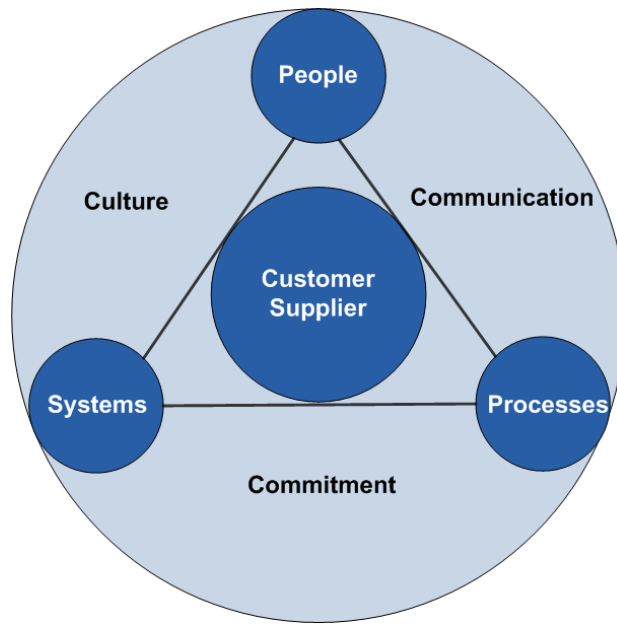
Figure 2.1 – Core principles of Total Quality Management
(www.dti.gov.uk/quality/tqm)

The core of TQM is the customer-supplier interfaces, both externally and internally. This core must be surrounded by a commitment to quality, communication of the quality message, and recognition of the need to change the culture of the organisation to create total quality. These are the foundations of TQM, supported by the key management functions of people, processes and systems in the organisation. This model of TQM is compatible to the principles of the ISO standard ISO 9001:2000 which replaced BS 5750 and ISO 9000:1994 in 2000.

This focuses on people, processes and systems. Rusjan and Castka (2009) go further with this research by suggesting that the new standard is in effect derived from most commonly used elements of TQM. This supports the work of Martinez-Costa et al (2009) who consider that companies certified to ISO 9001:2000 apply TQM at a much higher level than companies certified to ISO 9000:1994. They also demonstrated that such companies performed much better.

2.2 BS EN ISO 9001:2000

"ISO 9000 is a generic name given to a family of standards developed to provide a framework around which a quality management system can effectively be implemented."

(BS EN ISO 9001:2000)

The standard BS EN ISO 9001 was published in December 2000 and replaced the existing revision BS EN ISO 9001 released in 1994. Key constituent changes within the new standard included the introduction of process management as a prime function. The main system focus is on results and hence the processes which produce these results are a major constituent. Also, the fuller involvement of senior management in ensuring quality is integrated into the business system. The development of process performance measures also provided a stimulus for continuous improvement and customer satisfaction rather than compliance, as in previous editions of the standard.

Hoyle (2006) states, that the terms Business Management System and Quality Management System are synonymous. He also indicates that the lifecycle of the management system has five components:

1. establishing the system
2. operating the system
3. evaluating the system
4. maintaining the system and
5. improving the system

Stages 3, 4 and 5 indicate a proactive approach to system use and development. Evaluation is not limited to system audits and examination of the processes for conformity. The processes should be examined for effectiveness in achieving the organisation's objectives. The introduction of the new standard would benefit businesses, and ownership by senior management would assist in achieving business objectives.

The work of Abdi, Awan and Bhatti (2008) considers the effect of companies adopting ISO 9000 in Pakistan. Their research revealed that 85% of companies who had done so achieved increased sales, exports and profitability.

2.3 European Foundation for Quality Management

The European Foundation for Quality Management, EFQM, has over 500 network organizations, Hakes (2007). Over 30,000 businesses use the Excellence Model, produced by EFQM and shown in Figure 2.2. Founded in 1989 by 14 CEO's of prominent European businesses, the EFQM definition of excellence is *"outstanding practice in managing an organisation and achieving results."* Where good management practice is in place, excellent results will be achieved in terms of people and customers as well as more commonly understood performance indicators.
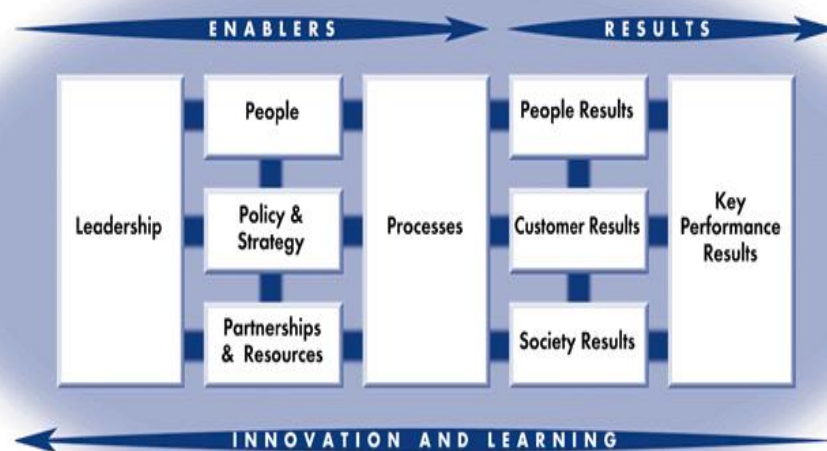
Figure 2.2 – The EFQM Excellence Model
(http://www.qualityscotland.co.uk/efqm.asp)

Figure 2.2 depicts the stages in the Excellence Model which can be used as a diagnostic tool to allow an organisation to assess its strengths and areas for improvement across key areas.

Despite the positive advantages many consider to be present in the EFQM model, Rusjan (2005) concludes that it offers no structured approach to exploiting strengths or classifying areas of improvement. ISO 9001:2000 also has a list of eight quality management principles which are very similar and can be matched to EFQM, as shown in Figure 2.3.

Research undertaken by the University of Leicester in 2005 (http://excellenceone.efqm.org) on behalf of the British Quality Foundation into the effects of the EFQM Model of Excellence provided some interesting results, notably: "*The overall evidence indicates that when the principles of the EFQM Excellence Model have been implemented effectively, performance improves in both short and long periods of time.*"

Excellence concepts of the EFQM Model	Quality management principles of ISO 9001:2000
Customer focus	Customer focus
Leadership and constancy of purpose	Leadership
Management by processes and facts	Process approach Factual approach to decision making System approach to management
People development and involvement Results orientation Public responsibility	Involvement of people
Continuous learning, innovation and improvement	Continual improvement

Figure 2.3 – EFQM Excellence model v Principles of ISO 9001:2000

2.4 Six Sigma

Six Sigma is a standard which aims at reducing defects rather than the basics of improving processes. DeFeo (2000). Jiju (2007) in his research states that

Six Sigma will continue to grow and evolve. This view is shared by Anderson, Savic and Lawrie (2004) who suggest that Six Sigma is becoming more focussed on improving basic management systems than on process improvement. Metallo, Cuomo and Festa (2007) state that TQM focuses on customer defence rather than customer value. This is in opposition of my Principle 2 adding value.

My research of the implementation of Six Sigma supports the view that Six Sigma alone cannot be considered a QMS. This is supported by Moosa and Sajid (2010) in their analysis of Six Sigma by suggesting that for successful implementation, companies should integrate their QMS with Six Sigma to achieve the full benefits of ISO 9001:2000.

2.5 Balanced Scorecard

Similarly, the Balanced Scorecard (BSC), Kaplan (2010) can be deemed to be a similar standard to Six Sigma when considered in the context of a QMS. Developed at the beginning of the 1990s BSC is a conceptual framework which is more concerned with performance measurement, rather than QMS or continuous improvement. Dror (2008) in his research on a number of companies compares BSC with other systems and identifies it to have significant advantages over and other strategic frameworks such as Six Sigma.

He states that whilst EFQM for example provides a systematic view of performance management, BSC is solely performance orientated. This again is evidence that systems such as BSC and Six Sigma are frameworks or tools used to achieve and measure performance without providing a structure to identify and improve the performance.

2.6 Use of International Standards Globally

Data available from the ISO, (International Standards Organisation), indicates that whilst there has been continued global growth in the number of

companies' gaining certification to the new standard, this is not the case within the UK, as shown in Figure 2.4.
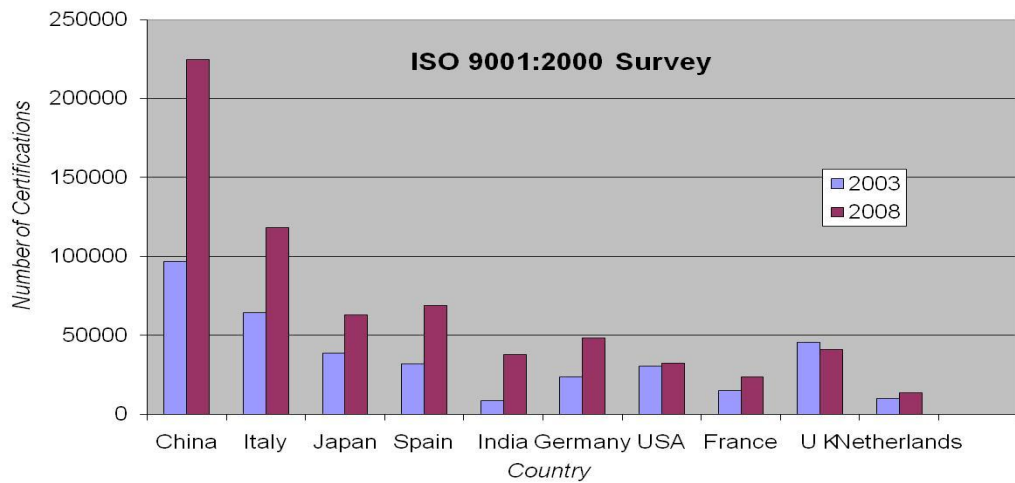
Figure 2.4 – ISO Certifications Survey 2003-2008

Figure 2.4 indicates the change in certifications since 2003 to 2008. Whilst most of the countries included have seen on average two fold increases of certifications in the five year period, the exception is the UK where certifications have dropped by around 10%. Upon enquiry to ISO the following response was given:

"In the case of UK, possible reasons given by respondents were:

- *company closures*
- *closures of branches/sites*
- *mergers and acquisitions, which included transferring registration to the new owner's certification body*
- *de-registration by clients who no-longer saw the benefit in maintaining an accredited management system*
- *a small number of clients were de-registered as part of a more thorough procedure of client suspension as part of ISO/IEC 17021:2006 (Certification bodies operating to this International Standard need not offer all types of management system certification).*

Additionally a number of sector specific standards and specifications have been developed from the ISO 9001:2000, which may account for the decline in UK certification registration against the prime standard. There are currently eleven registered with the ISO: Automotive, Education, Energy, Food Safety, Information Security, Health Care, Local Government, Medical Devices, Petroleum and Gas, Ship Recycling and Supply Chain Security.

An example of such specific standards and specifications is that relating to the automotive industry: technical specification, ISO/TS 16949:2002. Developed in 2002 by the International Automotive Task Force, the specification incorporates the verbatim text of ISO 9001:2000 plus automotive specific requirements in areas such as employee competence, awareness and training, design and development, production and service provision, control of monitoring and measuring devices and measurement, analysis and improvement.

Whilst I agree that the onset of sector specifications have had a marked effect in the decline of UK certifications, I believe that there are two further reasons to be considered. Firstly the change from accreditation to certification effectively relaxes the requirement to have third party acknowledgment and allows organisations to self-regulate their systems. Secondly, the decline in UK manufacturing has not only reduced the number of organisations requiring certification, it has had the secondary effect of a decline in the number of supply chain members requiring certification.

ISO 9001 is the most widely used standard in the world, ISO Survey (2008) so it is no surprise that is has as many critics as it has supporters. The most common criticisms are that the new standard adds little value and is seen to be an additional expense. It is also viewed as a necessity to ensure continuity of commercial activities with existing customers. This is in contrast to the research of Kantner (2000). Katner studied some 400 ISO registrants and showed that most originally sought ISO for external benefits, but discovered that the internal benefits were in fact more beneficial.

However Guasch, Racine and Sanchez (2007) maintain that *"conformance to ISO 9001 alone cannot produce sustainable improvement in organisational performance"*. Anderson, Savic and Lawrie (2004) consider that *"most companies seeking ISO certification are motivated by a need to satisfy an external requirement (e.g. from their customers). ISO certification is often a market entry level requirement.*

Hoye (2006) argues that despite the UK having approximately 25 million trading organisations less than 2.5% have registered to ISO 9001. He goes on to propose that in business to business relationships, reputation is used rather than certification.

2.7 Summary

The use of quality management systems increased during the 1980's and many organisations developed their systems in accordance with the British Standard BS 5750. Towards the end of the 1980's many organisations began to extend their systems to encompass the principles of Total Quality Management. TQM is based upon the core of customer-supplier relationships and prompts users to develop the key management functions of people, processes and systems in the organisation.

The customer-supplier relationships approach which is the basis of TQM is closely mirrored by the EFQM model which closely aligns with the eight principles of ISO 9000:2000. This demonstrates senior management have encouraged quality management systems to evolve from a basis of rigidity into systems which promote a process approach and individual ownership which in turn will promote continuous improvement. This reflects directly my principles 3, 5 and 6.

In contrast to this evolution, the ISO data suggests that due to the fall in numbers of registrations in the UK, many organisations may consider that management systems have become over complex and do not add value. (Principles 1 & 2)

Chapter 3: The Principles in Context

3.1 Aim of this Chapter

The aim of this chapter is to discuss and critically analyse key literature in the area of quality and management systems. This includes literature which supports the principles outlined in section 1.3 and those which present alternative views. Whilst there is additional literature referenced to throughout the report, this chapter examines and contrasts the prime references on which my work is based. The review is not limited to quality management and covers many of the aspects necessary to develop an effective management system. I also review aspects of culture, personal development, team working and management of change. These aspects are integral to the principles on which the CMS is based.

3.2 Principle number 1 - Simplicity

To many employees like me, the quality system function was a new concept, with day to day operations undertaken by separate groups. Much of the work carried out by these groups was unexplained and I encountered many examples of unnecessarily complex procedures. This is in direct contrast to the work of Hammer & Champney (2001) who state: '*We say that in order to meet the contemporary demands of quality service, flexibility and low cost, processes must be kept simple. This need for simplicity has enormous consequences for how processes are designed and organisations are shaped.*' Often the documentation of a process was achieved via a lengthy, prescriptive procedure and not, as defined by Hunt (1996), '*A business process is a series of steps designed to produce a product or service.*'

The advent of Six Sigma, Mayle (2006), appeared to provide a solution, as it involved the users in the development of quality documentation. Six Sigma was originally developed as a set of practices designed to improve manufacturing processes and involves employees using process capability studies to eliminate defects. Mayle states that '*Six Sigma gained popularity in the USA in 1986 when Motorola introduced it as a means of measuring*

process quality using statistical process control.' However through the work of authors such as Field & Swift (1996), the perception of quality management became more and more complex. In reviewing the content of 'Effecting a Quality Change' Field & Swift (1996) preserves the theory that Quality Management is complex and will only be effectively handled by experts. Harrington (1991), asserts *'Most business writing today cannot be read or understood easily. After cursory glance, it usually is routed to the nearest file cabinet or trash can.'* This *indicates* the response many non quality professionals give to such material and ignores '*the difference between data and information'* as discussed by Trout & Rivkin (1999).

Simplicity in documenting work processes and procedures will generate enthusiasm within the people who access such systems, Tanner (2008). Unlike complex, prescriptive managements systems; simple, easy to use systems will encourage use and are much more likely to be used within organisations. This will prevent people working in an ad-hoc fashion, which has severe implications for areas such as safety, scheduling and cost. Another advantage is that if documentation of the system is simple, then it follows that the steps in the activity will also be simple. This gives rise to a greater awareness of wider company activities to all employees, strengthening a commitment to the overall corporate objectives. Whilst Collins (2006) and Bond (2010) share this opinion in their work, Maeda (2006) suggests another advantage by claiming "*simplicity=sanity*".

3.3 Principle number 2 - Added value

Leading on from the principle of simplicity, there is evidence to suggest that quality management is a stand-alone industry which adds little value to business. Seddon (2000) for example in 'The case against ISO 9000' cites an assessment organisation which sets targets for assessors to sell "value-added" services. Johnson (2000) also considers quality to be a separate entity of business: '*Although the doors did not slam shut on unregistered firms on January 1, 1993, the time is rapidly coming when ISO 9000 will be the rules by which the quality game is played in the world's largest marketplace.'*

This implies that quality is separate and whilst reference to playing the game is probably phraseology rather than intent, it does portray the wrong image of ISO 9001. 'Quality is Free' (Crosby, 1980) is an almanac of how he interpreted Quality Management should be implemented. I agree that quality should be free; however the approach outlined by Crosby poses some contradictions. Consider the key statements by Crosby:

❑ *Quality means conformance, not elegance.*
❑ *Only performance measurement is the cost of quality*
❑ *The only performance standard is Zero Defects*

If this be the case, why then does Crosby later state that '*Quality operations should always report at the same level to those departments they are charged with evaluating. The quality manager must be the type of person who can fit into their business comfortably.*' Surely if the quality manager is expected to fit into the business comfortably, then the quality system should also. The inference that conformity is key is at odds with the principles of ISO 9001:2000 which promotes continuous improvement. To rely on conformity alone supports the view of Richard Buetow, Director of Corporate Quality for Business Systems, Motorola which he proposed in "The Hot New Seal of Quality " (Fortune, 1993), '*With ISO 9000 you can still have terrible processes and products. You can certify a manufacturer that makes life jackets from concrete as long as those jackets are made according to the documented procedures and the company provides next of kin with instructions on how to complain about defects.*'

In reference to Buetow's assertion, Peters (1997) states that the concept is absurd. Crosby (1980), confirms the statement '*Quality management is a systematic way of guaranteeing that organised activities happen the way they are planned.*' This supports my own view that managers do not consider quality to be a core part of the business. In his a later book Quality is still free; Crosby (1995) exposes his hand by claiming '*ISO 9000 is really a very old-fashioned Quality Assurance kind of thing. But it is not of today and the next*

century. It is only to provide a living for consultants who certify companies and for quality professionals who do not want to think for themselves.'

Crosby dedicates three chapters in his book describing how he founded and grew Phillip Crosby Associates, PCA. This company comprised of quality associates, graduates of his 'Quality College' The College was set up to educate associates to the four absolutes of quality management:

- ❑ Quality means conformance to requirements, not goodness
- ❑ Quality comes from prevention, not detection
- ❑ Quality performance standard is Zero Defects, not Acceptable Quality Levels
- ❑ Quality is measured by the Price of Non-conformance, not by indexes

Such activity has added little value to customer companies themselves (Peters, 1997). Additionally these four absolutes are in direct contradiction to the principles of ISO 9001: 2000 To indicate the costs of engaging consultants, Johnson (2000) claims '*On average, it takes approximately 18 months to implement ISO 9000, at a cost of $135,000 for a 100 person facility. Registration adds to this amount.'* I suggest that involvement of organisational personnel under the guidance of a consultant would substantially reduce this figure.

Any additional work which is not core to the businesses activities must add value in some shape or form. For example, financial aspects of a structural fabrication company do not directly add value to the product. However, without having robust financial procedures in place the business would soon be at risk of survival. Using this analogy any other management system must add value to a business to be worthy of the time and resource needed to support it. A simple method to test this proposal is to identify what the effects would be if the activity was removed. If there is no real cause or effect on the product then the question has to be addressed is it adding value? Marketing is another key area which may well have no direct effect on a business product; however, it is an important part of the performance of the business.

Often introduction of documented quality systems and procedures is undertaken simply for the sake of compliance or customer request. Management should guard against introducing such measures just for the sake of doing so without ensuring there is a facility to share such information, Lam (2010) and Taylor (2006) confirm that introducing systems for compliance will not add improvements to organisational function or product, nor will it add any value.

3.4 Principle number 3 – Continuous improvement

'You don't have to do this. Survival is not compulsory.'
On the importance of ISO 9000
Dr W. EDWARDS DEMING (Inside cover - Johnson 2000)

In contrast to previous approaches to quality management taken in BS 5750 and ISO 9000:1994, Marimon, Heras and Casadesus (2009) and Hoyle (2009) both suggest that the new standard is no longer a product standard. The standard ISO 9000:2000 is a <u>management</u> standard which <u>includes</u> quality. This is a key difference and encompasses the philosophy proposed by Crosby (1980). Hoyle (2002) states: '*Process approach is one of the eight quality management principles used as a basis for developing ISO 9000. The principle is expressed as follows: A desired result is achieved more efficiently when activities and related resources are managed as a process.*'

Engaging organisational staff in mapping such processes realises many indirect benefits which were not achieved by previous quality management systems. Burgard (2009) quotes Deming's opinion that the more awareness workers have of the system, the better feedback for improvement they could provide. This opinion is shared by Johnson, Chritenesen and Kagermann (2008) who claim that if companies don't understand their current models they cannot improve it, deemed as a critical source of competitive advantage by Bierly III, Damanpour and Santoro (2009). Barrell (1991) and De Bono (1993) identify the advantages if clarity of aims and goals is in existence within an organisation.

Previous management systems developed in accordance with the previous standard BS 5750 were descriptive and did not include such process maps. Hunt (1996) provides an example of the way to proceed with a process approach. '*A tremendous amount of learning and improvement can result from the documentation and examination of the input-output (customer-supplier) lineages depicted in a process map.*'

Pryor et al (2009) observed that in small organisations jobs are often not well documented, therefore it is difficult to manage and improve. This theory is supported by Carmignani (2008) who cites clause 4.1 of ISO 9001 as a move *"more towards method and approach mentality".* Morden (2004) relates to the work of Hamel and Prahalad (1994) who contend that companies should focus on identification of core competencies. However Braganza (2001) states, '*The cynic might suggest that 'process' mapping is an excellent way of not actually doing anything at all*' and questions the added value to be gained from this approach.

In appointing process owners as suggested by the standard, Harrington (1991) comments that '*The business process owner's goal is to improve the assigned process to the point at which it reaches best-of-breed status and to keep it at that level.*' In doing so continuous improvement and not conformance is achieved.

Process-based methods differ from previous methods adopted in the era of BS 5750 which promoted a system which merely "documented what you do". As Hoyle (2002) contrasts, '*Improvement by raising standards requires a different process, a process which results in new standards. With the Document what you do' method you define departmental tasks. With the business process method you firstly define the processes that convert inputs into outputs and the requirements of the standard onto the process model that has been created, omitting those that are not relevant to your business and adding activities that are needed to meet the standard.*'

All organisations can realise benefits from having a continuous improvement facility within their organisation. Armstrong & Stephens (2005) state this requires attention to many facets including leadership, shared values, structured processes and people and the establishment of a high performance culture. Quite often when problems arise, the main focus of management is to get to the root cause and to rectify the problem. By adopting a continuous improvement methodology not only is it possible to discover the root cause but it is feasible to learn what causes things to happen and introduce appropriate improvements. In doing so, we can remove activities that have no value to the organisation, reduce variation and improve customer satisfaction.
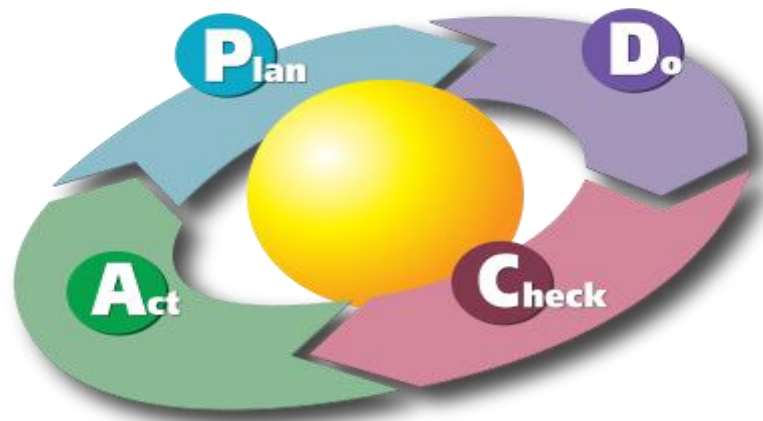
Figure 3.1 – Deming/Shewart Cycle - Langley et al (2009)

There are many models available which can be utilised to implement continuous improvement, Ross (2003). All however are generally based on four key elements: Plan > Do > Check > Act, also known as the Deming or Shewart Cycle, Langley et al (2009), as illustrated in Figure 3.1.

3.5 Principle number 4 – Value based

Any process of documenting a management system must reflect organisational values and objectives. It is vital that process owners are aware of those values and objectives; selection and training of the process owners is thus very important. Harrington (1991), '*the main criterion for selecting process owners is in fact ownership.'*

Having identified and trained the process owners, mapping activities will follow stages described in Hunt (1996). '*Define your processes, map these processes, and prioritise the core business processes important for your business success and survival.*' The development of all processes should be in line with the Harrington (1991) and Jackson (1997) approach which ensures that it involves all facets of the organisation.

This facilitates the inclusion of core values within the system and is capable of identifying performance indicators and targets which underpin business success in all areas. Process owners must be fully conversant with the company's objectives and the function and role of all departments in order to achieve maximum benefit from the system. Henry (1991) recommends starting with a clear vision which Barrett (1998) relates to the benefits available if shared by employees.

This has synergy with the work of Braganza (2001) which states, *'Radical process-based change is more likely to be achieved when people accept the organisation's drivers for change, which can be both opportunities and threats.'* Braganza later endorses this scenario. *'Radical process-based change is more likely to be achieved when people recognise that organisational elements namely strategy, structured people's responsibilities and appraisal criteria, collaborative behaviours, information systems, will change and that these elements should align to a function and process orientation.'*

Values represent the core objectives of an organisation's culture and must be developed and understood to identify the direction of the organisation, Fisher and Lovell (2008). Hofstede (2005), Noble (1999) and Stacey (1993) all suggest the performance of an organisation should be measured against its objectives, while Fisher and Fowler (2008) state that there is a business case for the objectives. Usually the objectives are developed to include the perceived requirements of customers, stakeholders, employees and the community or sector. Sterman (2000) states that by developing such objectives, a concrete target against which decision makers can compare

performance is provided. Stacey (2007) concurs with this claiming an organisation cannot function if the values are not shared. Andersen, Savic and Lawrie (2009) argue *"quality management tools fail to reap their expected benefits when implemented in isolation from corporate strategy.*

3.6 Principle number 5 - Empowerment

One of the key principle elements of ISO 9001:2001 is that of leadership. Previously, quality systems would be seen to be owned by senior management. In practice, management would follow the assurance of the quality manager that all was compliant. This is no longer sufficient if the principles of ISO 9001:2001 are to be achieved. Johnson (2000) and Katner (2000) show clearly that without top management commitment no system will succeed.

Whilst recognising that the level of senior management involvement is important, leadership and commitment alone are not sufficient to gain success, as others need to be aware of their role in achieving corporate objectives as researched by McDowall (2010) and Erdogan (2007). This can be achieved through empowerment, defined by Aslop, Bertelsen and Holland (2006) as *"a group of individuals with a capacity to make effective choices"*. Champy (1996) states you have to clearly communicate to others what has to be done. A number of other factors will dictate the level of success in achieving this, not least management style. Atkinson (1990) states: "*Management style is driven very much by the 'assumptions' we make about how things should be done and the culture and values which underpin them."*

Blanchard (2001) explains that empowered employees benefit organisations and their involvement translates directly to continuous improvement. Kotter (1996), Hindle (2008) and Stacey (2007) all relate to the impact and advantages employers can bring to an organisation when they are empowered to undertake the delivery of corporate goals. The delivery of corporate targets is shared by Butts (2009) and Helfer (2010).

However to attain successful empowerment and to ensure it is not confused with delegation the support of a consultant is frequently called upon to achieve maximum success. In contradiction of Crosby (1995); Roth (1998) supports this approach by stating, '*It takes one person, either in-house or a consultant, who understands the ingredients and interactions necessary to develop a common-sense, comprehensive (systemic) model who is willing to share his or her knowledge with others.*'

3.7 Principle number 6 – Team culture

To develop and implement a management system in accordance with the standard ISO 9001:2000 it is necessary to have the total support of the authors and the users of the system which according to Fowler and Graves (1995) "*should reflect corporate vision and mission*". In doing so there is the opportunity to develop a culture based upon the strengths and advantages of teamwork. This is particularly necessary to ensure continuous improvement. Christiansen (2000) states: "*Culture is, in part, a set of unwritten rules. A culture can either be supportive of innovation or it can discourage it. It can encourage people to support innovation, or it can encourage them to avoid it, to 'play it safe*"

Briscoe, Fawcett and Todd (2005) during their research into 'Implementing ISO 9001 into an Small Manufacturing Enterprises' found that a quality culture is key to the success of implementation and reduced inhibiting behaviours.

There are numerous benefits of having a balanced team as proposed by Belbin (2010).Team selection can be matched as closely as possible to the eight roles "*The Chairman. The Shaper. The Plant. The Monitor-Evaluator. The Resource-Investigator. The Company Worker. The Team Worker. The Finisher.*"

Belbin also claims "*advanced teamwork is one of the most efficient ways we know of accomplishing tasks and missions*". In assembling a mixed team, it is possible to develop an improvement-focussed group who can undertake the challenge of developing a system in an efficient and professional manner.

Moran, Harris and Moran (2007) supports this concept adding, "*self-managed teams contribute to employee empowerment and problem solving".* Furthermore, according to Gohan (2003), "w*orking together advances the interest of the corporation.* This is similar to the research of Sace and Mahmood (2004) who concluded the importance of human aspects of system implementation.

In "The Circle of Innovation" Peters (1997), refers to the Ritz Carlton credo in defence of high performance above conformity. He illustrates effectively what can be achieved via an embedded company culture. *"The Ritz-Carlton experience enlivens the senses, instils well-being, and fulfils even the unexpressed wishes and needs of our guests."* In contrast he suggests that if Phil Crosby had been consulted on the Ritz-Carlton experience he would have stated that it conforms to requirements. Consequently there is a strong argument to suggest that a positive, improvement-focussed and high performance culture promotes better results for customers and suppliers.

Conversely the novelty of newness may be viewed with scepticism by users. In developing a culture of teamwork and understanding the benefit of a new system, delays in acceptance may be overcome. Peters (1997) attributes this to long-standing evidence that many new products are delayed in their acceptance. He states: *"Products that invent/reinvent a market are (almost unfailingly) rejected at the start by customers. A painful process that takes years to work out"* However, the development and acceptance of a new culture within a company obviates this scenario as shown by Heller (1998).

In proposing there are benefits in encouraging a team culture as an alternative to *"Great Leadership"* , Fuqua (2004) findings are shared by Morck (2005) but at odds with the later research of Pace (2010).

3.8 Principles of Management Systems

During my literature research for this project I discovered that there has been a large number of research projects undertaken aligned to quality

management systems. A number of these research projects into various aspects of quality management, whilst not being based on a set of specific principles, do none the less refer to elements or criteria the authors have based their research upon. This section reviews some key pieces of work by others, in particular the work of Gutierrez et al (2010), Dahlgaard-Park (2008) and Samad (2009). Having reviewed this work I proceed to cross reference and compare the authors work to that of my own in an effort to establish any correlation or connection with my six principles. In doing so I was able to determine the robustness of my principles and to identify any areas of similarity. The three pieces of research selected are summarised below.

3.8.1 Gutierrez et al (2010)

The work of Gutierrez et al was to undertake an empirical analysis of structural elements of quality management initiatives in Europe. To do so they considered evidence from research of 234 organisations that have implemented quality control, EFQM, Six Sigma and ISO 9000 to determine the degree of development of nine elements that compose them. The nine criteria of Gutierrez studies were: Supplier management, Benchmarking, Training, Top management support, Empowerment, Teamwork, Continuous improvement, Process management and Statistical process control. These criteria had been derived by as a result of their extensive literature review.

Obviously there is a direct comparison with Empowerment, Principle 5 and Continuous improvement, Principle 2 and it should also be considered that Teamwork could be matched to Team Culture, Principle 6. Top management support and Process management association is by virtue that they are standard requirements of ISO 9001. The remaining three criteria Supplier management, benchmarking and SPC are in my view performance measures.

3.8.2 Dahlgaard-Park (2008)

In his research, Dahlgaard-Park contrasts five core concepts of management control against the criteria of the European Excellence Model, EEM as described in section 2.3 (figure 2.2). Whilst the criteria of EEM are well documented and founded, the concepts of management control were the

result of a selective literature review. In his study he notes the six alternative management control approaches as being Bureaucratic, Cybernetic, Agency, Human Resource, Contingency and Culture. The second part of his work concentrates on the comparison of the criteria of the EEM with the management control core concepts. The EEM concepts are Leadership, Policy and strategy, People, Partnership and resources and finally Processes.

In comparison with my principles, although the wording differs, there is a direct association with Policy and strategy with Principle 4, Value Based. Also in the definition of People there is a direct correlation with Principle 5, Empowerment. Leadership and Processes are prime elements of the ISO Standard. Dahlgaard-Park's definition of Partnership relates to external relationships with customers, which reflects ISO 9001 but not any of the principles.

3.8.3 Samad (2009)

The study undertaken by Samad was to investigate the link and effects between quality management systems, business performance and product quality. He assembled a list of common points of quality management systems that he has drawn from the formal writing of quality gurus as he terms them. These include Deming (1986), Juran (1994), Crosby (1980), Feigenbaum (1991) and Ishikawa (1985). Samad also states that these items are identified as the most important elements of QMS by Powell (1995). The points are; Leadership, Evaluation activities, Employers recognition and reward, Training and education, Process control and improvement, Customer focus, Employee participation and Quality system improvement.

Samad's definition of Employer participation can be loosely associated with Principles 5 Empowerment and 6, Team culture. Also process control improvement and quality system improvement can be associated with Principle 3, Continuous improvement. Again customer focus and leadership are elements of the ISO standard, while the remaining three points, Evaluation activities, Employers recognition and reward, Training and

education should be included within a QMS but are not considered prime elements.

3.8.4 Table of Comparison

Figure 3.2 illustrates the elements of these studies which I consider have total similarity to my principles, denoted by **T**. Those I consider have an association with my principles are denoted by **P** and those with no connection **N**.

PRINCIPLE	Gutierrez et al	Dahlgaard-Park	Samad
1 Simplicity	N	N	N
2 Added Value	T	N	N
3 Continuous Improvement	N	N	P
4 Value Based	N	T	N
5 Empowerment	T	T	P
6 Team Culture	T	N	P

Figure 3.2 Comparison of Core Elements

The most revealing aspect of this comparison is that none of the other works of research have identified Principle 1, Simplicity which I maintain is key to a successful system. This is particularly relevant when considered from a user perspective. Also, the standard in encouraging flow charting of processes in itself is promoting simplicity. It is also significant and concerning that there is little evidence of Principle 3 Continuous improvement as this is a prime element of the ISO 9001 requirements.

3.9 Summary

Within this chapter I have completed a review of the literature which relates to the six principles I propose to be necessary for a successful management system. In doing so I have also examined whether the six principles, which underpin the CMS, can be identified as being core elements of organisational development. Consequently it was possible to determine that many of the principles are interconnected, particularly when judged in connection with the development of organisations, their values and strategic development. In

contrasting Dawson (2004) and Hamel & Prahalad (1994) in respect to exploiting core competencies within organisation, I contend that the principles I have proposed are integral to the successful development of a management system.

Having undertaken a high level comparison with the three studies included in section 3.8 it can be seen that other researchers have also developed sets of principles which they consider to be necessary for the success of a management system. However with the exception of Empowerment there is no general alignment with my own principles, although there is strong correlation to the ISO Standard. This is however evidence that the other studies have conformed to quality standards in the development of management systems.

Chapter 4: Route to Competence

4.1 Aim of this Chapter

In this Chapter I describe how my personal development, education and work experience were all combined to provide the experience and knowledge necessary to develop and implement a Company Management System based upon the six principles proposed and discussed in the earlier chapters of this report. This chapter also provides further evidence as to how I derived the principles, based upon my own experience.

Included in this section are summaries of key stages in the gathering of competence necessary to achieve this goal. Expanding the Storyboard of professional practice presented in section 1.3, I have illustrated via Figure 4.1, key achievements under the four main phases of my career. These aspects are further reflected upon and my contribution to practice discussed in Chapter 8. Elements shown in shadowed boxes are included in the respective sections of the Portfolio of Evidence which follows this report.

4.2 Storyboard of Competence

Figure 4.1 - Personal Competencies Chart

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4.2 Storyboard of Competence

Phase 1	Phase 2	Phase 3	Phase 4
Britannia CPI Group 1994 - 1997	Kvaerner Oil & Gas (Trafalgar House) 1989 - 2000	Business>IAM 2000 - 2004	Current
CPD Training Programmes	Elf Petroland Procurement	Astute Alliance	TVEP
Brown Papers — Portfolio1	Innovation Scheme	Huntsman Alliance	Systems Survey — Portfolio 11
TJB Training Programme — Portfolio 2	Business Improvement Workshops	CMS Development — Portfolio Ref 8	
Lessons Learnt — Portfolio 3	Master of Science Quality Management	DPMS Development — Portfolio 9	
CRINE Conference — Portfolio 4	First Choice Programme — Portfolio 6	CMS Upgrade — Portfolio 8	
Peer Review — Portfolio 5	IMS Development — Portfolio7	EMR Visit Australia — Portfolio10	

Figure 4.1 - Personal Competencies Chart

All of the items were significant in the advancement of my knowledge and experience and made a significant contribution to either company or sector practice.

4.3 First Experience of Quality Management Systems

I entered the Oil & Gas industry in 1980 and part of the induction to my new role was to be issued with a number of Quality Procedures or "QP's" as they were termed. This was effectively my introduction to QMS (Quality Management Systems). Curiosity was probably the only way to describe my interest at this time, as the documents handed to me meant very little. Compliance with the requirements of BS 5750 had become a pre-requisite for my employer to secure contracts with major oil companies such as Shell, BP and Total. Johnson and Foley (2003) indicate this is not sufficient. *"Quality assurance must exist but the whole organisation must be involved in improving quality".*

The quality documentation which I encountered was often complex and did not relate directly to the function and purpose of the business. These experiences led me to realise that simplicity is vital to the success of any system. This led me to begin to form Principle number 1, Simplicity, in my own mind.

In the mid 1980's an employment change led me to become responsible for the ownership of several quality procedures whose content had expanded to include clients requests and did not acurately reflect what we did in the execution of our duties. Despite the QP's being comprehensive, non-conformances would often be raised during audits which suggested errors in our working methods. Frequently corrective actions were introduced to satisfy the audit report that did little to add value to the business. Palmes (2009) suggests such tedious findings tarnish the reputation of quality audits as a tool for improvement. I often challenged why it was not possible to write the procedures to be a true reflection of how we worked; rather than how the client wanted us to work. I was never given a satisfactory answer.

This raises a fundamental question of what, if any advantage there was of having procedures which did not accurately identify true working practices. Surely if procedures regularly have such inaccuracies they cannot be deemed to be contributing to the business. Consequently anything which prevents a management system from operating with minimum additional resources is actually adding cost and not adding value. This led me to form Principle number 2, added value.

4.4 Phase 1 – Britannia CPI Group

4.4.1 The Britannia Development

At this time there was a new concept in contract styles introduced into the oil & gas industry. Known generically as Alliance Contracts, gain-share was attractive to all alliance members and was discussed during pre-contract workshops. This contract strategy generated an opportunity for innovative working practices and improvements which were actively encouraged. Figure 4.2 provides a simple illustration of the Alliance Gain-Share model.
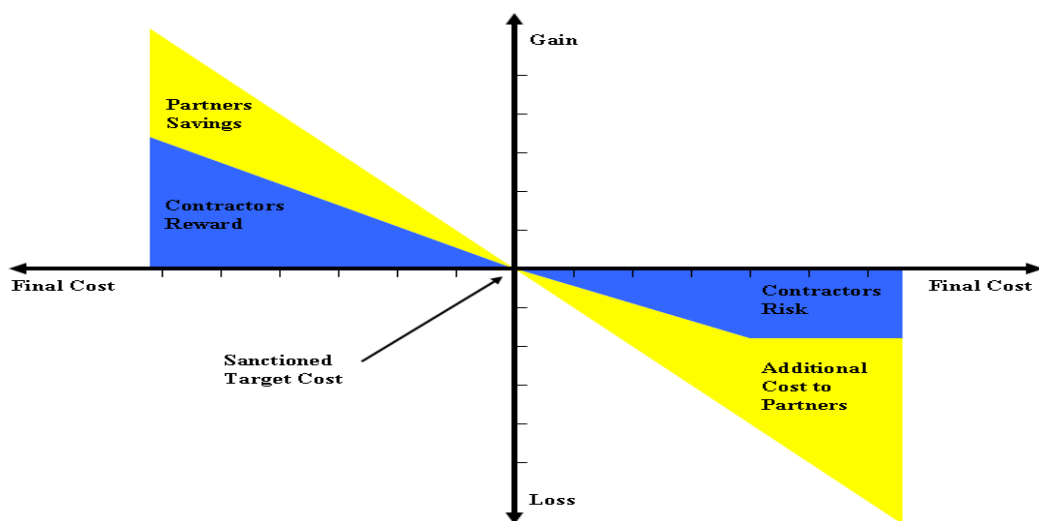
Figure 4.2 - Alliance Gain Share Model – Britannia

(A learning experience, page 28)

Teece and Pisano (2003) argue "*that alliances can be regarded as mechanisms for firms to learn from each other, which helps them recognise dysfunctional routines and blind spots*".

There were a number of "Alliances Contracts" within the Britannia Development as shown in Figure 4.3.
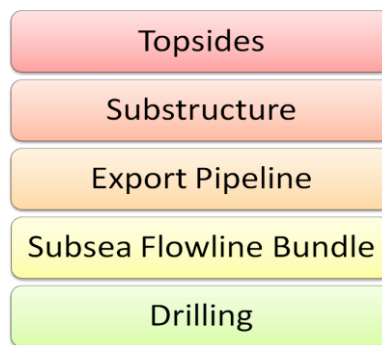
Figure 4.3 – Britannia Alliance Contracts

Membership of the alliance was achieved through competitive tender, although the commercial aspects were not as prominent in selection as was the norm. Upon reflection, Trafalgar House were rated highly by Britannia management when assessed against *the model for collaboration* identified by Tidd & Bessant (1997), as shown in Figure 4.4.
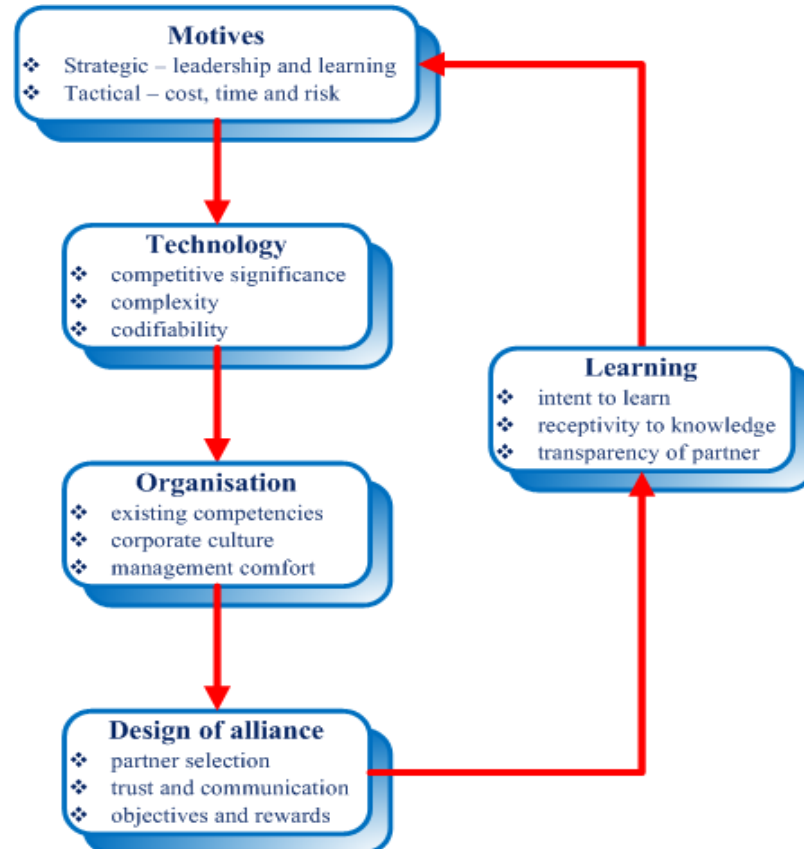
Figure 4.4 – *Tidd & Bessant* Model for Collaboration

Trafalgar House had gained a justifiable reputation as a reliable and proactive contractor whose strengths included existing competencies, corporate culture and management mind-set.

In reviewing many of the examples of improvements to business practice I recognised that empowering the workforce provided an opportunity to share ownership of the management system and became the core of my principle number 5; Empowerment.

In 1994 I joined the CPI, (Continuous Performance Improvement) Team, working on the Britannia Development based in London. Trafalgar House was a member of the Topsides Alliance on this project. The topsides of an offshore installation is the structure which is visible above the water. In Britannia's case the topsides structure was significantly complex, comprising an integrated deck which contained the oil production plant, the accommodation facility and drilling modules. Alliance partners and the respective role of the CPI group are illustrated in Figure 4.5.
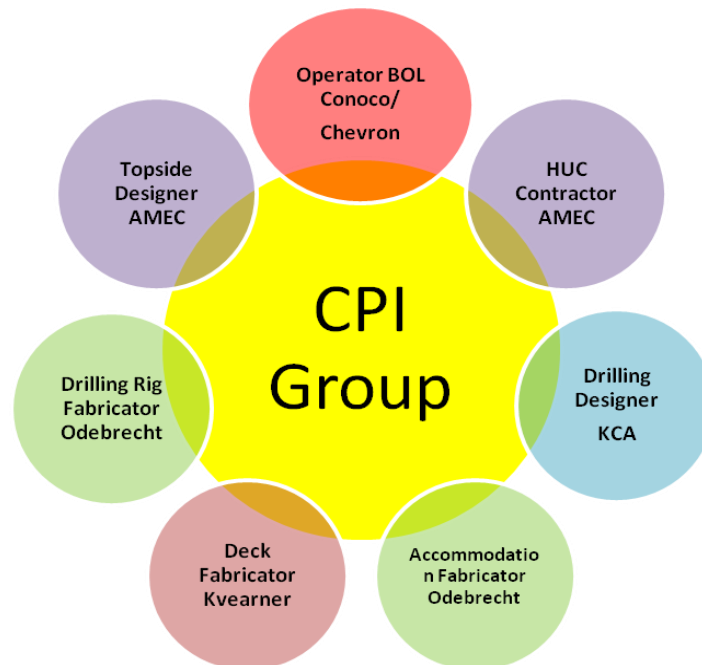
Figure 4.5 – Topsides Alliance members and CPI Group

During my attendance on the Britannia Development induction programme I was introduced to a culture firmly focused on business improvement

(Christiansen, 2000). During the induction programme it was evident that the culture of the Britannia Project was very much one of innovation relating directly to my principles 3 (continuous improvement) and 6 (team culture).

4.4.2 Brown Papers

The first step in identifying improvements was to ensure that each and every phase of the project was process mapped prior to review and analysis. Using the term Brown Papers (derived from the brown paper we used for the base of the maps) a series of workshops were staged right across the project to identify how each piece of project work would be completed. A summary of the Brown Paper Process is shown in Figure 4.6. Further details of my involvement are included in Portfolio Section 1.
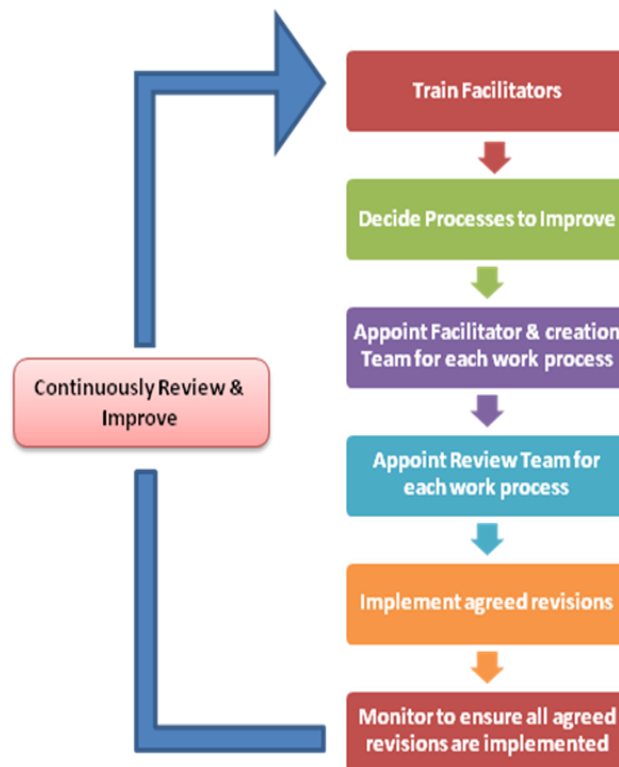
Figure 4.6 – Brown Paper Process

Hammer & Champney (2001) states that: "*In re-engineering we stand the industrial model on its head. We say that in order to meet the contemporary demands of quality service, flexibility and low cost, processes must be kept simple. This need for simplicity has enormous consequences for how processes are designed and organizations are shaped.*"

4.4.3 CPD Training Programmes

I attended many CPD training courses during this time including Facilitation Training, Train the Trainer and Presentation Skills. It was becoming apparent to me that the successes of Brown Paper exercises, facilitated meetings and an open and honest approach to challenging project methods could realise significant benefits. These experiences led to my Principle 3 (continuous improvement).

4.4.4 TJB Training Programme

With this in mind I proposed to the Topsides senior management that a training plan for fabrication personnel be implemented prior to the transition phase of the project (see Portfolio section 2). The proposal which included the development and training of a group of facilitators was accepted. Working with consultants PE to develop and deliver the training schemes, a detailed training plan was developed and executed successfully. The results were well received by senior management and I received several citations from both my employers and the Britannia Management Team.

4.4.5 Lessons Learned

The new culture developing within the Britannia project team was one where the opportunity to work differently was encouraged. Each aspect of the project was reviewed for areas of improvement, supporting principle 3 (continuous improvement). The opportunity to capture and share improved business performance was introduced into the fabrication facilities to record what lessons had been learned (see Portfolio section 3). Later discussions within the CPI group led to an invitation of all Topsides alliance members to gather and share lessons learned.

4.4.6 CRINE Conference

CRINE (Cost Reduction In the New Era) was an industry-led initiative which encompassed all the principles of the Britannia Culture, and in particular the team culture (Principle 6). Having had such success on the Britannia Project, Senior Management was keen to share best practice with the industry. Our

group, CPI, worked with CRINE staff to organise a conference to share best practice. Entitled "Sharing in Britannia's Success" the conference focussed very much on the lessons learned throughout the project development.

I was influential in organising the conference and delivered a keynote address, (see Portfolio section 4). The CRINE conference was a big success and represented a significant contribution to practice in the oil and gas sector. In particular my personal involvement in introducing significant innovations and savings within the fabrication phase of the project was recognised and acknowledged during the conference.

4.4.7 Peer Reviews

During the Britannia Project I was selected to join a Peer Review, undertaking a review to determine if fabrication facilities were "Ready for Fabrication". Often termed Technical Peer Review, "*the peer review is a well defined process carried out by peers representing different phases of a development to identify and resolve issues*" Nasa (2007). I benefited hugely from the experience as the peer review promoted the facility to review, challenge and interrogate proposed actions and provided an alternative to a project audit. Several months after this Peer Review, I was asked to chair the next Peer Review, "Ready for Onshore Commissioning". Feedback to Trafalgar House senior management was positive and of such credibility that Peer Reviews were introduced into other projects within the company as a matter of course.

4.5 Phase 2 – Kvaerner Oil & Gas

4.5.1 Elf Petroland Procurement

Whilst investigating a problem with procurement activities on a project, Elf Petroland, I identified a lack of clarity with respect to activities within the Procurement Plan. Essentially the project team were working with data which identified only a planned and actual date for key activities. I revised the set-up of the procurement plan by introducing a feature which identified forecast dates for activities, providing a greater accuracy in expediting procured items.

4.5.2 Innovation Scheme

Building upon the successes of Lessons Learnt achieved during the 'alliance' contracts, I proposed that the company introduce an Innovation Scheme. Such a facility promoted a continuous improvement culture within day to day operations. Whilst this is in line with principle 3 (continuous improvement) it also helped to stimulate individual performance which also underpins principles 5 (empowerment) and 6 (team culture). Such was the success of the scheme at the Teesside facility other group locations across the UK adopted the scheme.

4.5.3 Business Improvement Workshops

Having achieved much success via Brown Paper exercises and other 'alliance' initiatives, the team culture, (Principle 6) became embedded within the company. Following a detailed discussion at the monthly senior managers meeting it was agreed that I would initiate a series of Business Improvement Workshops. These workshops were often facilitated by personnel who had completed the TJB training programme executed under Britannia Development.

4.5.4 Masters Degree

I was particularly concerned that the corporate quality team were reluctant to introduce change to the QMS by upgrading procedures and work instructions. Such upgrades would in my view have provided continuous improvement of business performance. Concerned by the lack of support for such scenarios I decided to develop my expertise in this area by studying for a masters degree; the prime focus being quality management. This developed my knowledge and understanding of quality management and I completed a dissertation entitled "To investigate the effect of alliance contracting on the organisational culture and management of Trafalgar House". The content examined and reviewed many of the issues of business improvement and other initiatives I was working on at the time.

Alex Dawson, Director and General Manager of Trafalgar House at that time, provided the following statement in support of my MSc dissertation; *"I consider Mick's assignment to be of considerable value to the organisation."*

4.5.5 First Choice Programme

In 1997 Kvaerner Oil & Gas Limited (KOGL as it was now known) underwent a full strategic review of its facilities. Working in association with consultants, a small management team from all geographical locations developed a change management programme. It was envisaged the programme would engender significant changes to the structure of the company.

I was invited to join the Information and Systems Group with responsibility for the process mapping and analysis of the business systems. The constituents and responsibilities of the group are denoted in Figure 4.7. Working with representatives from each of the geographical locations, core process maps were the reference documents for the formation of the new business streams and further used as the foundation of the Integrated Management System, IMS.

Figure 4.7 – Information and Systems Group

4.5.6 Development of the IMS

As the development of the First Choice Programme progressed, (see Portfolio section 6) the resultant format of the new company was innovative in structure. Moving from geographical business units, the business was restructured around a number of Operating and Service Centres envisioned to better support the business. In developing the strategy it became apparent a transparent, easy-to-use management system would need to be developed and implemented. This was completed by undertaking a full review of current business activities and processes.

I was asked by the CEO to lead this review which reflected the Business System Diamond suggested by Hammer & Champney (2001), Figure 4.8.
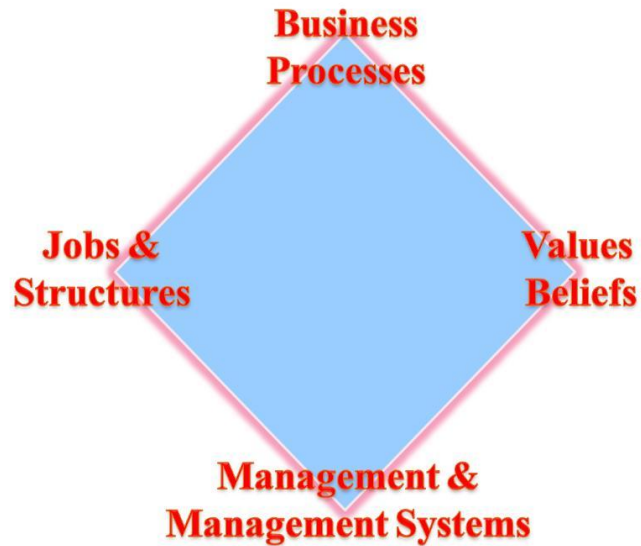
Figure 4.8 - The Business System Diamond
Hammer and Champney (1994)

The service and operating centres of the new organisation were assigned as core capabilities, of the new corporate structure illustrated in Figure 4.9 and became the framework upon which the new Integrated Management System, IMS, was developed during 1998 and 1999.
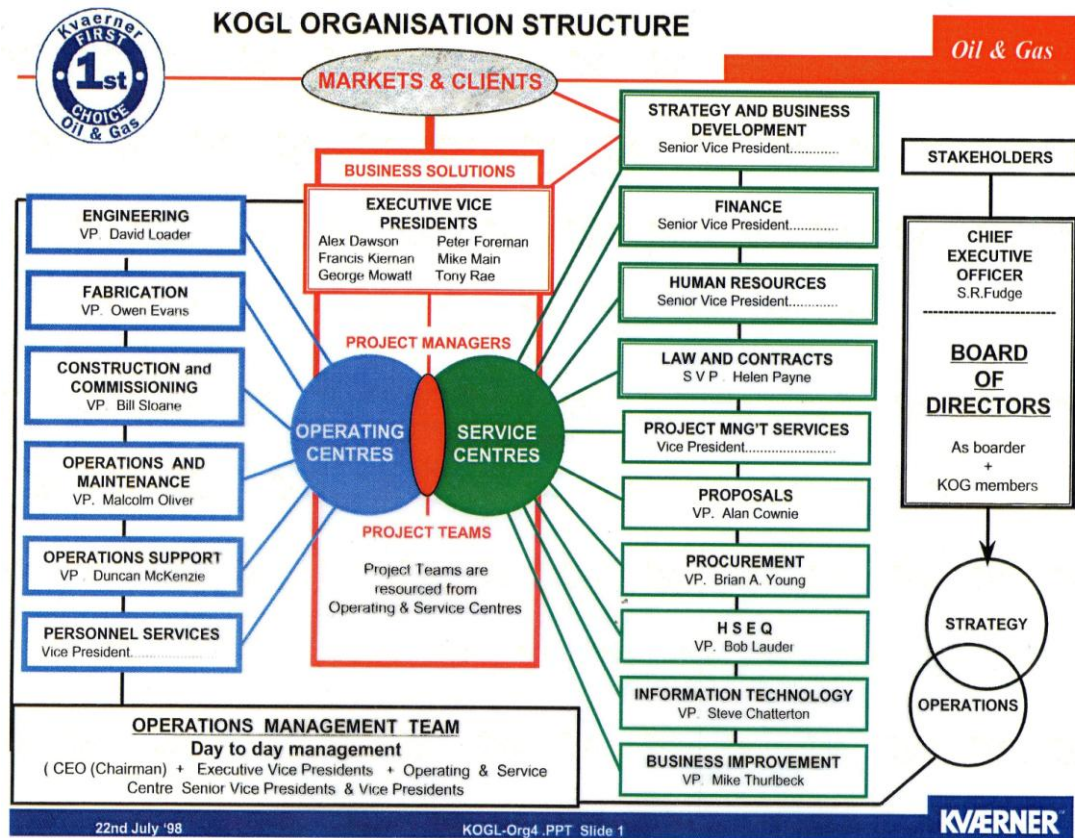
Figure 4.9 – KOGL Organisation Structure.

The IMS was designed to reflect best management practice in the oil and gas sector at the time. It also built on my own experiences and on my own principles of management which I had formed at the time. As shown in Figure 4.10, the IMS included 4 of my 6 principles.

PRINCIPLE	IMS
1 Simplicity	no
2 Added Value	yes
3 Continuous Improvement	no
4 Value Based	yes
5 Empowerment	yes
6 Team Culture	yes

Figure 4.10 – Principles incorporated in the IMS

4.6 Phase 3 – Business>IAM

4.6.1 Astute Alliance

Having left Kvaerner Oil & Gas, I founded a business consultancy Business>IAM, whose services included support for companies entering Alliance agreements and also setting up management systems.

The initial contract I secured was to assist BAE Systems and key partners involved on the Astute Submarine Project to establish an 'alliance'. I facilitated the development of an alliance agreement which promoted the use of simpler systems as a core feature thus endorsing my Principle, 1 (simplicity).

4.6.2 Huntsman Alliance

Huntsman group operated a plant within the Wilton Chemical complex on Teesside. It had long been an intent of the company to ensure that the annual shutdown and maintenance period be used to best effect.

Following a series of workshops combined targets were developed, challenged and an execution plan to implement them was agreed. The shutdown activities achieved all the set objectives, acknowledged by Huntsman in that the contractors were awarded the contract for a further five years.

4.6.3 Development of the CMS

I secured the contract to develop a CMS for Sapiem Energy International, which is further discussed in chapter 5. During this project, many elements of the experience I had gained were utilised to ensure that the system represented best practice and I also implemented the principles which I know understood to represent good management.. The successful CMS development and the acceptance of the system by project personnel ensured it was a core component included by SEI in a tender for a Canadian Project, Deep Panuke. In developing the CMS, full cognisance was taken of the six principles discussed in this and earlier chapters, as shown in Figure 4.11

PRINCIPLE	CMS
1 Simplicity	yes
2 Added Value	yes
3 Continuous Improvement	yes
4 Value Based	yes
5 Empowerment	yes
6 Team Culture	yes

Figure 4.11 – Principles incorporated in the CMS

4.6.4 Development of the DPMS

The Deep Panuke project was a new venture for the parent company PanCanadian. Their quality management system was lacking in several key aspects to ensure compliance with the ISO 9000 standard. Based upon the CMS development, a proposal was submitted to begin the development of the Deep Panuke Management System, DPMS. Whilst the core content of the DPMS was very much in alignment with the CMS there were some subtle differences, most notably the number of Core and Support processes. In the DPMS there were 9 and 6 respectively whereas the CMS had 7 and 4.

Also the control and maintenance of the system was retained by the Quality Group. This prevented the full implementation of Lessons Learnt and Process Ownership facilities. Hence the DPMS did not fully encompass all of my principles as illustrated in Figure 4.12.

PRINCIPLE	DPMS
1 Simplicity	yes
2 Added Value	yes
3 Continuous Improvement	no
4 Value Based	yes
5 Empowerment	no
6 Team Culture	yes

Figure 4.12 – Principles incorporated in the DPMS

A significant benefit for SEI was the ability to upgrade the CMS to encompass features included within the DPMS. This included enhancement of processes and development of procedures and pro-formas previously identified but not developed. The advantage of working on a 'live project' enabled project

personnel to develop working documents which could then be added to the core documentation of the CMS.

The resultant CMS was a more comprehensive system as it now included procedures and work instructions which had been utilised and proven on a live project. Also, the ability to improve the system through Lessons Learned was considered a most useful addition by SEI senior management. The concept of the lessons learned facility embraces all six principles, and particularly principles 2, 3 and 5. By *empowering* the employees to become open to change, this promoted *continuous improvement* and when fully evaluated and incorporated *added value* to the business. Figure 4.13 indicates a summary comparison of the principles against the QMS, IMS, CMS and DPMS.

PRINCIPLE	QMS	IMS	DPMS	CMS
1 Simplicity	no	no	yes	yes
2 Added Value	no	yes	yes	yes
3 Continuous Improvement	no	no	no	yes
4 Value Based	yes	yes	yes	yes
5 Empowerment	no	yes	no	yes
6 Team Culture	no	yes	yes	yes

Figure 4.13 – Comparison of the QMS, IMS, DPMS and CMS
against the 6 principles

4.6.5 EMR Visit Australia

Following the success of completing two contracts for the development of management systems, the CMS and DPMS, I was given the opportunity to undertake a market research project in Australia. The research was completed in Perth, Sydney and Brisbane and included research into public, private and academic institutions as well as trade associations and commerce, (see Portfolio section 10). This project enabled me to develop my research skills and also gave me insights into best practice in Australia.

4.7 Phase 4 - Current

4.7.1 Tees Valley Engineering Partnership, TVEP

In my current role as Chief Executive of TVEP I have daily contact with businesses, academic institutes and public agencies. A key responsibility I have is to research and resolve issues which face our member companies. One of the reoccurring issues I deal with regularly, and is pertinent to this project, is one of Quality Management Systems. Two case studies I have recently been involved with highlighted direct conflicts with my six principles.

Case 1 concerns a large recruitment and employment agency, company A. The company has been in business for over thirty years and is seen as one of the better performers in their sector. One of their key clients are a major oil company who have worldwide presence. In order to retain their business with the oil company, company A has to maintain a management system in accordance with the requirements of ISO 9001:2008 and has to be certified as such.

Whilst there is no apparent problem with this requirement and company A are quite comfortable maintaining such a system, my contacts with them has revealed that many of the procedures and documentation in place within company A are there because the oil major requested them to be. They are adding no value to company A (principle 2) and comments from staff infer that compliance is sought by the client rather than encouraging continuous improvement (Principle 3).

Case Study 2 involves a member company involved in steelwork fabrication. Company B were formed almost two years ago and are an Small/Medium Enterprise (SME), having approximately 20 employees. Despite the infancy of the company and relative small scale of its operations, they have been very successful in securing a number of valuable contracts. They have a particularly good relationship with one of their customers.

Having completed some small contracts company B progressed to larger contracts with the customer. Being pleased with the quality and punctual delivery repeat contracts were awarded and completed without problems and a good relationship was formed. However having completed a contract some months ago, company B were shocked to learn that no further contracts could be issued. "unless you develop, implement and have certified, a quality management system in accordance ISO 9001:2008". The reason for this was nothing to do with company B, it was the customers own system which prevents them having non certified suppliers undertaking work over a specific value in one year.

Company B are now engaged in the process of complying to this request to retain a business relationship with this customer. Whilst there may be additional revenue to be gained by future contracts, I would question whether the cost of implementation and certification of such a system could be termed as adding value (principle 2).

4.8 Summary

In this chapter I have reflected on four main phases of my personal development, education and work experience. In completing this, it was possible to identify key initiatives which I developed for relevant organisations. These initiatives were subject to further development within Kvaerner and became standard tools within the company during the major change management programme and subsequent contracts and projects. The continual development of such tools and results achieved were fundamental in the formation of my six principles.

Having achieved this progress, I then used the tools and principles extensively in the development of the IMS, the first of a series of management systems based upon the principles. Later management systems, the CMS and DPMS benefited from the ongoing implementation and use of the tools and principles culminating in the implementation of the upgraded CMS. This edition of the CMS was acknowledged by SEI senior management as being

instrumental in positioning SEI at the forefront of engineering capabilities within the oil and gas sector and a primary factor in the securing international contracts.

Chapter 5: Development of the CMS

5.1 Aim of this Chapter

The aim of this chapter is to describe the methods used to develop and implement the Company Management System, CMS, for Saipem Energy International, SEI. I will identify how the proposal for the system development was focussed on people involvement, using a process driven format to achieve an integrated management system. Having explained the system structure, I will then describe how all business processes were identified, mapped and input into a design developed in conjunction with SEI senior management. Details of how system population and generation of associated documentation was completed are also detailed within this chapter. Also I will discuss the importance of developing the additional features of the system and detail of the review process necessary to engender continuous improvement. I will refer throughout to the principles outlined in section 1.4 and discussed in the earlier chapters of this report.

5.2   CMS and the Six Principles

The prospect of developing the CMS provided an opportunity to introduce my six principles as integral supporting elements of the system. Senior management of SEI viewed the introduction of the CMS as a key factor in the company's development and were clear that it should fully endorse the company vision, (principle 4). They were also committed to the concept that the system would be developed "by the users for the users" thus satisfying the requirements of principles 5 and 6. It was also to be simple and easy to use (principle 1) and would be subject to continual review for improvement (principle 3), rather than being monitored by audit alone. By developing the system in this manner the CMS would add value to the business (principle 2).

5.3   Proposal to Saipem Energy International

As evidenced within my Portfolio, my experience and CPD had been focussed for some time on Management Systems, and particularly Quality Management Systems in the latter stages. Studies for an MSc in Quality Management

provided me with additional knowledge and experience in the development of Quality Management Systems. Figure 5.1 identifies the personal development attributes and research used in the development of the CMS.
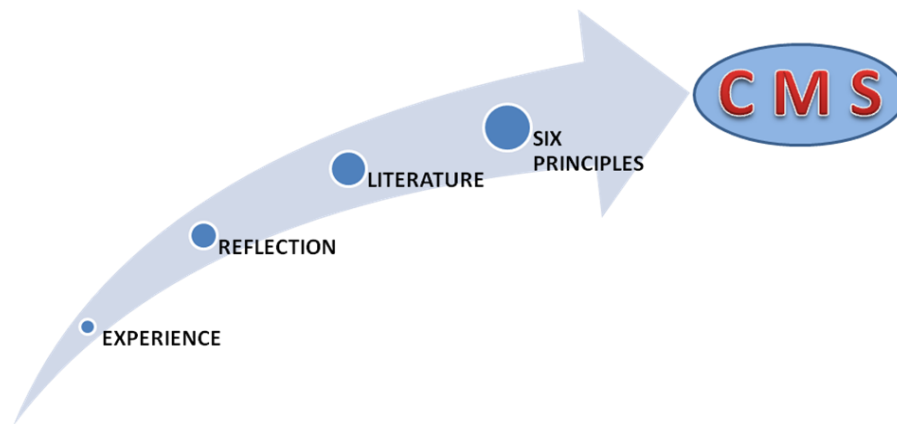
Figure 5.1 – Route to the development of the CMS

Following the successful development and implementation of the IMS, I was contacted by two colleagues whom I had worked with at KOGL. They had joined a major international oil & gas company and had been charged with developing a new business stream. This business would focus on Engineering, Procurement, Project management and Commissioning of contracts. Both individuals had previously held posts of Managing Director of a large facility within KOGL and were fully conversant with Quality Management Systems. Their approach to me reflected the thoughts of Roth (1998) when he comments on what is needed to commence comprehensive quality improvement effort "*It takes one person, either in-house or a consultant, who understands the ingredients and interactions necessary to a common-sense, comprehensive (systemic) model who is willing to share his or her knowledge with others.*"

I was invited to submit a proposal for the development of a management system to underpin their new organisation. Reflecting on the strengths and weaknesses of the IMS (see Portfolio section 7), I prepared a proposal which would fully embrace the requirements of BS EN ISO 9001:2000. The IMS was developed to reflect the new corporate structure of KOGL previously outlined in Chapter 4 and illustrated in Figure 4.9 (Principle 6). To assist the staff in

understanding the new structure and to help personnel who would be working in different locations, the IMS was developed using a process approach. Simple and effective step-by-step process maps were developed to identify key elements of all business stream processes and deliverables. Access to such process maps and additional details was via the company intranet.

There were a number of advantages in using the new version of the ISO standard. Perhaps the most important was the ability to develop a system which would be process driven. Hoyle (2009) states that "*Process approach is one of the eight quality management principles used as a basis for developing ISO 9000".* In using this approach it was possible for the employees to document systematically the core values and objectives of the business and how they would be carried out.

The system would not be overloaded with prescriptive procedures and associated documentation which was historically off-putting to system users. Flow charts would also be a key feature to generate an increased use of the system by all personnel (Principle 1).

Following submission of the proposal, I was invited to present my methodology to an assembled panel of senior management in January 2001. The make-up of the panel was representatives from the parent company Saipem and a selection of personnel from the new business stream, Saipem Energy International, SEI. Developing the system whilst the company was also shaping its strategic direction and recruiting key personnel offered the opportunity to design the system in a style line with corporate mission and objectives. Fundamental to the development was the opportunity to integrate with the CMS a management system, quality system, the company structure and corporate objectives.

Figure 5.2 shows how this integrated system would provide users with a single source of company information, whilst also encompassing the requirements of the standard ISO 9001:2000. (Principles 1, 2, 4 & 6).
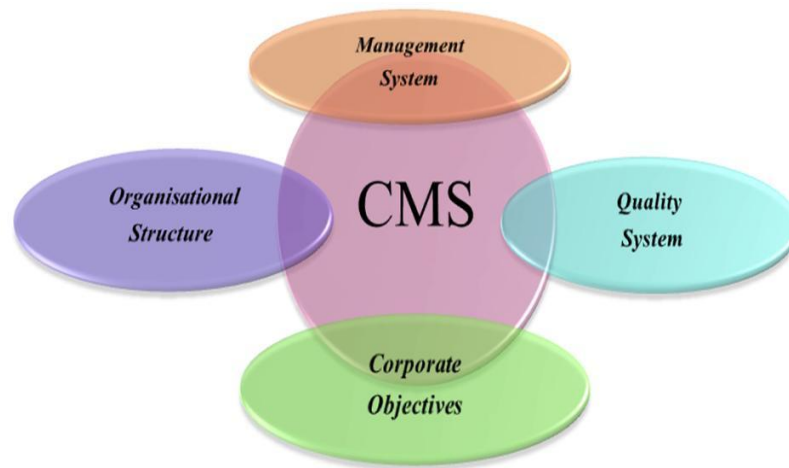
Figure 5.2 – Illustration of the CMS Constituent Parts

This was a major step forward from previous systems which tended to be imposed and heavily laden with a quality bias. This was due to the systems being developed and controlled by quality departments which facilitated little if any input from system users. There was also an opportunity to develop a single system promoting best practice and identifiable, tangible benefits whilst still incorporating a robust quality system, (Principles 1, 2 and 3).

The main elements of the ISO Standard included within the proposal are shown in Figures 5.3a & 5.3b, together with the corresponding Principles:

Principle	ISO Element
1 - Simplicity	Will encompass: Factual approach to decision making and Process approach
2 - Added Value	Will encompass: Mutually beneficial supplier relationships
3 - Continuous Improvement	Corresponds to: Continual improvement
4 - Value Based	Will encompass: Customer focus
5 - Empowerment	Implies coverage of: Leadership and Involvement of people
6 - Team Culture	Implies coverage of: Involvement of people and System approach to management

Figure 5.3a –Relating the Six Principles to the ISO Elements

ISO Elements	Principle
Customer focus	Partially covers Principle 4 - Value Based, but does not guarantee full mapping to corporate values
Leadership	Partially covers Principle 5 – Empowerment, but does not necessarily empower staff
Involvement of people	If carried through this should imply coverage of Principe 5 - Empowerment and Principle 6 - Team Culture
Process approach	Partially covers Principle 1 - Simplicity
System approach to management	Could possible cover some aspects of Principle 6 - Team Culture
Continual improvement	Implies coverage of Principle 3 - Continuous Improvement
Factual approach to decision making	Partially covers Principle 1 - Simplicity
Mutually beneficial supplier relationships	Partially covers Principle 2 - Added Value

Figure 5.3b –Relating ISO Elements to the Six Principles

By cross referencing the six principles and the ISO elements as shown in Figures 5.3 a & b, I indicate that adopting the principles in the development of the CMS would help the company to achieve ISO 9001 certification. This is shown in Fig 5.3a, which demonstrates how the six principles imply coverage of the ISO elements. However it does not follow that developing a system in accordance with the ISO elements will necessarily imply that the organization will be applying the six principles. This is shown in Fig 5.3b, which demonstrates that taking the ISO approach will guarantee compliance, but may actually deliver little else in terms of value to the business, in that not all of the six principles will be fully covered.

To summarise, adherence to the six principles will produce a management system which will deliver much more than ISO will in terms of corporate value and culture. Put simply, development of a system according to the six principles should always deliver the culture change that is needed to take a company forward in a sustainable manner, while adherence to ISO will provide a quality system but little else. Taking another view, ISO promotes a process driven approach, while the six principles promote a value-based,

cultural approach. It is my view that the latter will deliver corporate success and provide a sustainable future for an organization. This area and the potential conflict between culture and quality process, are further investigated in the qualitative study discussed in Chapter 7.

Following critical review by the parent company representatives, I was given the go ahead to develop the system in February 2001. A detailed development schedule covering a period of six months was submitted and approved by senior management of SEI. This document subsequently became the key reference document for the construction of the Company Management System, CMS (see Portfolio section 8).

Figure 5.4 – CMS Development Organisation

Following the award of the contract I recruited a quality manager who was qualified as a lead auditor and had extensive experience of quality management systems in the oil & gas sector. Also recruited at this time on a part time basis were two IT development personnel. Both were qualified Microsoft Professionals. The organisation is illustrated in Figure 5.4 and also shows the link to SEI senior management.

5.4 Company Culture

A team culture had evolved on the Britannia Development which played a major part in the project, achieving exceptional results in almost all areas, (Principle 6). Such success had been widely shared within the oil and gas industry, particularly through initiatives such as CRINE (see Chapter 4, section 4.4.6). The project benefited from an initiative entitled Superior Performance. As a result of actions coordinated by the CPI group, the concept went on to deliver results never previously achieved. Much of the success was attributed to the Performance Improvement Model, shown in Figure 5.5 The improvement model evolved during the project to achieve the goals of superior performance.

There was a determination by SEI senior management to ensure that the culture of the new business would reflect one of continuous improvement similar to that of the Britannia Project (Principle 5). Therefore the model in Figure 5.5 was used to review the potential of developing an improvement culture (Principles 3 and 6).

Figure 5.5 – Performance Improvement Model (Britannia Development)

Additionally during these early days of system and company development, we referred back to a management tool we had encountered during the First Choice Programme (see Portfolio section 6). This is the Wheel of Fortune of Harrington (1991). Introduced to the programme delegates by consultants, it was proposed as a key instrument when we need to address the issue of Business Process Improvement. Due to the development status of Saipem Energy International development at this time and the proposed culture the management wanted to introduce and maintain, I decided to introduce The Wheel of Fortune to establish a framework through which to proceed.

In contrasting and comparing the models depicted in Figures 5.5 and 5.6, all parties were confident that an improvement culture could be carefully nurtured. I felt confident that if the opportunity to duplicate the efforts of the Britannia CPI group was accepted by SEI staff then the benefits of such a working environment would be welcomed. Additionally, the development and use of a Company Management System (the CMS) would support and help deliver corporate objectives.

Figure 5.6 –Wheel of Fortune – Harrington (1991)

5.5 Structure of the CMS

Working with SEI senior management at series of meetings, a draft of the CMS structure was produced as shown in Figure 5.7. In accordance with the proposal, the fundamentals of the system were developed using a process-led approach (Principle 3).

This methodology was a key factor throughout both system and company development. In doing so it was acknowledging the definition of the technique suggested by Hunt (1996). "*Define your processes, map these processes, and prioritise the core business processes important for your business success and survival.*"
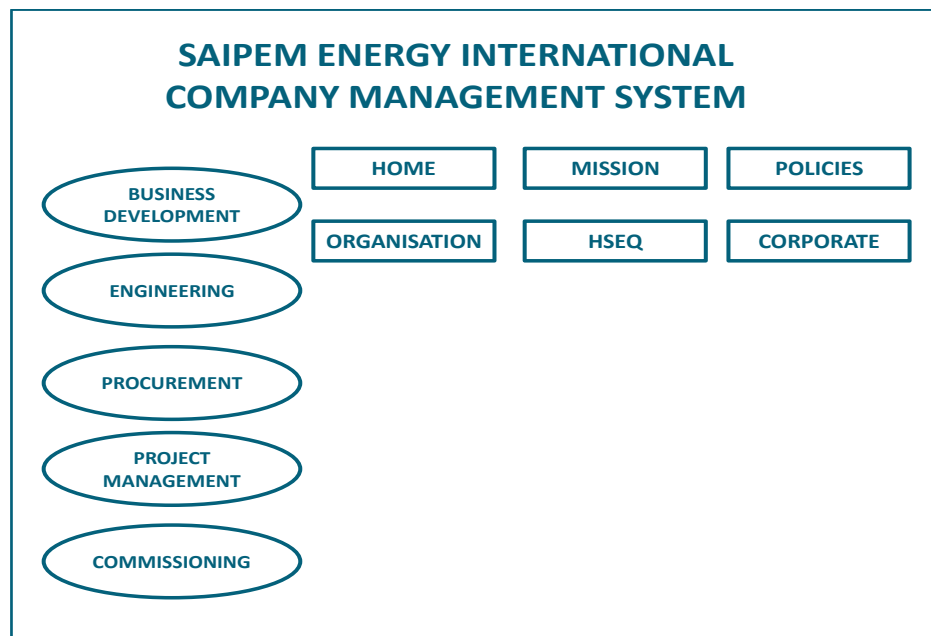
Figure 5.7 – Draft CMS Structure

Consequently documenting the core capabilities of the business the key processes were identified as being:

- Health Safety and Environmental
- Business Development
- Engineering
- Procurement
- Commercial
- Project Management
- Construction & Commissioning

Once the structure was agreed in principle we then discussed in further detail the rudiments of the business and its objectives.

From these detailed discussions it was possible to compose a draft of the CMS overview as shown in Figure 5.8. This draft was used extensively during later workshops which were staged to develop the detail of each process.

Figure 5.8 – CMS overview

The advantage of this overview was that it spelt out in detail to all staff the commitment, objectives and vision of SEI senior management, (Principle 4). This helped focus the thoughts of the workgroups as they progressed to first define and then map out the key stages of each process.

5.6 Mapping out the Processes

According to Harrington (1991), *"the main criterion for selecting process owners is in fact ownership.* Without the responsibility of ownership, business processes will exist but never improve (Principle 5). It also is important that the selection of process owners is considered widely to find a suitable candidate. *"This is where visionary and self effacing management makes the difference",* Imler (2005). The prime requisite for a process owner was they

must be able to make decisions and not to have the common mismatch between responsibility and authority, Maddison (2005). There are several other qualities and attributes an owner must have to be successful. They should have available time and resources to devote to the task; they should realise some benefit when the process works well; however they must retain a sense of challenge and have the ability to effect change when necessary.

With this criterion in mind, an owner for each core process was nominated; usually the head of the respective business stream. I interviewed each of these nominees to establish their individual knowledge of the proposed management system. I also questioned whether they had available time and resources to complete the mapping exercises and had the ability to effect change. Also their understanding of and attitude towards quality management systems was established. Finally it was important that they understood that capturing "as-is" processes is only the first step to successful process improvement, Plenkiewicz (2010).

There was unanimous support for the new system format. All core process leaders envisaged the system would be user friendly and would benefit new staff joining the company. A series of workshops were held to map out the elements of the core processes. The principles of the process mapping exercises were in accordance with the principles of the Brown Paper exercises contained in Portfolio Section 1. I held a number of awareness sessions to ensure that all participants understood the methodology of process mapping and what constituted a process. Hunt (1996) uses the definition "*A business process is a series of steps designed to produce a product or service.*" It was necessary to remember this to ensure that the process maps were robust and consistent (Principle 3). Nanda (2005) identifies process mapping as "*the opportunity to make incremental improvements to the process*" (Principle 3). This is a view shared by Cassidy and Guggenberger (2001).

Once the process owners and their nominated assistants were comfortable with the concept, we then set about mapping each process. This was

completed by identifying the key stages of the processes and then documenting the sub elements of the processes. This approach reflects the findings of Liker (2004). In his research of Toyota he states "*Standardised tasks and processes are the foundation for continuous improvement and employee empowerment*".

Mapping workshops became a characteristic of normal working patterns for SEI staff. They quickly accepted it was of significant benefit in developing the business strategy. Developing a management system in this way also had an important effect on how they were collectively establishing the business. Having captured and formulated these data all processes were reviewed and the content challenged to ensure they were in accordance with the corporate objectives (Principle 4).

5.7 CMS Format & Design

In the original proposal, I had agreed with the SEI senior management that the system would be fully computer based. Access would be through the company intranet, or in the case of remote projects, via a CD-ROM.

Figure 5.9 – CMS Core Process Screen Layout

Using a web page format easy access to every element of the system was available to all personnel. On the basis that the system should be simple and easy to navigate, I compiled a series of draft page layouts for our IT personnel to develop. As most users would be familiar with websites and Microsoft Windows™ drop down menus, these principles were embodied within the design (Principle 1).

A number of proposals were produced with variations to style, although the nucleus of the format remained the same. SEI senior management selected their preferred option as shown in Figure 5.9. With some minor amendments the development of the system could proceed.

5.8 Expanding the System Content

In developing the system in accordance with ISO 9001:2000, I was convinced that all the requirements of the standard should be included. This was an excellent opportunity to ensure that all aspects were available through one medium, visible to all users. This would facilitate an increased awareness of the strategic direction of the business by SEI staff and would engender a culture of continuous improvement. It would also support the objective of ensuring the system would be an integrated system, i.e. that corporate objectives and structure would be available when accessing the management system, (Principle 4).

To expand this initiative I facilitated a number of workshops to develop other aspects of the Core Processes. These included:

- Overview
- Expectations
- Performance Indicators
- Process Reviews
- Roles and Responsibilities
- Procedures and Work Instructions

Unlike the early process development workshops, further development of these process aspects were generally completed by mixed groups. I determined it was easier to have joint input, rather than develop these elements individually and then undertake a phase of review and comment. My reasoning for this was that elements such as Performance Indicators had to have an element of consistency and were required to support the business objectives. This would allow evaluation of the business to be completed from a standard perspective and would generate meaningful data. It would also facilitate each team to develop it's own method to support the company Mission Statement, Dew (2006).

Following on from these workshops I then coordinated the outcomes and was able to compile the results into an easily accessible format. Building on the concept that the CMS was to be a management system covering all aspects of company business, I decided that each core process would have these deliverables included on their home pages. By linking them to a series of easy access buttons, it became possible for any system user to rapidly identify any aspect of the core process (Principle 4).

Figure 5.10 – Core Process Engineering home page

As an example Figure 5.10 shows the Engineering home page. The highlighted key, "expectations", takes you to the list developed for this Core Process which supports the corporate objectives.
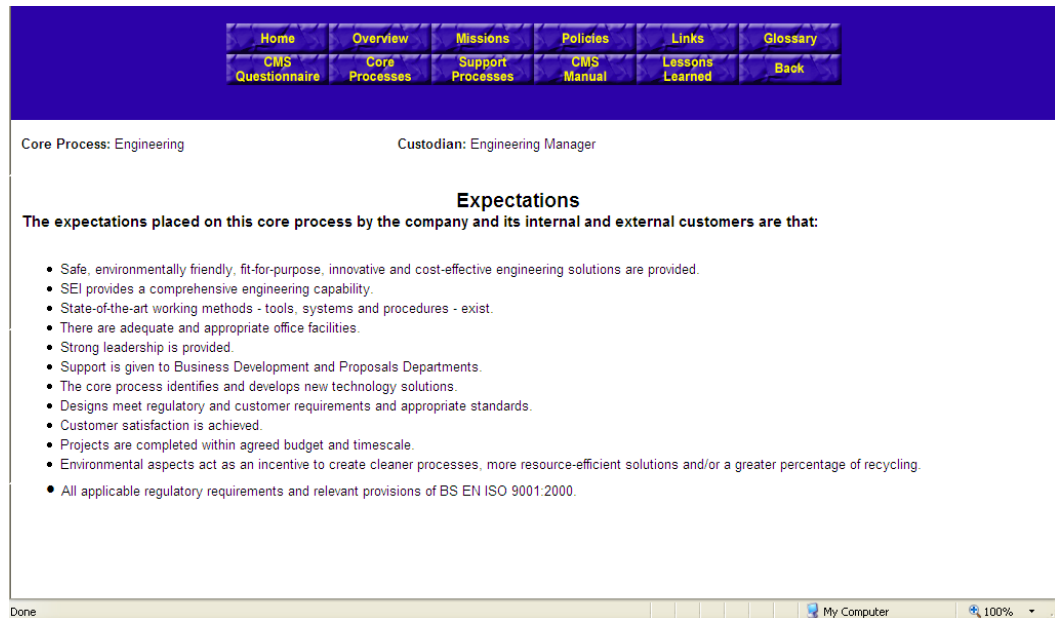
Figure 5.11 – Core Process Engineering expectations

After accessing the tab highlighted on Figure 5.10, Figure 5.11 shows the linked screen which contains the engineering expectations available. Expectations for each core process are repeated for all disciplines and were assessed to check for compatibility to corporate objectives. Further screen displays are included in Portfolio section 8.

Very quickly users could identify details of core processes they would not normally have easy access to. I considered that this would provide future benefits as users would gain a better understanding of the overall business model rather than merely accessing a quality system or section of a management system (Principle 4).

5.9 Population of the CMS

Having agreed and formatted the core details of each process, the task then began to further populate each process. This included flow charting the

processes, identifying responsible parties and associated documentation. Figure 5.12 is an example of such a flow chart, in this instance Request for quotation/bid from the Procurement Core Process. Further screen displays are included in Portfolio section 8.
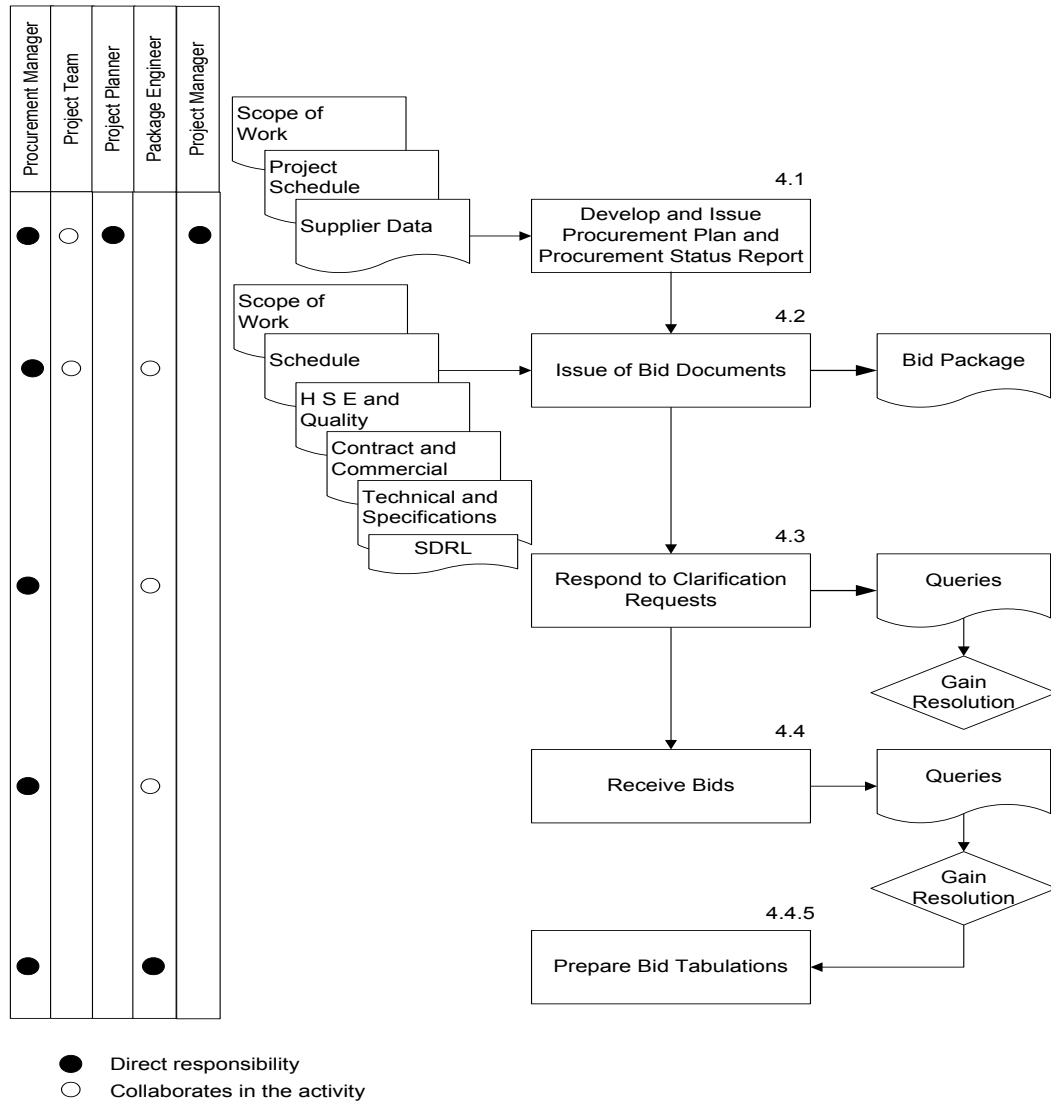
Figure 5.12 - Typical Flow Chart
Core Process Procurement
Request for quotation/bid

During this stage of CMS development SEI senior management constantly reviewed the status and periodically revised core documents of the system. Key elements such as the CMS Manual, Policies and Overviews were continually expanded and updated to include the further detail produced in developing the core processes.

This follows Kantner (2000) who proposes *"Management must commit itself"*. Senior management continually reviewed the progress of system population and were proactive in ensuring that process owners retained an enthusiasm for implementing ISO 9001 (Principle 5). In doing so the process development teams continued to complete their work knowing the completed system would prove beneficial to their future operations.

There were several reviews of the system led by the Business>IAM quality manager during the initial three months of development. These reviews were not only to ensure consistency but also to ensure that the requirements of the standard were being achieved. Having completed the general layouts and having established the core processes the focus then moved to the development of the procedures and work instructions for each process.

Once again a process approach was adopted in the compilation of these documents. This approach was the most radical experienced by SEI staff. As Hunt (1996) asserts, a tremendous amount of learning and improvement can result from the documentation and examination of the input-output (customer-supplier) lineages depicted in a process map.

Many previous systems SEI employees had experience of wordy procedures and work instructions, (Principle 1). Such documents tend to be used only when necessary, rather than on a daily basis. The opportunity to develop simple and logical flow-charted procedures and work instructions was eagerly accepted and the framework of the system was populated rapidly. In doing so, the remainder of the constituent parts soon began to near a stage of completion; with first the overview, then the policies and missions being completed for approval by SEI senior management.

5.10 Documentation

Another key feature included in the system was the open availability to system users of simple and standard documentation (Principle 1). Each process, procedure and work instruction had at least one associated document or pro-

forma. Many of these documents were derivatives from previous project documentation reformatted to suit the new system, i.e. numbering, corporate logo and layout.

Once the documents had been created in the new format they were hyperlinked and referenced within the parent document. This allowed users of the system to access instantly any document they required. This was for information purposes only, as there remained a need for documents to be controlled and numbered. Any document needed for project or business purposes was still issued and controlled through the document controller, or in the case of commercially sensitive documents, through a responsible party.

5.11 Support Processes

A number of processes to be used by SEI remained corporate, (i.e. they were Saipem processes in place globally). The implication of this was that they could not be changed by a specific business stream. However this was not a restriction to SEI management. These support processes included in the CMS were:

- Human Resource Management
- Finance and Administration
- Information Technology
- Quality Management

Upon recommendation we included the support processes within the system. However the detail was restricted to flow charting the key elements. Responsible personnel were identified and where applicable, specific documentation. In adding these support processes to the system every aspect of the businesses operations were now documented and the population of the system was almost complete.

Whilst the CMS was complete and the requirements of ISO 9001:2000 achieved, there were however in my opinion a number of further features to

be incorporated. Including these features would enhance the system, promote regular system use and identify areas for continuous improvement (Principle 3).

5.12 Additional Features

After a period of five months the system was almost complete and was subject to final approval of SEI senior management. It was at this point I discussed the launch and roll out to staff. During such discussions it became apparent there was an opportunity to introduce a method which would track usage of the system. User access was via a PC, and it was possible to introduce additional features which, whilst providing management with relevant data, would also benefit new recruits to the company workforce.

The additional features were derived as a result of several workshops during which we brainstormed exactly what was required from the system. Key for senior management was the visibility of the company's operations to both staff and customers (Principle 4). They also required something which would allow them to monitor both the use of the system and if possible, user understanding. Continuous improvement was also a requirement, (Principle 3).

These features are compatible with the final three components of the life cycle of a management system as detailed by Hoyle (2006). Hoyle states "*Life cycle of the management system has five components: Establishing the system, Operating the system, Evaluating the system, Maintaining the system and Improving the system.*"

Finally senior management wanted the process owners to do just that, to own their core processes (Principle 5). This was not limited to having a name attributed to each process; it entailed a requirement to manage their elements of the system in a proactive manner.

To achieve such requirements it was agreed that additional features were to be added to the system, namely:

- Questionnaire
- Lessons Learned
- Process Reviews

These are discussed below.

5.13 Questionnaire

A questionnaire was developed which contained thirty questions relating to the CMS (see Figure 5.13) each question having multi choice answers. System users would log on to the system and enter their name and e-mail address. Working through the questions they selected their choice of answer. Each of the answers was available by accessing the relevant section of the system.
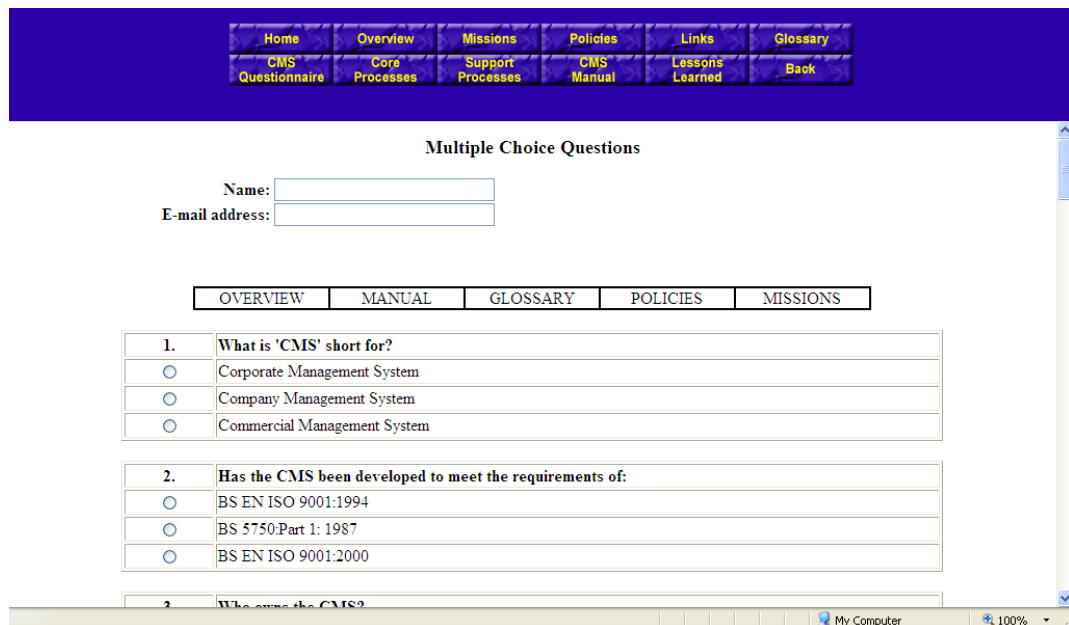
Figure 5.13 – CMS Questionnaire home page

When the selections were completed the user would then click on the submit button and their answers would be forwarded automatically to the system owner and also to their line manager. Results would also be displayed on the users screen as shown in Figure 5.14. To answer the questions correctly a

user would have to access the system. This encouraged users to navigate the system, which was achievable by clicking on an element.

CMS Multiple Choice results for Rizwan.
You scored 3 out of a possible 25.
The following questions were incorrect:
1 2 4 10 11 12 15
The following questions were not answered:
3 6 7 8 9 13 14 16 17 18 19 20 21 23 24
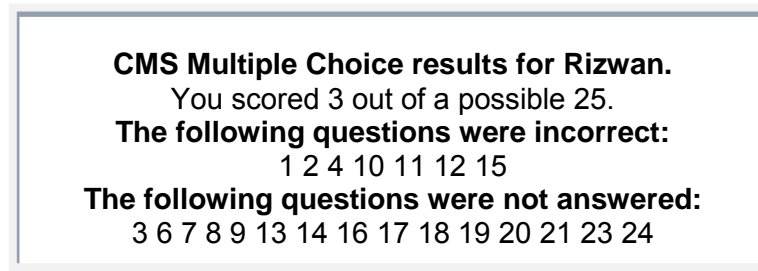
Figure 5.14 CMS Questionnaire results page

Newly recruited staff would be asked to complete this test as part of their induction, thus ensuring all members of staff had at least a basic understanding of the system. As the system illustrated the core processes of the business this would provide a firm understanding of the business objectives of the company, (Principle 4).

5.15 Lessons Learned

From my previous experience within the oil and gas industry and responsibilities I had within Kvaerner Oil & Gas, I knew that the capture of lessons learned was often a weakness in many projects. SEI senior management shared my concern that such opportunities should not be lost. It was also a requirement of the new standard to identify and demonstrate by evidence, that continuous improvement was present.

Add Lessons Learned
View your submitted Lessons Learned
Search Options
View/Submitted Form for Approval
Log Out
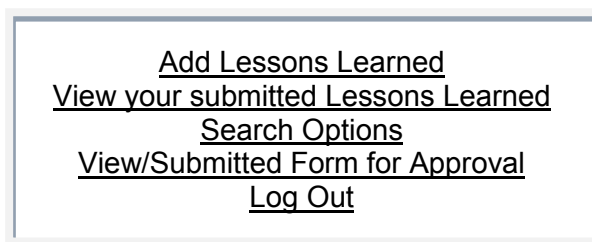
Figure 5.15 Lessons Learned Menu

Therefore to achieve these objectives I proposed that a Lesson Learned feature be added to the CMS, via the screen detailed in Figure 5.15. By involving a number of process owners and IT development staff in a

workshop, we mapped out what this feature should contain and how its purpose would be best achieved.

The lessons learned programme I introduced while engaged on the Britannia Development, section 4.4.5 had realised significant benefits. Harvard Business School regularly publish books under their brand of Lessons learned, some of the content being further investigated by Liebowitz (2009). Greer (2008) focuses on how Lessons Learned can increase productivity and also how the quality of product is increased, thus decreasing cost of rework. It is also a fundamental element of achieving continuous improvement.

Basically there would be a facility for anyone to register a topic with a brief description. Also a recommendation to amend or add to, any relevant aspect the system would be a feature. This facility was to be completed on-line and submitted to the discipline head/process owner and the system owner. The relevant screen is shown in Figure 5.16.

Figure 5.16 Lessons Learned Creation Page

A time limit for acknowledgement of receipt and method of response was included. Agreement on resolution of the submission and the best method for

incorporation into the CMS would be achieved following further detailed discussions. Regular use of this facility would in theory ensure that best methods are always realised and continuous improvement becomes self generating, (Principles 3, 5 & 6).

5.15 Procedure and Process Reviews

As with many management systems, reference to their effectiveness is usually established through means of audit, whether this is in-house or by a third party. I have never been comfortable with this method alone, as my experience is that very often such audits will only identify whether a procedure is being adhered to. No continuous improvement benefits are generated this way as absence of non-conformance suggests only that the procedure(s) are fit for purpose and correct. In contrast, a process audit differs, as Hoyle (2002) describes: *"In completing a process audit the extent to which a process is capable of achieving its objectives effectively and efficiently is the key focus rather than to establish all aspects are compliant."*

SEI senior management considered my proposals and welcomed any options to improve performance. I proposed that group review of the processes undertaken by process users under the leadership of the process owner would sensibly identify process stability and performance. To complete this I developed a series of Process Review documents which would be used by such review groups. These documents were derived from the review system introduced as part of the IMS management tools at Kvaerner.

The methodology is simple and effective. The process owner assembles a group of system users who have recent experience of using a procedure within their process. The group completes a simple multi-choice questionnaire which promotes self evaluation rather than system audit. Once completed the process owner then completes a Procedure Health Check Form. The Procedure Challenge Algorithm and the Core Process Challenge Algorithm are completed during group evaluation and discussion. The group review all

completed documents and the Procedure Improvement Plan is completed accordingly.

5.16 System Testing and Roll Out

The first stage of testing was to ensure that compliance with ISO 9001:2000 had been achieved. This was undertaken by our quality manager and included reference to the Gap Analysis undertaken earlier by Lloyds Register. Lloyds Register of Quality Assurance was the SEI nominated certification body. System testing was completed by inviting a number of volunteers to try the system for ease of use and understanding. During sessions to receive structured feedback a number of IT issues were identified and duly rectified.

A number of the features of the CMS were reliant on satisfactory connection and integration with the SEI server and could not be tested until installation was completed at their offices. For this reason, and to complete further testing of the system, initially only senior management and process owners were invited to trial the system.

The resultant testing period was completed with minimal disruption to normal business operations, and having rectified a few minor problems it was agreed to roll-out the system. I arranged to hold a series of awareness sessions for SEI personnel in July 2001. The system was regularly monitored for the remainder of 2001 and was subject to further definition during 2002. The main element of this upgrading was to incorporate a number of new documents which had been developed by SEI whilst undertaking a major project; Deep Panuke.

I had been successful in gaining a contract with Deep Panuke to develop a management system for their project team (see Portfolio Section 9). Once again, lessons learned during the development of the DPMS and system improvements formed a core part of the CMS upgrade which we completed in September 2002.

5.17 Summary

In describing the development of the CMS in this chapter, it has been possible not only to explain how the system was developed but to give details of the stages in its evolution. In doing so it is possible to reflect on how the system is underpinned by the six principles.

The commitment of senior management to commission a management system which would be developed effectively by engineering staff was in direct alignment with Principles 5 & 6. Also the management were positive that the values of the company would underpin the system and in doing so satisfied Principle 4, Value Based. This was further enhanced when the core capability expectation and performance measures were included

Allowing the system users to discuss user access and operation of the PC based system, allowed the IT coordinators to design a simple series of web based pages. In reflecting the day to day use, windows based drop down menus were an attractive feature which encouraged use of the system. Coupled with the fact that the documentation was based upon a process driven approach the Principle 1, Simplicity is fully encompassed. Consequently by adopting this simple, easy to use approach the CMS reflected all business practices and can therefore be deemed to satisfy Principle 2, Added Value.

Finally the decision to introduce Process Reviews and to empower the process owners to undertake such reviews assured the inclusion of continuous improvement, Principle 3.

Chapter 6: Reflective Analysis of the CMS

6.1 Aim of this Chapter

This chapter analyses the benefits the CMS provided to Saipem Energy International and also considers the contribution to the oil & gas sector. Within the analysis I have provided an overview which sets the scene for the CMS in comparison to the systems I had previously been associated with. I also review the CMS development method, paying particular attention to the opportunities gained from focused teamwork and the input of individuals within a continuous improvement culture.

Key aspects of the system such as access, formatting and population are analysed with respect to ease of use and visual appearance. In particular I comment on the level of detail achieved when populating the system in view of ISO 9001 requirements. I reconsider how the system was revised, both as a consequence of update following DPMS development, and also as a result of procedure and process reviews. I consider future developments and I discuss how the system could be developed and expanded to suit organisational changes. Finally I summarise the key elements of my analysis and provide an evaluation of the standing of the CMS in the field of management systems and the standard ISO 9001:2000.

6.2 Development Methodology

Previous working relationships with SEI senior management were a crucial factor in the approach taken to the development of the CMS. During previous employment with Kavaerner Oil & Gas, I along with the President and Executive Vice President of SEI had been members of the senior management team (see Figure 4.19). During this time they had gained first-hand knowledge and experience of my role in the development of the IMS, the Integrated Management System. They were keen to build upon the benefits realised from the introduction of the IMS.

Building upon this vision they demonstrated high motivation from the outset; a crucial component in system design (Christiansen, 2000).
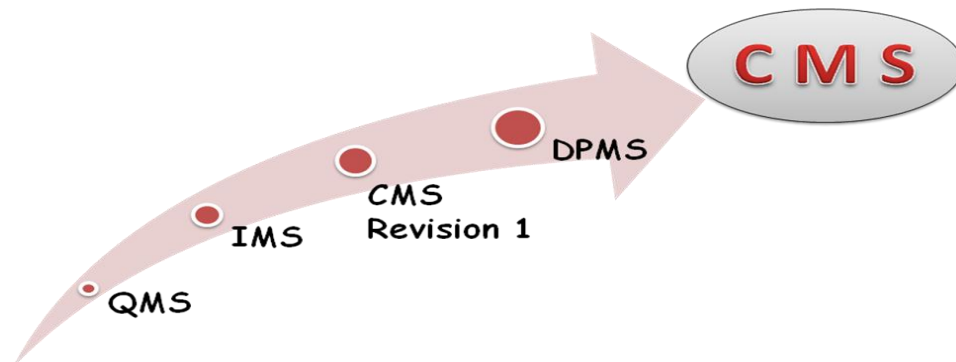
Figure 6.1 – Evolution of the CMS

As the company itself was embryonic, the development of the system would grow in line with the company. This was important and the requirement to work within a culture of continuous improvement and superior performance was made known to candidates during the recruitment process (Principle 6). Several exploratory meetings were held with senior management of SEI to determine and develop tools and methodology, Sokovic (2009) and Oliver (2009). These were gradually supplemented by section heads to define mission, visions and values, Urde, (2009), thus ensuring that a good working relationship was cascaded throughout the company (Principle 4).

Selection of workgroups to undertake the initial documentation of the new system and company processes followed. Care was taken to ensure teams were well balanced for each workshop. Referring to Handy (1993) and his reference to Belbin Teams, team selection was matched as closely as possible to the eight roles. Often the teams were less than eight in number and it was difficult initially to define roles, however as the programme evolved roles became clearer and relevant changes were made.

Using simple process mapping techniques, Vaughan (2009) workgroups defined the content of their core processes on post-it pads (Principle 3). The SEI senior management held the view they were employing qualified,

experienced personnel (Principle 5). Therefore the need for lengthy detailed description of all activities was not required. This stance had a motivating effect on the development groups and was a significant factor in the process driven procedures and documentation. This methodology encompasses the Six Sigma approach, Pande (2008), in which executive management empower others with the freedom and resources to explore new ideas for breakthrough improvements. To achieve this other role holders develop manufacturing and business processes which have characteristics that can be measured, analyzed, improved and controlled.

As the majority of process owner work groups were engineers, the system was mapped out by them with guidance from others achieving similar benefits identified by Atkinson (2010). The absence of quality engineers at this time was considered an advantage as it allowed the users of the system to document the process steps. There was no encouragement to increase the population of the system with unnecessary documentation, (Principle 1). Working within the guidelines of the ISO 9001:2000 standard, the workgroups showed a keen interest in the growing system.

My previous experience of quality management system development suggested there might be reluctance from the engineering staff in becoming fully engaged. Too often procedures become burdensome and are not process driven, and do not provide a true reflection of how individuals and groups actually operate. However, this was not the case during the development of the CMS. On the contrary, there was enthusiasm as the system structure began to develop and the SEI staff showed positive signs of system ownership, Gordon (2002). This was generally attributed to the simplicity of the content and ease of access to all aspects (Principles 1 & 4).

There was increased opportunity to develop simpler, clearer descriptions and the ability to introduce new methods of doing things, Wasden (2009). Newly developed or best-practice associated documentation was deemed a refreshing change to previous quality systems. The development of the process maps also increased awareness of the business. This is in direct

relation to Hunt (1996) who states *"A tremendous amount of learning and improvement can result from the documentation and examination of the input-output (customer-supplier) lineages depicted in a process map."*

Following initial documentation of the early processes, review sessions were held. The purpose of these sessions was twofold. One was to examine the processes for consistency with other core processes. The other was to ensure that the culture of continuous improvement was being adhered to.

The methodology of achieving this reflected the guidelines of Bell et al (1994) and the three basic elements that need to be addressed when an organization positions itself for continuous improvement. These are:

1. determining exactly what the organisation's business objectives are, based on a customer focus
2. analysing the organisation's processes to determine and track areas for improvement
3. solving problems

These elements are more commonly referred to as departmental task analysis, business process analysis, and problem solving, Madison (2005). At this stage of development you might presume interest would wane and progress would slip.

In contrast to the findings of Roth (1998), Figure 6.2 illustrates the responses to system development early in the SEI company life, by staff encouraged to think and work differently.

Roth 1998	Saipem Energy International
Team members miss meetings owing to production crises and other demands on their time and have difficulty getting involved	As the CMS was developed during the setting up of the company, there was no conflict with other demands for time
Management sees the team network as a vehicle for accomplishing their own objectives and begins dictating team projects or taking over team meetings	Senior SEI management developed the company objectives in association with staff. Management played no part in the development of the core processes
Teams eventually bury themselves, becoming involved in so many projects at once that nothing gets finished and members lose interest	The CMS construction was viewed as a core responsibility of the teams. Due to the infancy of the company, there were few other projects ongoing at the time
Teams take on projects that are too difficult, too slow moving and too long term so that members again lose interest	The pace of development of the CMS was set by the teams. Process mapping was simple and welcomed by teams.
Team meetings degenerate rapidly into gripe sessions	All meetings were planned, facilitated and focussed
Team members start squabbling, or factions develop with conflicting interests	Teams were small in number and open discussion was actively encouraged
Teams function for several weeks or months, then disband, as members become disillusioned by the lack of support for, or the negative reaction to, their ideas	The teams worked on the CMS development and then undertook a series of reviews of the system. Management were always supportive of their ongoing input
Teams get in trouble with other teams and departments because the changes they make have unexpectedly negative consequences on other parts of the operation	The system development was supervised independently. Encouraging close liaison between teams ensured constructive challenges to new methods of working
Actual and suggested changes generated by teams are seen as a threat by supervisory personnel and are blocked.	Providing the changes did not compromise Health, Safety, Environmental, Quality and ethical standards. Change was actively encouraged by management

Figure 6.2 – Comparison of Team Characteristics

6.3 Access and Functionality

During the First Choice Programme, (see Portfolio section 6), several of the workshops were based around what the company would look like in the future. Adopting core principles of scenario planning and having mapped the

business systems, one aspect I was particularly keen to introduce was to have this structure accessible to all staff and employees, Dragan (2005).

Much of the workforce was located in fabrication facilities or close to heavy machinery. They were often exposed to the elements of weather and were not suitable locations for PCs. Consequently it was proposed at the time that access would be via touch screens housed in weather protected enclosures. Touch screens were in their advent at that time and this seemed a logical route to follow.

In the case of SEI, personnel would be office based and would have a PC as a fundamental part of their facilities and all users would have experience of Microsoft Windows™. Therefore it was proposed that the layout of the system was based around a Windows™ operating system. It would be very easy for users to navigate around drop down menus. Using this as a basis for system layout design, I developed a series of illustrations to facilitate the IT staff to develop the screens.

The guidelines for the IT personnel were to make access as simple and clear as possible. Very soon it became apparent that it would be possible for any user to access any element of the system through a maximum of six clicks of a mouse. By implementing access buttons on the screens, it was possible for users to navigate around the system. Placing the mouse cursor over an item allowed users to click and drill down to the next level. Such was the design of the system that any user could access to the lowest level of detail with a maximum of six clicks of the mouse button.

 This became a strap line used extensively during induction and awareness sessions. It was also a key remit for the process development workgroups. Again the simplicity of access and operation was welcomed by SEI senior management and staff who considered such functionality a major catalyst to assist future users, (Principle 1).

A key feature of the system was that all elements of the company business were available through one medium. One particular benefit was that not only did the system identify **who** would be doing what but **how** they would do it. Associated documentation such as pro-formas was readily available as attachments to the procedures and work instructions. Control and issue of such documents remained with the Document Control Centre or, in the case of commercially sensitive documents, with appointed holders.

What the CMS did facilitate was visual access of sample documents so any user could familiarise themselves with them through their PC. In achieving this functionality the CMS became stand-alone and could therefore be used by SEI staff at anytime. Because the system was accessed through staff PCs, any users would automatically access and view the current revisions of processes and procedures. Thus the CMS became dynamic; a feature that most other systems could not provide, (Principle 1).

The CMS was hosted on the Company IT server and was readily available to all staff via their PCs although this could prove problematic when mulit-site access was required, Metz (2004). System design, however, was such that remote offices or projects that were not linked to the server would use a CD-ROM to access the CMS. The only constraint, with this method was than any modifications to content of the CMS would necessitate a revised version being issued to such locations. This was not envisaged as a constraint as this merely reflected what would happen in the case of a paper system. The advantage of this method, however, was that all users would be using the most up to date version of the CMS, as previous issues were deleted.

6.4 Population of the system

Population of the system was the largest element of system development. Having identified and agreed the core processes, workgroups focused on the expansion of the process by developing procedures. Whilst the procedure development was not too onerous a task in itself there was extensive work to be completed to ensure consistency across the seven core processes.

Several factors were addressed to ensure this consistency was maintained. As previously documented in Chapter 4, Section 4.4.2, process mapping methods assisted in keeping documents to a similar level of detail.

When moving into the development of procedures it was often challenging not to become too descriptive. Several workgroups initially reverted to developing procedures as if they were to be used by personnel who had no prior knowledge or experience of working in such a business stream. This was overcome by coaching the individuals in the aspects of the new company culture: which was one of ownership and continuous improvement, (Principles 1, 3 and 6).

The senior vice president often used the phrase "We are not employing greengrocers" to reassure any doubters that the knowledge and experience of staff would be of the highest available to complete their duties. The use of work instructions to supplement procedures was quickly accepted by the workgroups as a suitable supplement of additional detail.

The development and format of associated forms and attachments to the procedures was undertaken using the same principles. The resultant documents were simple and included a minimal level of detail, (Principle 1).

Although the CMS was almost complete when it was rolled out in July 2001 there were a number of procedures which still needed to be developed. Much of this was affected by the delayed recruitment of suitable staff by SEI. Two pivotal management roles remained unfilled at the time of the CMS launch (Procurement Manager and Commissioning Manager), hence the absence of detailed procedures and work instructions for these areas. This did reinforce the senior management's approach that department heads were to be allowed to detail their mode of operation without interference.

Following the feedback from the successful development of the DPMS, (Deep Panuke Management System) it was possible to significantly add to the documents within the system. Specifications and work instructions were

developed for this and other projects were the subject of regular reviews with SEI workgroups. These groups established which documents could be selected for inclusion within the CMS.

Those selected were tailored to become corporate standards and were implemented within the CMS. A significant number of project specific elements were archived for possible future use and not automatically introduced into the CMS. Each document was considered to establish if it would add value to the business. This was a fundamental change from previous practice as covered in Chapter 2, Section 2.3.

6.5 Revising the system

The structure of the CMS facilitates the revision of component parts, whilst not affecting overall systems integrity. The utilisation of the process and procedure review documentation allowed individual elements of the system to be revised and improved as necessary. The process review documents promoted a feeling of ownership by the relevant department heads and improvements were a natural derivative of such reviews. The review documents identified areas of weakness and requiring improvement. This satisfied the continuous improvement requirements of ISO 9001:2000.

As the DPMS was a derivative of the CMS, the development of the DPMS was closely monitored to identify any areas of its constituent parts which could be of benefit to the CMS. Agreement had been made between, Pan Canadian and Saipem Energy International that any such features of the DPMS could be replicated into the CMS.

The ability to test processes, procedure and work instructions under project conditions proved to be of substantial benefit to SEI, and to the future development of the CMS. For example, work instructions which had been noted as being required to supplement procedures, had, in the majority of cases, not been developed beyond title stage. When this was the case focus groups completed a process mapping to produce the documentation.

Following the maturity and launch of the DPMS in April 2002, Saipem senior management accepted a proposal to undertake a formal review of the existing CMS. From this review it was established that there would be a major benefit from revising the system to include many of the additional features included in the DPMS. This revision had a significant effect in establishing the CMS as a proactive management system which fully embraced the business objectives of the company (Principle 4).

6.6 Evaluation by the Leighton Group

6.6.1 Aim

In this section I review the analysis of the CMS I requested from the Leighton Corporation (see Portfolio section 8). This analysis had been sourced to provide an independent, external perception of the CMS. I have provided an overview of why I asked Leighton for the analysis and also the methodology I suggested they adopt to achieve this. In this chapter I have commented on their findings for each of these areas.

6.6.2 Outline

Development and implementation of the CMS, Company Management System and the DPMS, Deep Panuke Management System, had been well received by senior management and users. Additionally Lloyds Register of Quality Assurance had granted certification to the system therefore it can be stated that the systems achieved a level of success. Conscious of the reaction of new users during awareness and training sessions, together with analysis of lessons learned, it remained questionable whether these systems were in fact completely fit for purpose.

It is quite easy to be drawn into a false sense of security when working on such a project for a considerable amount of time. Opportunity was always available to review and amend parts of the system via Process Reviews and Certification Audits. What was not inherent was the opportunity to obtain an unbiased opinion as to the quality and structure of the system. This I believe

is fundamentally necessary to establish the worthiness and validity of this key feature of my research..

Having demonstrated the CMS to many people outside my usual work environments, I received complimentary acknowledgement with regard to the content and operation. This was also the case following similar demonstrations to people within the oil and gas sector. However I considered a neutral review and examination of the system would prove invaluable both to my research and also to possible future development and marketing of the CMS.

For this reason I decided to approach a specialist systems software developer to undertake a review of the CMS. I selected the Leighton Group due to their previous expertise in developing systems such as 4projects and their track record in software development. (4Projects is a leading international software company delivering global Software as a Service collaboration and Project Information Management solutions).

 Having contacted their CEO I visited their offices and had a short introductory meeting. I described the development of the CMS in broad detail. I demonstrated briefly how it worked and left them to review its content and functionality. I suggested a number of areas for them to address. A copy of their evaluation is included in Portfolio section 8.

The areas for evaluation and specific comment were as follows:
- ❑ Ease of use
- ❑ Visual appearance
- ❑ Content
- ❑ Affinity to the business
- ❑ Improvements
- ❑ Marketability

In analysing the subsequent report it has been possible to consider a new users comments in light of the system without the distraction of how the company SEI, Saipem Energy International actually functions. The review by

Leighton Group was to specifically identify system strengths and weaknesses and not to deliberate the capabilities and competence of SEI. Consequently the review was undertaken by a group who had little, if any knowledge, of the oil and gas sector. Also they had expert knowledge of the development and functionality of management systems, although not necessarily specific to those in accordance to ISO 9001:2000.

6.6.3 Key Review Aspects

6.6.3.1 Ease of Use

As designed, the reviewers found the system very easy to use without guidance or training. Because of the system design it can be used on any operating systems and users can navigate throughout the entire system with little difficulty. This was a key feature I originally requested of the IT staff during the CMS development. When I was working with the First Choice Programme Group (Portfolio section 6) it was considered a future benefit if staff could use a touch screen to access procedures, processes and documentation. As most users would have the benefit of experience of browsers and Windows™ these features were considered a key aspect of user access.

6.6.3.2 Visual Appearance

The comments regarding visual appearance are pertinent and considered of benefit to future development. There is a time element to consider however. Much of the CMS development started in 2002 and software development and appearance have moved on substantially in the space of the last five years. Notwithstanding this, the suggestions here are well founded and noted as such.

6.6.3.3 Content

Having stated that the content is comprehensive the reviewers stated that the design allows business processes to be easily tailored to suit specific needs of a project or company. The ability to allow system growth is a key feature of the design. This compliments comments with regard to the development of a

system for the social housing company (see Chapter 7). The system can grow with a company or project and does not require major development change.

6.6.3.4 Affinity to the business

I had requested comment on this to establish whether the reviewers considered the system sector specific, (i.e. oil and gas). Their response that it can be customised to be used in most business was gratifying. Acknowledgement is made of the need to gain sufficient exposure and establishment in one business sector before moving into another.

6.6.3.5 Improvements

In respect to the improvements noted, the design of the system was undertaken by IT professionals who had limited experience in HTML design. This is an area for further work should the system be marketed in the future.

6.6.3.6 Marketability

Marketing the CMS is identified as a weakness and Leighton's comments underline this. There are a number of alternatives noted here and these are considered in further detail in Chapter 9, Future Work.

6.7 Future development

The design of the CMS is such that any additional business stream can be added without a major overhaul of the system. The existing core processes document all key elements, from business development through to commissioning. For example, in the possible scenario that Saipem Energy International were invited to tender for the operations of any onshore or offshore facilities, this core process could easily be accommodated within the CMS.

The methodology to achieve this would be the same as previously adopted. Key personnel would map out the core process and identify and develop procedures, work instructions and associated documentation. This would then be added to the CMS and the system revised and installed on the company

server. Alternatively if a smaller project was secured which was specific to one area of the business, an abridged CMS could be utilised.

6.8 Summary

The CMS, when implemented within Saipem Energy International in 2002, was considered to be of significant importance for several reasons. It fully encompassed the specification and requirements of SEI senior management and their vision for the business (Principle 4). Compliance with the standard ISO 9001:2000 was assured and it reflected and promoted the culture of continuous improvement within the business (Principle 3). Ownership and management of business streams was also achievable through the introduction of process reviews and lessons learned facility.

Developing the system to be fully supported on the company's IT system was a new concept. Much of the work by the IT engineers to achieve this was time consuming exercise due to the availability of proprietary software. The systems were based on Windows™. At the time of CMS development, changes to a word document (for example) entailed completing a series of procedures to ensure that revisions were easily identified to users. The advance of Windows™ software is such that this facility is now available via the toolbar menu.

The system was developed for Saipem Energy International to support their entry and operation in the oil and gas sector. The CMS could be transferable into other sectors. The principles of its operation are based around core capabilities of any company or organisation. Core processes will have differing titles and differing procedures, work instruction and documents. The basic content of such a system however would not change, particularly if it were to be in accordance with the standard ISO 9001:2000.

One deficiency in developing the CMS and DPMS was that focus on these projects prevented any simultaneous marketing and business development opportunities. This was a major failure in the business operation of

Business>IAM. Attention to investigating other opportunities to develop similar management systems for other companies was not completed. Hence when the CMS and DPMS were nearing completion there was no follow-on work. This should have been a prime requisite and could have been achieved by the employment of an individual to undertake business development.

Too much attention was made to the completion of the work in hand and little given to the consequence of the future growth and operation of the company. I did undertake an Export Market Research project for the British Chamber of Commerce and explored opportunities to market the CMS concept in Australia. The results were disappointing from a Business>IAM point of view as Portfolio section 10 indicates. Ironically the work completed on the CMS was accredited as being successful, as it facilitated SEI to enter a competitive market ahead of schedule in its' business plan.

Chapter 7: Understanding Management Systems: A Qualitative Study

7.1 Aim of this Chapter

The chapter presents the results of a qualitative study I undertook to investigate senior management awareness of quality standards, and the management systems which they had in place to support quality within their respective organisations. Semi-structured, in-depth interviews were conducted with senior managers working in a variety of sectors.

The aims of the study were:

- ❑ To investigate the management system which was in place in a range of organisations
- ❑ To investigate to what extent, the systems in place in the organisations incorporated the six principles, which I propose to be the core requirements of an effective management system
- ❑ To explore the motivation for having a management system
- ❑ To identify the benefits which the organisation was gaining from a management system.

7.2 Research methodology

7.2.1 Choice of Method

The purpose of this study was to obtain qualitative data which would achieve the aims outlined above. In considering Cohen and Manion (2007) and Denscome (2007) I decided that semi-structured interviews was the most appropriate method for data collection. Data collection by questionnaire was discounted as this would not provide the level of detailed and rich qualitative data required.

7.2.2 Selection of Sample

Six organisations were selected from the private, public and voluntary sectors. From the private sector I selected three companies, each with their own characteristics. The organisations selected were designed to cover a range of organisations for whom management systems and quality are of interest. All of the organisations selected were based in the North East of England. The organisations selected were:

Organisation A – a software company who specialise in the supply of collaborative management systems used primarily in the construction industry.

Organisation B - a social housing company who operate on a not-for-profit basis. The business includes construction, maintenance and property acquisition in addition to its social housing activities.

Organisation C - a very successful Tyneside based company operating in the oil and gas industry.

Organisation D - a Hospital Care Trust.

Organisation E - a Police Force, as another public sector organisation that has performance indicators, and which are very much in the public arena.

Organisation F - a charitable youth training organisation which focuses on the requirements of disadvantaged young people.

7.2.3 Role of Interviewees

Contact was initially made with the CEO, or similar business leader, within the organisation who was requested to select the most suitable person for the research. An in-depth knowledge of whatever management system the organisation had in place was mandatory. There was also a requirement to be fully aware of the effect the system had not only on the business but also on individual users and corporate culture.

7.2.4 Selection of Topics

In order to establish the level and use of any management system in place within these organisations, I developed an interview questionnaire which covered a range of topic areas, as shown in Figure 7.1. The questions were selected to cover the aims of the research study, Bryman & Bell (2007) and were open-ended enough to allow the interviewees to expand upon their answers reflecting the work of Lancaster (2008).

Responses were not to be limited by time or words and the design of the questions was such to encourage openness. I felt it would be an advantage if responses were to some extent anecdotal as this could provide a deeper understanding of the systems in place and the principles which lay behind them.

The questions were designed to give a natural progression; first to obtain details of any system in place, its basis, how it is used and the user perspective.

7.2.5 Pilot Study

Following the definition of interview topics and associated questions I did not want to move straight into interviews with the selected companies without ensuring that the instrument would achieve the aims of the study as stated in section 7.1. In order to do this I completed three pilot interviews with colleagues from organisations within the oil & gas and petrochemical sectors to test out the questions. The main objective of this pilot study was not to gather any data. It was to make certain that responses would be at an appropriate level of detail and would deliver data that were meaningful.

My aim was also to gauge the logical progression of the questions and to judge if the answers received would provide more than a simple yes, no or not sure. The purpose of this was to assess response levels and also to provide an indication of the candidate's understanding of the area of research. By doing so I could then decide whether the questions were too focused and only

suitable for response by quality professionals. This was not the purpose of the research as I wanted to obtain a cross sectional view if possible.

Topic Areas	Principles explored
Aim: *To investigate the management system which was in place in a range of organisations*	
Questions	
What type of management system do you have in place? How long has it existed?	1
Does it have properties similar to any proprietary system, e.g. SAP, Prince, Six Sigma?	1
Do you have a dedicated quality manager?	5
Aim: *To investigate to what extent, the systems in place in the organisations incorporated the six principles, which I propose to be the core requirements of an effective management system*	
Questions	
What, if any, operational activities are constrained by the system?	4
How does the system bring about conformance to company values?	4
Would you say the system provides a creative culture?	3,6
How would you describe the management perspective of the system?	5
How would you describe the employee perspective of the system?	6
How does the system compare with the requirements of BS EN ISO 9001:2000?	1,2,3,4,5,6
Aim: *To explore the motivation for having a management system*	
Questions	
What is the reason for having a management system? Is it present for compliance with customer requirements?Does the system constrain operational activities?	2
How do you manage improvement? Is this a feature of the system?	3
Aim: *To identify the benefits which the organisation was gaining from a management system*	
Questions	
Are you registered with Investors in People, IIP? If yes, is the system in line with your IIP programme?	5
Can you outline the aspects of any external coordination with your company and system?	3

Figure 7.1 Interview Topic

From these initial pilot interviews a common trend did emerge. One of my original questions related directly to a key principle: "Does the system add value?" The response received from all was a simple "no". This short answer whilst possibly accurate, did not provide me with the data I had hoped for. After more detailed discussions with the interviewees I decided to modify the question, allowing opportunity for a more open response.

The modified questions became: "Is the system present for compliance?" and "Does the system constrain operational activities." This amendment, although slight, proved to be effective as the responses demonstrate.

Another point of note which emerged from this pilot study was the identical response to the question referring to proprietary systems. No one had any knowledge of such systems. However I considered it logical to include this question as there was need to establish this fact with the survey organisations.

7.2.6 Process

The collection of the data was completed during face to face discussion with a nominated representative for each organisation. Over a period of two months I interviewed all the nominees, the process for the interviews being the same for each candidate. Following introductions I established their position within the organisation, length of service and knowledge of management systems. I then outlined my objectives and described my area of research.

I ensured that they were aware that whilst the interviews were confidential, responses to the pre-determined questions would form part of my research. I also advised that interviews would be recorded to assist in my later analysis. There were no objections to this and I suggested that following the series of questions there would then be an opportunity to discuss any aspects or issues raised in further detail.

7.3 Results

This section presents an overview of the results of the research study.

7.3.1 Organisation A (Software)

The software company is based in the North East of England and has been in existence for around ten years. The company has grown significantly and is at the leading edge of providing the construction industry with a reliable web based collaboration tool. They employ around 50 staff and have a turnover of approximately £4.5 million.

The person interviewed was the CEO who has only been with the company for a year. He has however a well established reputation within the construction industry and has extensive experience of the software product. His role is to grow the business on behalf of investors and to maintain the high profile of the company and their product.

The software company's product is a collaboration tool and invariably has procedures, work instructions and pro-formas as constituent parts to it when used on a project. This is also the case in-house and is used as such by the company. The reluctance of senior management to embrace the additional requirements of a quality system is a barrier to full system development to ISO 9001:2000 standard. The current feature for compliance is to use a traffic light system which by definition defines red as a problem, green as OK and amber as an area for observation. The difficulty with such systems is tracking whether amber is moving to red or green. The software company CEO admits to concerns about quality assurance.

7.3.2 Organisation B (Housing)

The housing organisation is primarily a not-for-profit social housing organisation which enjoys the benefits of two separate business streams. These business streams are involved in private house construction and are able to generate revenue to supplement the main arm of the group. The

business has been operating for seven years and has a workforce of approximately 1800.

The person interviewed was the Business Improvement Manager. He had been with the company since its inception and has responsibility for identifying and implementing improvement initiatives. A major part of his role is engaged in assisting the quality manager to achieve certification of the company's management system to ISO 9000:2000.

The construction division is close to achieving certification for ISO 9001:2000 which is more as a need to respond to tender requirements by management than as a business tool. Until now the organisation has relied heavily on the Investors in People scheme, IIP, for which they have been accredited for several years. (Launched in 1991, Investors in People is a business improvement tool and is administered by UK Commission for Employment and Skills.)

Whilst the organisation operates a best practice database and has recently implemented an innovation scheme, the majority of business improvement is achieved via inspection. The contrast of opinions between the employees and management appears to demonstrate a disjoint between value based, empowerment and team culture principles.

7.3.3 Organisation C (Oil and Gas)

Organisation C is primarily engaged in business within the Oil & Gas Sector worldwide and has been for over ten years. Employing just over 500 people the company's North East based facility enjoys a turnover of around £600 million.

The person interviewed was the CEO who has been in post for just over four years, during which time the business has experienced substantial growth in workforce and turnover. The CEO is determined the company's management

system remains fully compliant with ISO 9001:2000 for business as well as customer need.

There is obviously a high priority placed on the operation and maintenance of the business, evidenced by the fact that the Quality Manager reports directly to the CEO whom has a genuine interest in the system and acknowledges the benefits gained.

Improvement is high on the company's performance agenda and has been a key feature of the system since 2004. It is therefore claimed by the company to be embedded within the corporate culture. To assist with the further development of this key principle work has begun on internal training on key initiatives such as Lean Manufacturing. Senior management are very supportive of the system and it is not considered to have any constraints on the operational activities. The CEO claims "Our employee's perspective of the systems is very good as they know it produces good results."

7.3.4 Organisation D (Hospital)

The hospital trust employs in excess of 5000 staff and has a turnover of around £200 million. It is focussed on the operation of an NHS hospital facility which includes accident and emergency, orthopaedic and maternity units, as well as an extensive outpatient service.

The person interviewed was the Trust Secretary who has been in position for almost ten years. The secretary is responsible for a number of management systems including those which handle personnel, patient care and finance.

The hospital trust has several systems in place; however the main management system is Clinical Governance Manager, which is a national system, that has been in place for approximately ten years. The system does not meet the requirements of ISO 9001:2000. Improvements are identified via national annual surveys of the system and the system itself does not have an improvement feature built in. This provokes the question of what happens between annual surveys to areas identified for improvement.

This point became a little clear during the interview with the Trust Secretary as it was stated that the system did bring about conformance and did not restrict operations; it was considered as being in place to monitor performance. It was considered that management interest in the system was due to the systems being subject to random checks. Employees have a two to three day induction to the system although it was not used by many of the junior employees after this period.

7.3.5 Organisation E (Police)

The police force employs approximately 650 officers and 200 civilian personnel. It has an annual budget of approximately £45 million. The prime concern of the force is to maintain law and order and also to reduce crime figures in accordance with national performance indicators.

The person interviewed was a PC who was the System Coordinator within the force. He has held this position for two years and is expected to return to general duities within the next twelve months. He has an interest in the system and its development and is actively involved in coordinating national returns.

The Police system has been in place for about four years and is based upon 'Prince' Software and is generally used to comply with 'citizen' focus and requirements. It was not thought to be in accordance with ISO 9001:2000 although the interviewee considered that it matched quite a lot of the requirements. The police do not have a dedicated quality manager and because the system covers such a broad spectrum it was thought it was not possible to be under the control of one person. However it raises a point of concern that in having several individuals responsible for separate parts, this could create some confusion in the revision and upgrading of the system.

There is no automatic improvement facility within the system although constant performance reviews and best practice culture within the employees does provide items for improvement. Management use the system regularly as it provides a strategic overview, the records element being particularly well

used. System users however view the extensive requirements around the completion and return of records to be bureaucratic.

7.3.6 Organisation F (Training)

The training organisation is a local facility which is part of a national organisation which operates on a charitable trust basis. It has an annual turnover of approximately £4 million and employs around 90 staff. The company's primary objective is the recruitment, training and placement of underprivileged or disadvantaged young people.

The person interviewed was the Trust Secretary. The interviewee has held the post for just over eight years, having been promoted from, the position of deputy. The secretary is also responsible for, and has an interest in, the Trusts management system and also is a member of several local steering groups and boards.

Senior management are confident the management system, developed over some five years is a robust business tool which does add value to business performance. They view its existence as being able to enhance business performance and to also provide their customers with reassurance of the organisations capabilities. The training group have been accredited to IIP for over ten years and believe their performance culture has benefited from this award. Each branch manager has a responsibility for quality within their location, supported by a group quality manager. The existence of a quality group which comprises branch managers, quality manager and senior management provides a suitable facility for performance improvement.

These are highlighted during audits both internal and external inspections in particular those undertaken by the Office for Standards in Education (Ofsted). Consequently the system is viewed by the majority of management as being very important and effective as part of their management tools. This view however is not shared by all employees as it is perceived many of those without direct responsibility to not share the others' enthusiasm.

7.4 Summary of Results

Only two organisations actually employed a Quality Manager, Organisation C and F. The Quality Manager with Organisation F was responsible more for control of procedures rather than quality management. It is difficult therefore to envisage what level of success their function has in underpinning operations of the business and how it could be adding value (Principle 2, Added Value).

All respondents confirmed they have at least one management system in place. Organisation C was the only one to have a Quality Management System which is in accordance with ISO 9001:2000, although Organisation B was working towards that goal. The other organisations have systems of various types and styles, developed over a period of time. With the exception of Organisation E, whose system is based on Prince Software, the remaining systems were not supported by any proprietary software. Organisation A's key product is a management system and is termed a proprietary system, although it is not strictly a system used directly for the management of quality.

It was unanimously agreed by all interviewees that their systems did bring about conformance. This is difficult to qualify in any formal way in the absence of ISO 9001:2000 and suggests conformance is judged against business targets, or KPIs (Key Performance Indicators). The four organisations connected with services to the public (B, D, E, F) all regard compliance with customer need and perception as a key element. This suggests that their systems priority is not necessarily to add value, (Principle 2).

The remaining two organisations (A and C) who have commercial customers, do not consider their systems are in place merely to comply with customer requirements. The systems are considered to be an important part of the business function and are not seen as an interference. Consequently it can be accepted that the systems add value to the business and thus support Principle 2.

Only Organisation C has an improvement facility, sharing Principle 3 Continuous Improvement, within their system, with the other groups relying on surveys, audits and reviews for their improvements. Those respondents who indicated that the system constrained operational activities also indicated that there was not a creative culture provided by the systems. Conversely those who indicated that their system did not constrain did report a creative culture within their organisation.

Reflecting on these two differing scenarios it would suggest that by constraining people's performance there is little, if any, encouragement for doing anything differently. Therefore it is reasonable to consider that employees will consider the system in place as something to contend with rather than to engender improvements. In adopting such an approach the system cannot be considered to be adding value to the business, (Principle 2) or providing continuous improvement (Principle 3).

Whilst all management interviewed noted that they were in favour of the system in place, with the exception of Organisation C, they all considered that it was not welcome with most employees. This would suggest an absence of evidence of empowerment and team culture, principles 5 & 6 respectively.

7.5 Discussion and Conclusions

Organisation C was the only company which satisfies all six principles and has a system which is fully compliant with ISO 9001:2000. It has also been in place the longest, 10 years. Their mature system has been upgraded from the previous standard ISO 9000:1994 and now encompasses the improvement culture which is well established within the company. The fact they are the only company surveyed who indicated employee satisfaction supports Principle 6. Also by having an improvement feature within the system allowing personnel to become part of business operations Principle 3 (continuous improvement) and Principle 5 (empowerment), are also incorporated.

This is assisted by the work of the quality manager who has fully embraced the requirements of the standard. The quality manager had in previously been employed by Trafalgar House and Kvaerner Oil & Gas and had experienced many of the initiatives I had introduced. These included Brown Papers, TJB Training Plan, Lessons Learnt, First Choice Programme and the IMS, sections 1, 2, 3, 6 and 7 of the Portfolio. He completed the training programme and as a qualified facilitator had played an effective role mapping processes and procedures which would become integral to the IMS. He later joined the Management Team of the Innovation Scheme I introduced into the Teesside Facility of Kvaerner, noted in chapter 4 section 4.5.2 and through this was aware of the benefits of stimulating continuous improvement.

Introducing new concepts such as lean training, a scheme which provides employees with techniques and tools to identify improved ways of working, into his present employer's business has promoted successful campaigns such as "The Organisation C Way". This is similar to an innovation scheme and allows employees to suggest improvements to normal working practice, through which many of the best practices have been developed and implemented. It is noted that Organisation C has been acknowledged for their performance by winning a number of business awards, many of which were at national and international level. Key successes have been International Pipeline Award 2006, 'Grade A – Outstanding' by the Technology Strategy Board 2010 and British Chamber of Commerce Business of the Year 2007.

In contrast, reviewing the two public facing organisations, Organisations D and E, the systems in place are designed purely to record data. With the exception of management perspective, the response from these two groups was almost identical. This could be for a number of reasons however two must be considered as prime. These are discussed below.

Firstly both organisations provide a direct service to the public. Consequently they have pre-set national and regional targets and KPIs. There is considerable pressure for these to be achieved. Secondly the absence of a quality manager and a quality management system in both organisations has

given rise to both having systems which record, rather than assist business operations. Hence it can be identified that neither system is adding value to the business, (Principle 2).

In both instances areas for improvement or changes to business processes are only addressed via periodical reviews. Thus there is little evidence of Principle 3, (continuous improvement). This prevents any real-time gains and subsequent changes become more protracted and difficult to implement. In the case of the police this is further hampered by the perception by employees that such systems actually impinge on their daily duties. In admitting this, there can be no recognised alignment with either principle 5 or 6 (Empowerment and Team Culture).

The remaining two private organisations, Organisations A and B, are having differing levels of success in way of system development. Organisation B is a relatively new business and is a not-for-profit organisation. Having acquired considerable social housing stock to form the core of their business, they have developed other business streams to compliment their overall business targets. The difficulty in this is that there are differing work practices in place, with a heavy contrast in facilities and resources needed. This in itself leads to the generation of a one-size-fits-all management system. As well as being difficult to develop, the system will certainly become difficult to maintain and will therefore be contradictory to Principle 1, (simplicity).

It would be advantageous for Organisation B, like any new company, to have a system design similar to the CMS. Whilst there will be limited amendments and revision to the overall system by way of identifying any changes to the corporate structure, new streams can be added whenever necessary. In identifying them as a new core process, all applicable procedures, work instructions and documentation can be developed in a similar format. Other key elements: Overview, Expectations, Performance Indicators, Process Reviews, Roles and Responsibilities would be determined at the outset of defining such a new business stream. These are all necessary components to support Principle 4, (value based).

Organisation A has a differing but not insignificant dilemma in as much as their product is also their system. Whilst the system is very successful in a most competitive market due in effect to its simplicity, it is very difficult for senior management to consider implementing a management system for the business alone. Much of the content of the system is based around the requirements of a system which satisfies the ISO 9001:2000 standard.

The responses from the survey are compared with respect to the six principles is summarised in Figure 7.2.

PRINCIPLE	COMPANY or ORGANISATION					
	Software A	Housing B	Oil &Gas C	Hospital D	Police E	Training F
1 Simplicity	yes	no	yes	no	yes	no
2 Added Value	yes	no	yes	no	no	no
3 Continuous Improvement	no	no	yes	no	no	no
4 Value Based	yes	yes	yes	yes	yes	yes
5 Empowerment	no	no	yes	no	no	yes
6 Team Culture	yes	no	yes	no	yes	no

Figure 7.2 – Comparison of Survey against the Six core principles

7.6 Summary

In summary the results of this investigation into management systems in place within organisations whilst disappointing; did not come as a surprise. With the exception of organisation C, whose system encompassed my six principles, all other organisation's systems were in place to satisfy customer requirements. Therefore none could be presumed to be adding value, (Principle 2). There was little evidence to suggest that any of the other core principles were encompassed in the other systems. Whilst all organisations claimed that their systems were a reflection of their core values, without evidence to the contrary it is difficult to accept that any of the other core principles had been fully considered.

Therefore it is difficult to assess just what value or benefit the management systems are providing other than "ticking a box." It could be argued that any

motivation for having a management system must be generated from a potential customer focus.

Reflecting on the aims of this piece of research, I feel that they were acheieved. I was able to determine with clarity what management systems the organisations have in place and also to what extent they incorporated the set of proposed principles. With respect to the motivation for having a system and the benefits the organisations were gaining, I concluded that with the exception of organisation C, the findings systems were in place for conformity rather than to provide any specific benefits.

The research has provided me with tangible evidence that the majority of organisations have a system in place, however many are unsure as to why. It is difficult to understand why someone or some business should extend themselves to have something in place that is not realising value, adding benefits or improving performance. This generates the question why bother? Without being too direct during the interviews it became obvious from discussions and answers to my questions that the majority of interviewees **live with** the system, rather than the system **lives for** them.

Chapter 8: Reflective Practice and
Contribution to the Profession

8.1 Aim of this Chapter

In this chapter I reflect upon and discuss my contribution to the profession. This contribution is based on the evidence presented in the Portfolio which focuses upon the development of the CMS and the six principles I propose as necessary for a successful management system. In relation to the six principles, I also discuss the importance of the supporting tools I introduced and implemented within organisations. These tools, which are the core elements of the Portfolio of evidence, were employed to facilitate skills development and culture change and to achieve the successful development of the CMS.

8.2 Reflective practice

In commencing my reflection of my achievements, I followed the four strategies identified by Tenni, Smyth and Boucher (2003). These are creating good data, involving my supervisors (regular meetings), discuss different theoretical constructs and finally the need to take personal risk. I also acknowledged the work of Yano and Tsoukas (2009) who state that reflective practice *"is an activity intended to explore other ways of seeing things".*

Initially my research and reflection was influenced by the analysis of my Storyboard, Chapter 4 which in effect encompassed the requirement for autobiographical reflection identified by Taylor et al (2002). Further research into reflective practice revealed that my style of reflection is Active Reflection. In direct association with the findings of Seibert & Daudelin (1999) *"Active reflection is ongoing, unplanned, and immersed in the experience that produces it."* They go on to state that active reflection happens away from work as well.

The area of reflective practice is something that most managers undertake as part of their day-to-day life, as is their personal development. They do not however have much requirement to document such activities as being a specific aspect of their performance. Quite often the action of managers is termed as skilful and whilst it will have involved a great degree of thought, it is often difficult to determine what the exact mix of skills has been. In fact Schon (1991) confirms *"skilful action often reveals a knowing more than we can say."*

The majority of my management experience and practice has been project based. Consequently much of the reflective practice is of a type that Schon describes as reflection-in-action. He notes how many practitioners relate to knowledge and display skills they have gained without being able to describe them. Seibert & Daudelin (1999), however, suggests that "*Reflection- in-action occurs in situations of uncertainty, instability, uniqueness, or value conflict."*

In project management I would argue this is not the case as reflection is often used as a tool for improvement. The latter part of my career has been specifically involved with business improvement positions in which lessons learnt and best practice have been key elements. This involved many review sessions both individually, as a group or as a facilitator. Whatever model was used to undertake such reviews, they had the same core four elements: plan, do, check, act.

A key feature of such reflection is the existence and use of feedback. Seibert & Daudelin (1999) states, *"Feedback is information resulting from action. When action produces feedback, managers have something useful to reflect on to make sense of their actions."*

The ability to give and receive feedback to the best advantage is difficult. For many recipients it is viewed as criticism and tends to be ignored. The provider also has to have a sense of perception as often the feedback refers to the results of actions of which they may only have partial knowledge. A prominent characteristic of my personal development was generated from the training courses I attended during the Britannia Project; particularly the facilitation

courses. One essential element of these courses focussed on feedback. As well as my individual benefit from these modules they were replicated in the training courses I initiated throughout the company. This allowed a framework for feedback to become a day to day experience, which people became familiar with and also used very effectively.

8.3 Quality Management Systems

My experience of, and exposure to, quality management systems has generally been in association with those which have been developed in accordance with the requirements of a current ISO Standard. My detailed interest and knowledge of QMS have been associated with the IMS, CMS and DPMS. Changes to the current version of ISO 9001 standard published in November 2008, would have little effect of the bulk content of the CMS. Hunt, Robitaille, and Williams (2008) explain that the changes to the 2008 versions are mainly for clarification, therefore it can be accepted that the CMS remains a contemporary system.

There is a wide range of quality management systems in existence, the majority of which have been developed by organisations for an assortment of reasons. QMS development however is not restricted to the ISO standard route as there a number of proprietary and bespoke systems developed and implemented by organisations which are underpinned by alternative methodologies. As discussed in Chapter 2, in addition TQM Deming (1986) , ISO Standards and EFQM Hawkes (2007) there are two other widely used system frameworks, Six Sigma, Jiju (2007) and Balanced Scorecard, Kaplan (2020). Whilst the adoption of these systems is global, neither system can be adjudged to have a standard model or indeed a framework which would allow them to be recognised as assessment models.

8.4 Contribution to practice

My work with the CPI group on the Britannia project provided me with the opportunity to develop several key initiatives initially with respect to the fabrication elements of the topsides. Most of these initiatives I developed

further across facilities of Kvaerner Oil & Gas and they became embedded core elements of company business operations. Brown Papers became a prime constituent of the IMS development and became fundamental to the major change programme, First Choice.

During the formation of the new organisation, the innovative framework I had introduced to the company through my work on Britannia was to realise major driving changes. Founded on the new behaviour patterns generated by the TJB training programme and utilising the support network of facilitators I had introduced, the First Choice Programme was recognised as being a benchmark of transition methods for the industry. The methodology was transferable and was used several times within the execution of major projects with oil and gas, marine and petrochemical industry sectors. This was undertaken with the UK and also internationally.

The Lessons Learnt scheme I introduced to record improvements in fabrication methods realised wide spread interest not only with the Britannia Topsides but moved further into the Britannia Development. Once adopted throughout the project, such success was acknowledged by the oil & gas sector and became the subject of the CRINE Conference. It was during this conference I had the opportunity to share my experiences and provide many sector businesses with the awareness and opportunity to adopt best practice methods I had developed as an embedded constituent of their future operations.

During the development of the CMS it was evident that many of the initiatives I had introduced into business over a number of years, had established the foundation which underpinned the culture and performance of the project team. These were Brown Papers, TJB Training Plan and the IMS included in the Portfolio. It was of benefit that many of those who had worked on the system construction and development had experienced previous exposure to many of the tools. As several key members of Saipem Energy International were ex-Kvaerner employees there was a significant advantage as they were not being asked to start from scratch.

Many of the elements discussed in Chapter 4 are key elements of competence which I developed and introduced into projects and the profession. A number of these are included within the portfolio, where further details of specific contribution to practice are detailed. However there are a number of key elements which I would argue had a substantial effect in changing the culture of the company to one which encouraged business improvement.

In turn there are a number of issues which allowed an improvement culture to thrive and tools to effect applicable change. These elements and tools also have a direct connection to the six principles upon which this work is concentrated. The attributes of the CMS are discussed in Chapter 6 and provide evidence that the system fully encompassed the six principles.

	Principle					
	1 Simplicity	2 Adds Value	3 Continuous Improvement	4 Value Based	5 Empowerment	6 Team Culture
Contribution to Practice						
1 Brown Papers	✔	✔	✔	✔		✔
2 TJB Training Package		✔		✔	✔	✔
3 Lesson Learnt	✔	✔	✔		✔	✔
4 CRINE Conference		✔	✔		✔	✔
5 Peer Reviews		✔	✔		✔	✔
6 First Choice Programme		✔	✔	✔	✔	✔
8 IMS		✔		✔	✔	✔
8 CMS	✔	✔	✔	✔	✔	✔
9 DPMS	✔	✔		✔		✔

Figure 8.1 Contribution to practice - comparison to Principles

It is possible to therefore to determine which key tools used in the system development are associated with which each principle. Figure 8.1 indicates the corresponding connections between these tools included in the Portfolio and my six principles.

However it is would not have been possible to complete the CMS using these tools alone. There needed to be significant input and commitment from senior management to ensure the company objective of introducing a system was achieved.

Having experienced the advantages of the IMS in use at Kvaerner, I was able to convince senior management and line managers of the benefits the CMS would bring. The underlying principle was that the company was new and needed to develop a management system. Having experienced the advantages of encouraging new working methods which were documented in the IMS I was able to exploit the initiatives I had introduced to achieve this result.

8.4 Summary

My style of reflective practice is what Schon (1991), describes as reflection-in-action. Using this principle, I would propose that when reflecting on the successful development of the CMS I can attribute the contributions made in two ways. One is the contribution of specific tools which help the users to process map activities and identify improvements. These are for example Brown Papers, Peer Reviews and Lessons Learnt. The other type concerns the culture of the organisations or businesses. The introduction of the TJB Training Plan and the IMS were key activities which helped introduce a change in behaviours which supported the successful introduction and use of the practical tools used.

The significant contribution to both company and sector of this work is that users of the system were not only encouraged to identify improvements, they were provided with the tools and opportunities to *deliver* the improvements.

This had not only a cultural benefit but provided significant improvement of performance both from a practical and economic perspective.

The overall contribution of this work may be considered in two areas:

- ➢ I have developed a set of six core principles, drawn from my own experience, which I propose are necessary for the development of a management system. I have reviewed the relevant literature and undertake qualitative research, which have further supported these principles.

- ➢ I have demonstrated, through the CMS, that a management system which is based on sound principles of good management, such as my proposed principles, can generate significant positive culture change within an organization, accompanied by significant improvements in results and performance.

Chapter 9: Conclusions and Future Work

9.1 Review of Principles

The project has been an exploration of my professional experience and developed a set of fundamental principles which I propose lie behind any successful management system. My work has provided evidence that an empowered team which understands the corporate values and objectives can develop a management system which will satisfy all of the six principles. It was also evident from the qualitative research in chapter 7, that several of the systems researched are not as effective as they could be. The results of that research suggest that this is due to the lack of integration of the principles.

Throughout the research I have reflected upon and explored the six principles which I initially proposed. The literature review present in chapter 2 supports my proposal that these principles are necessary foundations for an effective management system.

I believe my findings demonstrated that the six principles are necessary. Furthermore, contrasting the CMS, and to a lesser extent the IMS and DPMS, with the systems in place within the organisations surveyed in chapter 7, has shown that a system developed using the principles can be effective.

In self examination at this stage, I determined that a system should be based upon core corporate values, visions and objectives if maximum benefit was going to be achieved. This naturally led to how all this could be achieved. Again my experience prompted me to propose that management sponsorship and empowerment would lead to a team culture which in turn will support the development and maintenance of a management system.

As a result of the research and reflection for this project I now have a firm belief that whilst the six principles are necessary constituents of a successful management system, the derivation of them stems from a different source. I

also argue that there is a natural flow of the principles when considered from the evidence assembled. My thoughts therefore are as follows.

Organisations, almost without exception, have a Vision or Mission. From this a series of values, objectives and targets are developed which underpin the organisation's ability to achieve its top level aspirations. The development of these values and objectives is generally completed initially by senior management. Once completed senior management then communicate these core elements down through the organisation empowering others to expand the employee contribution. When management embark on such activities this can be deemed as empowerment and will lead to a team culture.

A natural step from this is the opportunity for team members to document work processes and procedures simply and effectively. By encompassing corporate values and objectives and, where possible, identifying improvements the system is therefore adding value. Regular reviews of the system will generate continuous improvement. This was the methodology adopted by SEI and Deep Panuke in the development and implementation of their management systems, the CMS and DPMS respectively. As a result we have a continuous cycle reflecting the Business Diamond, (see Figure 4.8), Hammer and Champney (1994) and the Deming/Shewart Cycle (see Figure 3.1), Langley et al (2009).
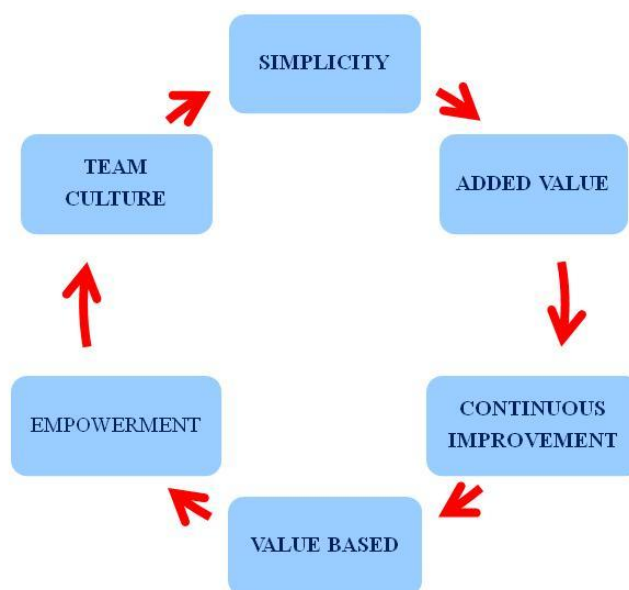
Figure 9.1 - Key development stages of a Management System

In summary, the flowchart shown in Figure 9.1 indicates the development steps of a management system in accordance with the six principles. At times during the research I considered the merits and characteristics of the principles many times. This was through a literature review, system research, personal experience and reflection. During such considerations I examined the validity and strengths of each principle and ultimately judged each to be essential in system development.

9.2 Future Work

There are three elements of future work which I can identify having completed this project.

- ❑ CMS upgrade and marketing
- ❑ Research of the falling number of UK ISO certifications
- ❑ Easier accessibility to quality management systems for SMEs

9.2.1 CMS Upgrade and marketing

The requirement to upgrade the CMS is evident primarily as result of software development over the past years. If this is completed, then a marketing strategy as suggested in the Leighton review can be considered. Contact has been made with one of the coordinators responsible for the CMS IT development who confirmed this is achievable. Therefore I will revisit the possibility of re-launching the CMS as a stand-alone product. Consideration will be given to the licensing of consultants to use the CMS model when developing systems for clients.

9.2.2 Research of the falling number of UK ISO certifications

The revelation of falling numbers of ISO accreditations in the UK is surprising. The introduction by ISO of the updated version of the standard has witnessed increased certifications globally with the exception of the UK. I have included several possibilities for this scenario following limited research. The scope of research to establish the reasons for the variance was too great to complete as part of this project. It is in fact a research topic in its own right and I am

surprised that it has not been addressed before now. The requirements to establish the fall in certifications is paramount if we are to understand the future stability and use of the standard in the UK. If the decline continues what are the implications overall? A widening of the gap between client and customer is not considered a satisfactory outcome of the upgrading of the standard which was introduced as a vehicle of improvement.

9.2.3 Easier accessibility to quality management systems for SMEs

The need for clearer, simpler access to quality management systems is fundamental if SME's are to develop. At a time when the global economy is in decline most stakeholders and government agencies are implying that business needs to be ready for the growth period which will follow. The introduction of quality management systems into SMEs should be made as easy as possible.

There is sufficient evidence in analysing the CMS development to justify that a simple approach to system development for SMEs should not be too great a task. Many however are put off by the prospect of engaging expert help, usually offered by consultants. The potential cost of implementing such systems cannot be accommodated in many SME business plans. There is an opportunity to develop a framework of the CMS structure which could be easily populated by SME's and large business alike, without the need for significant capital outlay. Discussions are ongoing between TVEP and other regional engineering cluster organisations to investigate the possibility of introducing a simple model which will allow SMEs to develop their own systems. This will possibly encompass the future marketing of the CMS as described above.

9.3 Contribution to Research

In completing this report I have undertaken research into management systems from a number of differing perspectives. Whilst individually each element of the research is a valid contribution, collectively their synthesis provides evidence to support the proposal that adoption of the six principles:

Value-based, Empowerment, Team culture, Simplicity, Continuous improvement, and Added Value; is core to the successful development of a management system. In summary this work makes a contribution to research in four respects:

Research into professional practice. Broadly this piece of work demonstrates the value of undertaking a research project which is located within professional practice, and yet grounded in significant primary and secondary research.

The six principles. The research has derived six principles (Value-based, Empowerment, Team culture, Simplicity, Continuous improvement, and Added Value) which; it is proposed, are core to the success of a management system. The value and validity of the six principles has been demonstrated through reflective practice, exploration of the literature, a case study development of a system (the CMS) and a qualitative study. The six core principles are novel and have broader applicability than the oil and gas sector

The CMS. The development of the CMS has demonstrated the value to be gained by developing a management system according to sound management principles.

Value-based vs process-based management approaches. Finally the work demonstrates that a successful management system should be value (and culture) based, rather than process based.

This report thus makes a valuable contribution to the research of management systems both academically and specifically within the oil and gas sector.

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Part Two

Portfolio of Evidence

Table of Contents

Background

This portfolio supports and complements the content of the project report and has been referenced throughout the report accordingly. Whilst the report and this portfolio are stand alone documents, they are both submitted as key components in the partial fulfillment of the requirements for the award of the degree of professional doctorate.

The report has highlighted a number of core competencies which were key to my personal development and a selection of these have been assembled in this portfolio. The contents of the following sections include examples of my activities over a number of years and are offered as evidence of my qualifications and experience. Each element has been pivotal in the path of my self-learning and is recognised by senior management and third parties within the oil and gas sector as bringing a significant contribution to business and practice within the industry. As such this report documents the contribution which I have made to professional practice within the oil and gas industry.

Structure

The structure of the portfolio is designed to enable the path of my experience and knowledge to be easily demonstrated. The portfolio begins with a demonstration of how the Learning Outcomes requirements of the doctorate programme have been achieved. This is demonstrated by a cross referenced table in which each individual learning outcome is mapped against the project report and/or portfolio of evidence.

Following coverage of the learning outcomes, a series of sections of evidence has been assembled to provide clear demonstration of my personal development, achievements and contribution to practice. The sections follow a chronological order of my career and each has been assembled, and then reviewed, to ensure that bit demonstrates my personal contributions and achievements.

Finally I have included details of two conference papers which have been accepted for presentation at two international conferences. These papers summarise and present aspects of the research which I have undertaken within the doctoral programme.

Sections

Each of the sections of evidence are set out in several categories. These are:

> ➢ Description
> ➢ Points of reflection
> ➢ Contribution and/or impact to business
> ➢ Principles addressed

Following the description, each section is then considered against the programme learning outcomes. I then reflect to consider the contribution of the piece of work on professional practice. Finally commonality with my core principles is summarised within a simple table.

At the end of each section is documented evidence of my work.

In Section 8, CMS, there are a number of additional items. Firstly I have included a number of "screen shots" of the system in use. I have also added a brief description of the system structure and navigation. Finally in this section, I have included a copy of the Leighton Evaluation which forms a major part of Chapter Six of the Project Report.

Learning Outcomes

Ref	Learning Outcome	Location of Evidence
K1	Deep understanding of recent developments in their profession nationally and internationally	ISO Survey - Chapter 2 Sec 4 ISO 9001:2008
K2	Deep understanding of current theoretical frameworks and approaches which have direct relevance to their own professional context	Principles - Chapter 3 Reflection - Chapter 8
S1	Make a significant contribution to practice within their chosen field	CMS - Chapter 5 & Portfolio Sections 1, 3, 4, 8 & 9 Principles - Chapter 2
S2	Apply theory and research methodology within the workplace, and feel comfortable in integrating different approaches to address "messy" multidisciplinary problems in a rigorous yet practical manner	Brown Papers – Chapter 4 & IMS – Chapter 4 & Portfolio Sections 2, 5, 6 & 7 First Choice Programme – Chapter 4 & Portfolio Section 6 Refection - Chapter 8
S3	Recognise budgetary, political, strategic, ethical and social issues when addressing issues within the workplace	CMS - Chapter 5 & Portfolio Sections 6, 7, & 8 First Choice Programme – Chapter 4
S4	Reflect of their own work, and on themselves, and thus operate as a truly reflective independent practitioner	Project Report & Reflection – Chapter 8
S5	Present and defend an original coherent body of work which demonstrates, reflects upon and evaluates the impact upon practice which they have professionally made	Project Report Portfolio of evidence CMS - Chapter 5 & Portfolio Sections 8 & 9 Viva Examination

Section 1 - Brown Papers

1.1 Description

Brown Papers, a method of Process Mapping, were introduced into the Britannia Project at design stage. My responsibility within this project, whilst working with the Continuous Performance Improvement Group, was to facilitate the development of a series of Fabrication Brown Papers. Having been introduced as part of the Britannia Project, the adoption of using this powerful business tool became a standard feature within the organisation. It was extensively used across the group on subsequent projects and change management programmes.

1.2 Learning Outcomes

I strengthened my ability to design and implement a programme of action to develop these papers. The involvement of personnel from multi-discipline teams spread across the project generated a range of opinions. To challenge methods and processes detailed on the papers, high quality facilitation skills were paramount to ensure that the best project result was achieved. Sub-group meetings and research of best practice on other projects and other industry sectors sustained the integrity of the Brown Papers. (Learning Outcome S1)

1.3 Points of Reflection

The novelty of the brown papers was a major barrier to many individual's buy-in to this approach to documenting build methods. To many, it was potentially a major change management scenario and the potential devolution of control to others often led to conflict within the team. Project management had requested the use of this methodology to develop the overall process map of how the topsides modules would be fabricated. This approach soon became unpopular within the site project team as it was considered too detailed and challenges made at every step significantly hampered progress and promoted discontent. Future 'Brown Paper' development, necessary activities in Management

Systems development as noted in sections 7, 8 & 9, were completed in shorter more focused steps, building up to an overall document. This ensured challenges and improvements were easier to deal with and associated change programmes achieved a higher degree of success.

1.4 Contribution and/or impact to business

This was the first time that a 'Brown Paper' exercise had been used as widely as this within the oil and gas sector. As such its introduction represented a contribution to practice in the industry.

The 'Brown Paper' documenting the fabrication activities of the Britannia Integrated Deck Project was completed at the project headquarters located in Blackfriars London. The resultant 'map' illustrated a fully transparent build methodology available for all project personnel to review and challenge. Once completed, the 'map' was challenged and improved following a wider review by the resident design and fabrication teams. Once this had been completed the 'map' was transferred to the fabrication site at Port Clarence. Once there I held a series of seminars during which the concept of the 'Brown Paper' was explained to the local management and workforce. The delegates were then encouraged to review and challenge the paper and improvements and changes were taken account of.

An opportunity was extended to potential suppliers and sub-contractors to undertake a similar review of the 'map' with the intent to gain maximum benefit for all parties during the fabrication phase. This was the first time that TJB had allowed such organisations the opportunity to have access to detailed build methodology with the purpose of commenting for improvement prior to tenders being issued. This invitation was issued on the understanding that best practice would be selected for input into the tender documentation. In effect all suppliers and sub-contractors were encouraged to share best practice with each other rather than proceed with individual build methods included in their tender

responses. This ground breaking initiative was a prime driver in achieving the significant safety record, costs savings and man-hour reductions.

The use of the 'Brown Paper' exercise, developed a strong team culture across the business, empowered staff and had wide and longer term implications for corporate culture.

1.5 Principles addressed

1 Simplicity
2 Added Value
3 Continuous Improvement
5 Empowerment
6 Team Culture

PURPOSE OF BROWN PAPER EXERCISE
(SYSTEM RE-ENGINEERING)

- **To improve efficiency**

- **Release manpower to drive cost reduction programme**

- **Ensure maximum effort towards project objectives**

- **Simplify work processes**

- **Set metrics**

- **Ensure communication**

- **Ensure a quality product**

OBJECTIVE OF SYSTEM

- To produce a facilities design that we are sure will meet the "Acceptance Criteria" that can be procured and built at the minimum CAPEX.

TEAMS

- **Overall Accountability Chris**

- **Discipline Teams (All disciplines & functional groups):**

  - **Accountable person**

  - **Responsible person**

  - **Team as required**

- **Facilitator**

METHOD 1 (DISCIPLINE WORK TEAMS)

- **Brain storm how things are done now, collect information together (flip charts probably best media)**

- **Identify the back bone to the system**

- **Rough out the system on a large sheet of brown paper**

- **Prepare "stick-ons" with specific information, apply to brown paper show connecting lines**

- **Agree the brown paper reflects the "as is" situation**

METHOD 2

- **Ask for comment from everyone in Blackfrairs; request:**

    - **Is this what we have now**

    - **What are the things that work well**

    - **What are the things that do not work well**

METHOD 3

- Redraft the brown paper with any revisions to reflect the "as is" situation. Add notes regarding what works well and what not

- Ask for ideas from everyone in Blackfriars on how to improve

- Hold review meetings with small groups to identify how to do better

- Redraft the brown paper to reflect agreed improvements

- Ask for review and agreement

- Finalise and issue as complete

- Develop documentation to suit

STANDARD SYMBOLS

Input

Customer requirement (internal & external customers)

Task (calculation, drawing produce document etc)

Decision point

Application of allowance provision, set assumptions etc

Approvals, reviews, checks

EXPECTED ADVANTAGES

- **More directed effort**

- **More efficient cost reduction**

- **Higher quality product**

- **More efficient work**

  - **Minimum cost saving 10% of manhours**

  - **More certain and cost reduction (10 - 20% CAPEX)**

  - **Better quality product - meet acceptance criteria**

VALUE ENGINEERING

- Purpose of each activity

- Does it add value

- Cost realistic to value

- Where else could activity be done - possible synergies

- How could the cost be reduced

- What other solutions are possible

Section 2 - TJB Training Plan

2.1 Description

Following a series of successful training days for Management of the Britannia Project, consideration was given to provide an estimate of benefits which could be achieved if a structured team training programme was rolled out to the fabrication facility. After a series of discussions with senior management the TJB Training Plan was compiled, submitted and approved.

2.2 Learning Outcomes

As the key person for the training programme, my involvement was very much hands-on to provide support to personnel on the courses, designed and delivered by the nominated training company. Gaining knowledge and awareness of the strengths and weaknesses of personnel involved proved invaluable in my role of facilitating superior performance during the construction period. (Learning Outcome S2)

2.3 Points of Reflection

Whilst the training programme was deemed a huge success, had it started earlier in the project schedule, increased benefits would have been possible. In addition the selection of personnel involved was very much in the hands of yard management and tended to be a little too focused. The importance of team working is that everyone feels part of the team, which was not the case as a number of colleagues were not selected for the exercise.

2.4 Contribution and/or impact to business

The training programme increased the level of communication and triggered the development of an improvement culture within the project team and workforce. The opportunity for individuals to become more involved in decision making was a big advantage. Following the success achieved within the TJB training plan,

Britannia Topsides Management extended the scheme to include other alliance members and major sub-contractors.

Recognising the success of the programme within the Britannia Project, TJB senior management extended the programme to other projects and also to corporate departments supporting a number of business activities. The training initiative assisted the accomplishment of significant improvement in both personal and company performance and was credited as playing a major part in TJB securing several major contracts.

During the First Choice Programme detailed in Section 6, the core elements of the training plan such as facilitation and team leadership training were extended across the company and significant benefits were achieved as a result.

2.5 Principles Addressed

2 Added Value
4 Value Based
5 Empowerment
6 Team Culture
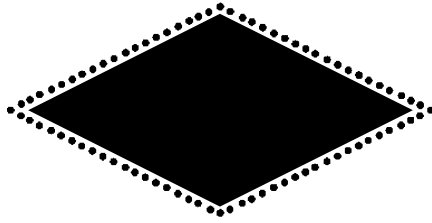
Britannia

TEAM WORKING at TJB

Together with the knowledge and input from both Blackfriars management and TJB corporate management, it has been possible to establish the methodology to be used to facilitate effective team working at site. Although it is not possible to identify specific individual's roles for the various activities at the moment, this has not restricted overall strategy development. We believe it sufficient to identify the levels of involvement with nominations of personnel to follow in due course.

During the preparation of this proposal it was considered necessary for P-E to have direct access to site personnel other than those they had previously dealt with in Blackfriars. This we believe provided another viewpoint of where we are in terms of effective team working and where we need to go. With this further research available, along with the corporate requirements it has been possible to evolve the strategy which follows.

It remains necessary however to continue research if we are to remain on course to achieve successful team working. This is considered fundamental to the success of the programme and for this reason the details of the report will remain fluid to allow further areas of improvement to be included as and when necessary.

Following detailed discussion on the content of the original proposal at the team working review meeting held at Lavington St. on Tuesday June 20th, and subsequent clarifications by TJB management the amended proposal is as follows. It is envisaged that final approval could be effected by Friday July 7th.

OVERALL APPROACH

Almost without exception the need for improved communication links between management and workforce is perceived as the underlying route to successful team working by all persons involved in the preparation of this document. As this view is shared by TJB senior management and is currently subject to implementation, within TJB, there is a head start available and for this reason the strategy could be considered pre-determined.

How we achieve improved information flow however is fully in the hands of all Britannia and TJB personnel. Particular emphasis will be placed on the current TJB management culture if we are to progress beyond team working levels enjoyed over the last twelve months, particularly those achieved on Andrew. It will be possible to make good progress in this area with the completion of facilitator training which will strengthen the good values of managing teams.

One item where we differ from the rest of the Alliance partners is in the area of supervision, as the only foreman likely to be in place on the project will be those of sub-contractors. Supervision within TJB is via superintendent level. We intend that quite a number of these will receive facilitator training and the remainder will attend the "foreman/chargehand" training modules.

The subject of structured skills training for operatives has been fully investigated and researched with the initial conclusion that it will not be necessary. Following the completion of sponsor, facilitator and supervisor training it will be possible to review with confidence the subject of team work training for individual operatives. Following this review the agreed levels for individual and team work training will be implemented subject to the individuals level of understanding of alliancing and the importance of team working.

The enlisting of operatives into the team work approach is recognised as being fundamental to the success of team building at TJB site however it is recognised that individual requirements will differ.

What has been considered is how this may be executed in the most efficient manner. The role of the facilitators will be crucial if we are to proceed correctly. It will be possible to identify requirements on an ongoing basis and specific needs developed in association with the total support of sponsors. This means that areas requiring input will receive focused attention rather than blanket covering which would probably satisfy some needs but would tend to leave important issues unresolved.

In assessing the level of activity, full consideration will be given to the potential gains and the priorities of the project at the particular time. This will avoid unnecessary disruption to construction activities whilst allowing full involvement of team members when the need is identified.

In tandem with TJB corporate policy there will be substantial advertising of Project details, current events, targets, planned methods, achievements and statistics. The method and content of this phase is described in further detail in following sections. This is one particular area that received complete agreement as to it's need from everyone consulted about team working. There was a particular request from the operatives to increase information flow and also to provide a higher profile of activities.

SPONSORS

The requirements of the main sponsor, Dick Chambers, have been of the utmost importance in the compilation of team working needs. His role in the successful execution is also regarded with the same importance because as Project Manager he does in fact lead the complete team. Without his direction and support, TJB will not be able to complete the team working activities.

Perhaps the single most important function of the sponsor with regard to these activities will be his ability to communicate effectively with all members of the team be they senior engineers or trade assistants. His dedication to spreading the word to everyone involved is of paramount importance.

The ability to be flexible in approach whilst retaining the objectives of the construction plan and directing the team forward will be critical. It is also important that the sponsor is fully aware of the content and progress of other alliance members team working activities as they too will have an effect on the events at TJB.

There is also a need for the sponsor to ensure that the full cooperation of other TJB management is available at all times as we cannot stand alone in this venture. For this reason we fully endorse the opportunity of identified managers undertaking a sponsors training day.

RESPONSIBLE

The day to day activities of team working will be managed by Mick Thurlbeck, the person nominated as responsible by the sponsor. He will be the link between the sponsors, facilitators, project team, TJB corporate and other alliance teams. He has a direct responsibility to ensure that all team working activities are executed fully and promptly providing maximum benefit to the alliance and TJB.

He has access to and will call upon support from the Topsides Construction Manager whenever the need is identified. The opportunity to receive back up from Blackfriars based management is considered essential to reinforce the high profile of team working within the construction site.

He will coordinate the selection of candidates for training, liaising with the sponsor, TJB management sponsors, P-E and sub-contractor representatives providing a balanced selection of skills, experience and trades

FACILITATORS

The implementation and success of the team working strategy will hinge primarily on the performance of the facilitators. Provided with structured training these people will develop methods which will allow them to ensure the teams are working to the

maximum efficiency. They will also be responsible in making people aware of the initiatives available and will use there own skills together with those developed on training courses to do carry out this function.

The first seven TJB personnel have been nominated for facilitator training and form part of the initial groups currently programmed. Further nominations will be made progressively as the team begins to be formulated. We consider that there will be probably a further 10 to 12 from TJB although we suspect there will be an advantage in some of the major sub-contractors nominating potential facilitators. This will probably bring the total number up to a maximum of 25.

FOREMAN/CHARGEHANDS

Although not sharing the same job titles as other alliance members a need for TJB supervision to undergo this training module has been identified and agreed. The selection of candidates will be carried out by the sponsors from superintendents, engineers and working chargehands. There is also the need to make this training available for sub-contractor personnel as they do have a strong presence of foremen and chargehands. (Numbers and levels have yet to be identified and are therefore not covered in the cost sheets attached)

TOOLS TO USE

Together with the training provided the facilitators will have at there disposal additional tools to be utilised in their function. These will contain, but will not be limited to, Brown Paper Exercises, Document reduction Initiatives, Synergy's, Management of Change and in the area of sub-contractors the BSQI.

These tools together with the increase in flow of information will provide all the necessary ingredients to allow TJB to fulfill their team working objectives. There is of course a definite need for a framework or system to be implemented which will allow a response from the operatives. The corporate opportunity for Improvement scheme, OFI's, is one a method but will require significant increase in usage if we are to realise our goals.

SAFETY

It has been recognised that the subject of safety during deck construction has very close connections to that of team working and because of this safety aspects will be an important feature of team working activities at TJB. At no stage will safety standards be compromised during the search for greater construction efficiency.

It is accepted however that safety management will become a feature of high profile during team working sessions as we strive to achieve the safety targets already set out.

IMPLEMENTATION

The implementation of the team working plan can be considered to have started in that we have already had candidates on the pilot facilitator course. However with the increase in manning on the pre-fab contract imminent it will mean that we have to accelerate quite rapidly in the near future.

The first activity we will have to perform is to provide an introduction to personnel currently on the project team. We are aware of the content required in this module but we still need to finalise the actual format with several interested parties before we can proceed. To progress this issue there is a proposal to finalise the content and format at Blackfriars on July 7th.

The location will allow input from persons responsible for Topsides training as well as gaining an input from the Blackfriars induction module and TWINE. This will allow a pilot to be run at site on 10th July. This introduction session will be additional to the TJB corporate induction course.

Following the receipt of feedback the module will be modified if necessary and made available for presentation as required. It is perceived this module will be adaptable for all sites and sub-contractors.

At around the same time as this module commences at site it is the intention of the sponsor to implement a "mail shot" to all potential Britannia employees with the view to providing information regarding the contract.

Along with published material such as fact sheets, etc. there will be a questionnaire in which employees will be invited to submit ideas to the management team on areas they think could be improved. There will also be the opportunity to request further information if required. The wording of this questionnaire will be crucial as it will be the first contact with a lot of employees and will be their first chance of input to the project.

It will be necessary to promote team work and emphasise everyone has a role to play. There is only one chance to create the first impression so it must be right. Following the receipt of the completed questionnaires it will be possible to examine the contents and consequently further develop the areas to be improved. This will provide the initial scope for the facilitators.

Immediately after the mail shot we will be embarking on the introduction of construction information to the work force. This information will be in the form of the build method both narrative and isometric drawings. The construction brown papers will also be prominently displayed in an area which will allow 24 hour access. It is envisaged that these too will promote a lot of positive reaction from viewers and this will again be circulated throughout the management team for resolution. Prominent display of the

enhancements made to safety and quality requirements will also be encompassed in this area.

At prominent positions throughout the site there will be copies of the organisation chart together with pen photographs of the noted positions. It is considered important to inform people who is who and for what they are responsible. This has not been tried before and although not a direct criticism from the operatives it's absence can create a lot of unnecessary confusion during the construction phase.

Perhaps the most important action for successful team working is the system or framework to handle all the increase in communication we are all confident will be present. The training provided by P-E will no doubt be of benefit but it will remain the responsibility of all to welcome such information with an open mind and to evaluate it's content professionally.

Using routes such as OFI's and completed questionnaires will be a useful start but we must strengthen this route via the facilitators either through toolbox talks or formal sessions if required.

Initially the responsibility will be with Mick Thurlbeck to evaluate all suggested methods to deal with these matters and he will work closely with the sponsor to ensure the best method is selected for implementation. Adopting this constant monitoring will also provide a method of gauging performance.

SUMMARY

It is obviously too early to establish all the details of team working but what has been possible to date is to receive everyone's perception of how it will be best executed. Again we must stress that the advantage we currently hold is that all inputs were in agreement in that the communication lines have to be improved. Perhaps this will prove the easy part as providing information is easy. More difficult is developing a feeling of trust that it will be used in the best manner and installing the framework which will provide a two way system that processes the information correctly.

Although not new to TJB there will be a lot of feedback from the users of information as some people will be receiving this type of detail for the first time. A lot of what we have achieved so far is that we have all listened to each others ideas and managed to formulate a combined strategy to achieve our goal. This spirit of cooperation must continue if we are to achieve the success we are all striving for. Even in the face of criticism we must be prepared to change if the goals are to be reached.We are one team all working together. There is no room for "us and them" anymore. We have to act together and even when confronted with criticism or change we must remain single minded in our approach to team work. We will succeed but only with good team leaders and members.

Evidence to suggest that we can succeed in effective team working is available from the results of the reaction of personnel to the change in inspection methods. Following agreed changes to procedures the changes were fully explained to the inspectors and full support for their implementation was thus achieved. The further involvement of other concerned parties was reviewed and a cascading of the message was carried out to both direct and indirect users. This proved most successful and may well be repeated in other areas in the future.

The contents of this document are to viewed as an outline strategy and it must be appreciated that there will be constant improvement of detail through time. The attached schedule sets out the immediate targets but will be updated as soon as further details become available. It will be possible for example following the TJB session at site on 3rd July to agree on the exact format for the following months. At this time a monthly schedule will be developed to be updated each month and expanded in detail thereafter.

Team working activities is the ideal vehicle to educate the site team on the content of the execution plan for instance which contains information essential to working safely and effectively. The safety target is another example of how effective team working and change to practices can be achieved jointly thus ensuring information issued is actually being worked to rather than hoping the message filters through. It is therefore vitally important that the sponsor's assume their responsibility to ensure that any specific changes to their department or area functions are the subject of team working sessions and are thus made widely known to the Britannia team members in the correct fashion.

Section 3 - Lessons Learnt

3.1 Description

A Lessons Learnt – Best Practice programme developed to capture input from personnel involved on the Britannia Project.

3.2 Learning Outcomes

I instigated this programme to ensure the timely collection of improvement data identified during the execution of the Brown Papers and TJB Training Programme. I became aware of practices which were not within the scope of normal project execution and would deliver increased performance on similar projects. (Learning Outcome S3)

3.3 Points of Reflection

There was a level of doubt within levels of management as to whether this initiative was adding value to the business. This was directly attributed to a lack of awareness of project execution methods. Concerns were raised that personnel were operating outside the project plan and quality standards. Investigations proved this was rarely the case and was more a result of individuals demonstrating an awareness of best practice rather than disregarding instructions. This programme provided all personnel with the opportunity to share knowledge and best practice and became a key driver to establishing an improvement culture within the Company.

3.4 Contribution and/or impact to business

The strength of this programme rolled over from the Britannia Project to other projects operating across the company. A database of Lessons Learnt – Best Practice was published on the company intranet and was used by all departments to gain increased performance.

The results were a welcome input into project review and management and submissions included examples of good and bad practice. Previously such examples had regularly been retained by individuals or projects and knowledge transfer was not particularly good. Following the introduction on the intranet and having reviewed the content and quality being received, I became aware that the full potential was not being fulfilled. For example, blue collar workers and their supervisors did not have access to the intranet.

Following the success of extending 'Brown Paper' reviews to this group, I realised that major benefits would be realised if access was extended to more colleagues. Therefore I introduced an Innovation Scheme within the Fabrication Division of the Company which encouraged employees to submit ideas and suggestions for improved performance. The scheme quickly became successful and was subsequently transported throughout the Company. It became a prime constituent of the First Choice Programme detailed in Section 6. This was the first time such a comprehensive improvement scheme had been implemented within the oil and gas sector. The impact on corporate and team culture was considerable, with similar impact upon results.

3.5 Principles addressed

1 Simplicity
2 Added Value
3 Continuous Improvement
5 Empowerment
6 Team Culture

Britannia

LESSONS LEARNT - BEST PRACTICE

Discipline:	Selected from the list below
Lesson Learnt/Best Practice: (delete as necessary)	One/two sentence outline
Background:	Brief description of what was/ is the existing practice.
Methodology:	Best practice - what did we do to change the existing practice. Lesson learnt - what should we do to change the existing practice
Outcome:	Best practice - What was the outcome of our efforts Lesson learnt - what is the predicted outcome if we change existing practice
Remarks:	Best practice - what further effort should be made on the next job Lesson learnt - what obstacles would prevent us from changing existing practice for the better on the next job.
Author:	Name, position and company

Disciplines: Structural and Coatings (include. Fireproofing)
Piping
E & I
HVAC, Architectural and Insulation
Mechanical Completion and Commissioning
Procurement, Materials and Suppliers
Quality
Safety
General
      Management, Alliance, Eng. Constancy,
      Planning, Documentation

Section 4 - CRINE Conference

4.1 Description

Paper delivered at a Cost Reduction In the New Era, CRINE, was an oil and gas sector initiative. The CRINE conference, Sharing Britannia's Success, was a major sector-wide event designed to raise awareness of best practice.

4.2 Learning Outcomes

In preparation for delivery of my papers, I researched the true effects of the Alliance values on the Company and workforce. It was enlightening to understand the differing opinions of what was deemed a success. (Learning Outcome S1)

4.3 Points of Reflection

In collating the information to describe the people development presentation, I identified that we had great success in our achievements of superior performance due to many different initiatives. Evidence included in the Brown Papers, TJB Training Plan and Lessons Learnt, Sections 1, 2 & 3 were fundamental in these successes and left a legacy for future achievements. It is evident that later developments within the Company particularly the major change programme would not have been achievable without the culture change which each of these initiatives, for which I had been the prime driver, had generated. It was also evident working with the other keynote speakers that the overall success of the project was attributable to similar improvements in people behaviour, management techniques and system development in all areas.

4.4 Contribution and/or impact to business

Being invited to speak at the CRINE conference was a formal recognition at the time of my influence upon team culture within the oil and gas sector. The event was set up to disseminate best practice to the sector, and my paper was

designed to focus upon the success which we had achieved to date by applying good management practice.

The successes gained through this enabled the company to secure several key contracts to follow Britannia. The conference allowed our knowledge and experience to be shared and implemented more widely across the oil & gas sector. As a direct result of the CRINE conference, I was responsible for introducing a number of benefits and successes realised at Britannia to Kvaerner Oil and Gas and other projects. For example the training programme and package engineers initiative were adopted by the Triton and Elgin/Franklin projects respectively. The Lessons Learned programme was rolled out as a companywide innovation scheme.

I also submitted several award applications reflecting these initiatives of behalf of the company. We were successful in winning the British Safety Council, Northern Offshore Federation, NOF Training, NOF Export and Royal Society for the Prevention of Accidents, ROSPA Gold awards and in 1997 were declared the Teesside Company of the Year.

4.5 Principles addressed

2 Added Value
3 Continuous Improvement
5 Empowerment
6 Team Culture
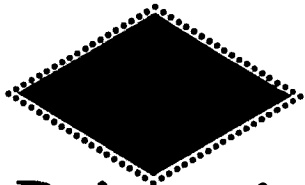
Britannia

Sharing in Britannia's Success

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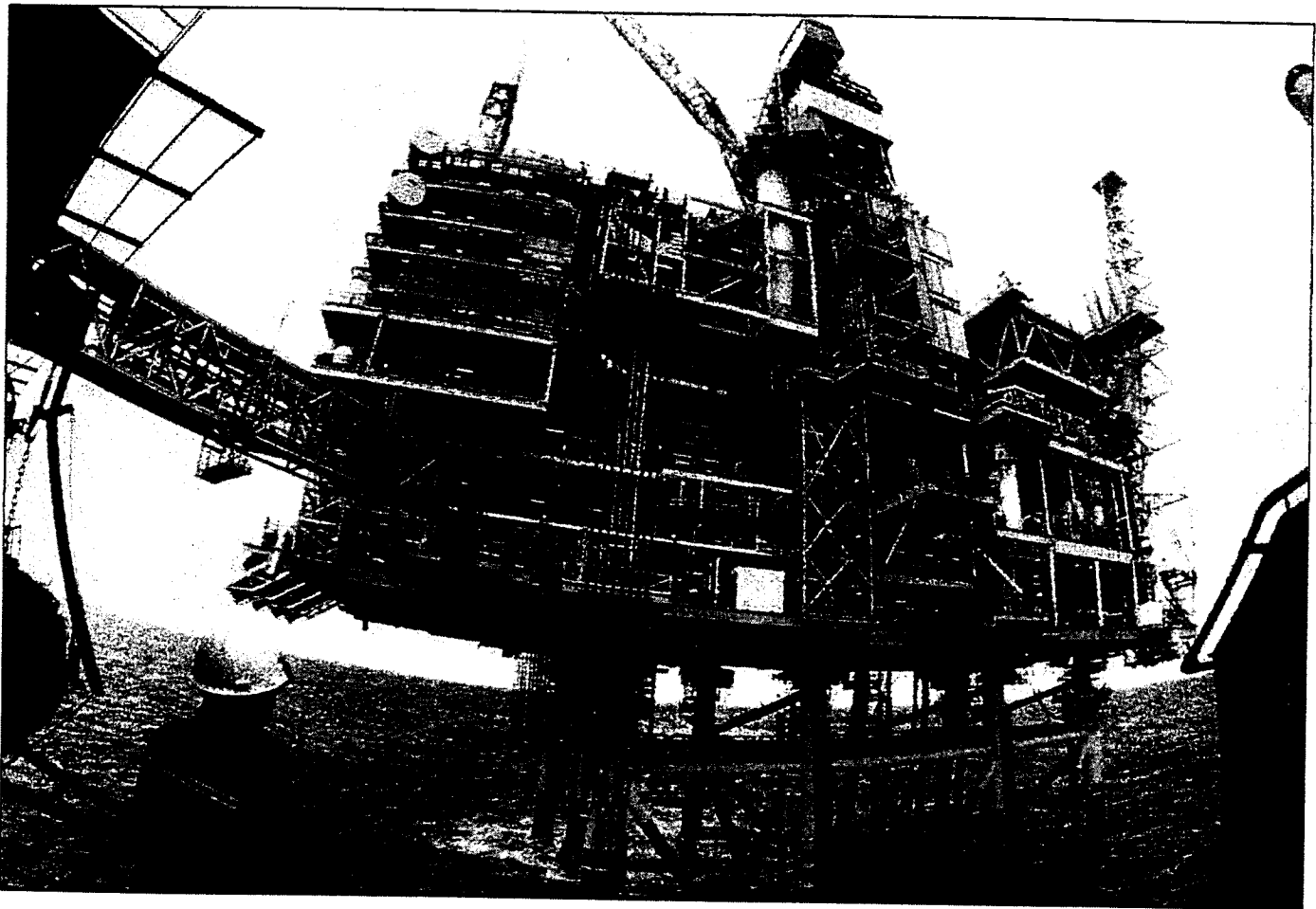
LESSONS LEARNT

Chevron

(CONOCO)

BRT-1698

Britannia

Presentation

Transcripts

Lessons Learnt Workshop

21st May 1998

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People Development	Mick Thurlbeck
Procurement Policy	Rene Genillard
Supplier Experience	Roger Morris
A Bulks Perspective	Chris Lacey
Building Availability into Subsea Systems	Jeff Smith
Design Fabrication Interface	Derek Harwood
Integrated Operations	Tony Lazell
Closing Address	Syd Fudge

Whilst the last section of this trilogy on team effectiveness is specific to the Kvaerner Oil & Gas Fabrication Team, many of the details are applicable to other Topside Alliance member companies.

To discuss how we increased team effectiveness and set about developing a personnel development programme, let me first introduce you to Clarence.

He is typical of the workforce at Teesside. Good looking, hard working, eager to please and keen to learn.

He and his colleagues were looking forward to the challenges of completing the construction of Britannia's 11000 tonne Integrated Deck.

Before they could proceed, first we had to establish the workscope and then agree how we could best complete it. This we did by constructing a series of "Brown Papers".

This method of process mapping was used extensively on Britannia Project.

By assembling a multi-discipline team it was possible to map out the key activities we needed to complete, in order that we could achieve our stretch targets.

Working with early information supplied by the procurement and engineering group, we completed the papers to a high level of detail and then commenced presentations to these and other groups. Many challenges were made to the methods and logic proposed at this stage and a great deal of energy was expended to successfully achieve innovative resolutions to these challenges.

The papers were then taken to the fabrication site and presented to Clarence and the workforce, potential sub-contractors and suppliers. This enabled everyone to be fully aware of all aspects of our proposal some three to four months before work began at site.

This proved invaluable, as not only did we receive further challenges from in-house personnel, but it also ensured that all suppliers and sub-contractors would be bidding against detailed, accurate information. They too were encouraged to challenge the proposals and many did.

In my opinion this activity was a major catalyst in achieving superior team performance which was fundamental to our success within the Topsides Alliance.

But how did we get there?

How did we start?

First of all we supplemented the team at Blackfriars with the right man for the job, not just a project manager and a couple of project engineers.

We took design and supplier personnel to site allowing many, first time access to see how great a task we faced.

Sub-contractors played a crucial role at this stage both with their input at Blackfriars and their willingness to integrate fully into the Fabrication Team.

Everyone was encouraged to take the best route and not to hang onto personal wishes. It had to be a "best for Britannia approach", this way everyone would win. We tried at every point to do things different, not always possible, but always considered.

We even took time to get to know eachaway from the office. Learning of peoples interests outside of work was extremely fruitful in establishing relationships.

For example we even discovered that football, rugby and cricket existed south of Leeds. We had previously thought that horse riding, fox hunting and antique collecting were the only favoured pastimes in the South.

Many many functions took place, the majority organised and funded by the troops themselves, not management and these events frequently raised huge sums of money for Children's Charities.

It was becoming obvious that the introduction of a structured team working programme would return

With my apologies to Camelot I have borrowed the lottery balls to illustrate the structure of this programme..

It is important to note that we utilised the services of external training consultants and the programme specification was written to suite the attendees NOT the trainers.

There were six elements to the programme, the outline of which was developed by 8 sponsors drawn from site management. Although focused, the programme's success was based on it's ability to remain flexible, thus catering for all needs. The delegate list included representatives from all levels and from all departments and importantly including sub-contractors.

28 people completed a four day facilitators course and a further 32 completed a two day team leaders course.

From these two groups, 34 were later selected to complete a presentation skills course and 37 a Train the Trainer course. This achieved wide spread personnel development throughout the remaining site team via in-house courses and tool box talks, etc..

Safety is always a major concern at site. However Britannia was to be different and a new approach was adopted. The red ball signifies that 969 shopfloor employees attended a 1 day measurable safety course. The success of this course was indeed a welcome and very effective bonus.

So what other results came out of this overall programme?

There were many benefits to follow on from the training programme, perhaps most notably the use of an integrated plan. The use of a single plan led to a culture development where information was readily available to whoever needed it. There remained through out the opportunity to challenge and improve. It is much, much easier to achieve stretch targets when you are aware of the big picture.

Talents were fully utilised and every opportunity was taken to ensure that the right man was in the right place at the right time. Frequently site engineers, not management, attended design and procurement meetings. Sub-contractors representatives often attended meetings on our behalf allowing first hand technical discussions to take place.

Superintendents took part in the presentation of the Rev B package in London.

Further use of Brown Papers meant it was possible to identify internal customers and suppliers together with clear definition of their needs. Particularly in areas such as design deliverable schedules, document distribution and material delivery requirements.

Sounds too good to be true? It was very hard to achieve and it did take a long time. Too long for some, as there were threats to the success of this site culture change.

Why? There are non believers present wherever there is change and the fabrication site is no exception. Fortunately we had enjoyed a head start following on from BP Andrew, but it still took a lot of effort to further reduce the minority.

There were people who failed to come to grips with the rush of changes merely because too many years had been spent doing the same thing. They tried, but some found it all too much . I am happy to say that most have persevered and are slowly coming to grips with the new regime.

Many of the things we were attempting were not British. Ask yourself - how many times you have been exposed to situations where people stop and think how can we do this better? Is it as many times as you have sat in terminably long meetings discussing how it went wrong again and how will we fix it? As a further example, how many of these sessions have you been to?

The process is far from quick so therefore it gets in the way of the day job and we all know what happens then. Managers develop an allergy to it. It becomes the 'Emperors's New Clothes'. Management can also have initial difficulty empowering people to review practices in place. They feel uncomfortable allowing others to question their well honed methods which have stood the test of time particularly when they have schedules to maintain.

We can still improve and help remove some of these

We could start training earlier. Although an outstanding success, I often ponder what we could have really achieved if it had commenced six months earlier. In the design programme infancy, instead of during the peak workload, often after many crucial decisions had been taken.

In achieving earlier team awareness and having identified the need for each to play their part, we would have listened more at this early stage instead of protecting our patch, as if we were lions roaming the African plains.

This protection was not an act of bravado but more nervousness of the consequences and this in effect did not promote a "Best for Us is a Best for Britannia approach".

We certainly created a heritage that encourages people to challenge methods and practices. Next time though we will be more constructive and not merely say "That doesn't work".

Most people search for what they expect to find. They seek only information which will satisfy their anticipated conclusion. High achievers however will gather information from all quarters and use it effectively despite the fact it may contradict and even highlight errors in their plans.

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I would like to conclude on a positive note and will do so with this final slide.

Whilst it is recognised that the development of personnel at the fabrication site and their sub-contractors was very successful, I suggest it is not only the individual that wins. By improving personal performance team performance increases.

In lots of cases individuals played for different teams on different dates. Most of the teams demonstrated they were the best in their division.

This final slide highlights some of the successes gained by KOGL during 1997, most of which are a direct result of the collective individual success's achieved on the Britannia Project.

Section 5 - Peer Reviews

5.1 Description

At the request of the Topsides Manager, I was asked to Chair a Peer Review "Readiness for Onshore Commissioning". Responsibilities included the selection of the review committee direction of investigations, presentation of findings and recommendations for future actions. At this time the use of Peer Reviews was relatively new, and unheard of within the oil & gas sector.

5.2 Learning Outcomes

I had previously been involved in an earlier Peer Review, Readiness for Fabrication, so I was aware of the methodology of such reviews. However being chair of the review undertaken over a period of five days, was a widely differing task. In addition to completing interviews, I had to identify and implement additional research when points of concern or ambiguity were identified. This required strong leadership qualities and negotiation skills due to the infancy of the review team relationships. Despite my knowledge of project status, there was a great deal of new information to be researched. Such detail had to be considered, analysed and corrective actions developed and proposed.

5.3 Points of Reflection

The choice of participants of the review team whilst balanced in respect of Alliance partners should have been more experienced in fabrication than it was. This contributed to the gathering of data from interviews which in frequent cases were merely a collection of barriers to progress. Whilst identifying the barriers was useful in many respects, it became obvious when trying to seek resolutions that there were conflicts of opinion as to the seriousness of the potential effects of such claims. Also it would have been more effective if the size of the review team had been larger. This would have facilitated more time for interviews and problem solving and generated a more positive and detailed action plan. The

resulting recommendations were viewed by several partners as being 'yet another task' to an already increasing workload. The fabrication group however gained the advantage of early warnings of potential problems. (Learning Outcome S2)

5.4 Contribution and/or impact to business

The results of the review certainly were of benefit as it assisted the project to avoid many areas of potential delay and disruption to the schedule. Just as important was the fact the fabrication group viewed the exercise as worthwhile and alerted senior management to the potential benefits which could be identified through this process.

Utilising the facilitators who had received their training as part of Section 2, it was possible for the company to broaden the practice of Peer Reviews on follow-on contracts to good effect. This was particularly evident when the organisation completed the change programme 'First Choice' (see section 6) as teams were assembled to undertake reviews in differing locations.

5.5 Principles addressed

| 2 Added Value |
| 3 Continuous Improvement |
| 5 Empowerment |
| 6 Team Culture |

Britannia

Topsides Peer Review - Readiness for Onshore Commissioning

Purpose of the Review:

" To assess the status of the Topsides with respect to the scheduled commencement of onshore commissioning in October 1996."

Execution of the review:

The review, carried out at Blackfriars and the Fabrication sites at Teesside, is based on interviews with personnel from all levels of relevant groups.

Members of the Review Committee:

M Thurlbeck, TJB (Chairman)
W Howells, Chevron, London
I McKenzie, Nabors, Aberdeen

K Wiseman, AMEC, London
R Roberstson, AMEC, Aberdeen
P Church, SLP

Britannia

Topsides Peer Review - Readiness for Onshore Commissioning

Concerns

1. PCS delivery date

2. Commissioning Organisation and Leadership

3. Alliance culture and Leadership

4. Commissioning scope and procedures

5. Cost escalation

6. Access to, and accuracy of, Engineering Data

7. Outstanding design and equipment issues

8. Topsides management leadership

9. Previous Peer review recommendations not visibly implemented

10. Commissioning of the Integrated Deck will not start in December 1996

Recommendations

* Complete the development of the Integrated Commissioning Team

* TMT will empower the ICT to drive Design, Procurement and Construction forward

* Design, Procurement and Construction must support ICT and one another, in true Alliance spirit

* TMT to initiate follow-up audit within three months

Section 6 - First Choice Programme

6.1 Description

A programme to develop and implement a competitive strategy and consequential change programme to ensure the company was in a prime position to move forward in the changing market. I was appointed onto the Information's and Systems Team, responsible for Process Mapping and Analysis of Business Systems.

6.2 Learning Outcomes

The biggest learning outcome was the increased knowledge of the other business streams within the company. More importantly for me was the opportunity to understand each divisions work practices and operational methods. The transfer of knowledge was not as envisaged by senior management and regularly areas of improvement were identified. Undertaking the process mapping was helped by previous activities such as the Brown Papers and TJB Training Plan, Sections 2 & 3. The resultant maps also became a core driver to commence the development of the IMS, which is in evidence Section 7. (Learning Outcome S3)

6.3 Points of Reflection

The change programme identified and developed via this initiative coincided with a serious downturn in market opportunities. In hindsight, to totally realign the corporate structure at this difficult time was not a good choice. The programme was facilitated by a blue chip consultancy. Participants considered the methods employed and stages identified to be preset and standard delivery rather than being shaped to suit our company. Whilst I was one of the key players within the new organisation, gaining promotion to more senior position, some individuals were placed in positions which they perceived as less suitable, and could no longer function as required. It could be argued that if more time had been taken and a gradual changeover adopted, then the results would have

been different. Overall I consider there was too much change too quickly and insufficient research undertaken with respect to future market fluctuations.

6.4 Contribution and/or impact to business

The impact to business of my role was to ensure full transparency of business processes throughout the company and to identify key areas for improvement. These issues were approached when developing the IMS, Section 7.

I was also delegated the task of continuing the programme following the launch of the new organisation and continued to assist the Operations Management Teams in completing the review and improvement of their business systems. In doing so tools such as Brown Paper's were introduced to senior management who had not previously used them. After successfully using such tools many of the managers continued to use them after leaving the company. Such processes are now established within their work across the oil & gas sector.

I was thus influential at a time of major change, and the new management approaches which I introduced at the time were taken up by senior individuals across the sector. This work thus has a last effect across the oil and gas sector.

6.5 Principles addressed

2 Added Value
3 Continuous Improvement
4 Value Based
5 Empowerment
6 Team Culture

One Page Strategy
DRAFT 17/03/97

Goals for Stakeholders		
7 Continuous skills development	6 Growth in financial performance	5 HSE performance

Goals for Customers			
1 Superior performance on executing work	2 Innovative solutions	3 Value for money solutions	4 User friendly relationships

Targets
• here
• here
• here
• here
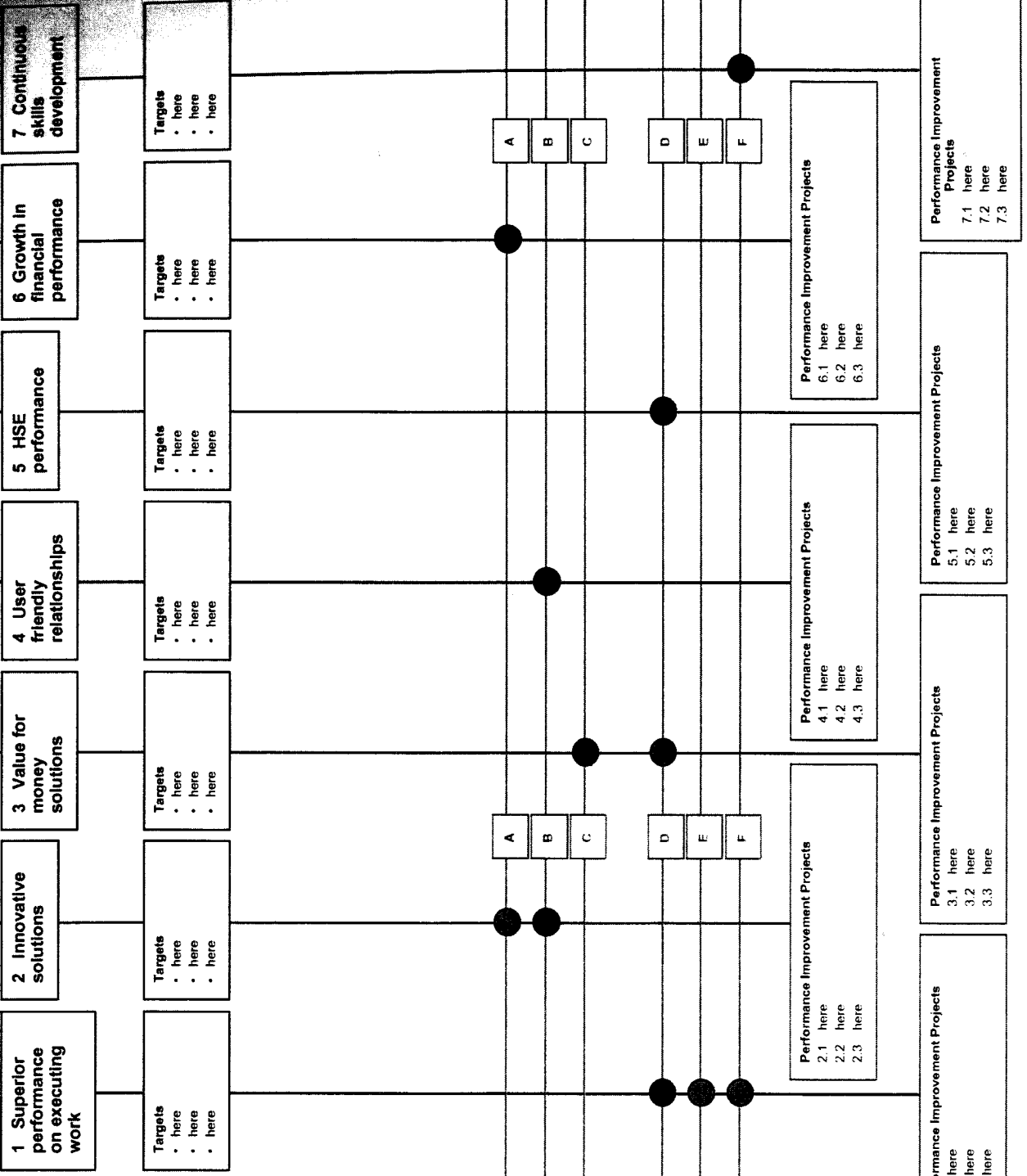
Dominant connection between Business Process Group and Goal
Subordinate connection between Business Process Group and Goal

Business Process Groups

A Strategic Management
Sponsor: SYD FUDGE   Core Team: John Weddell, Roddy McPherson, Owen Evans, Jim Rutherford
Themes
1.1 Managing the KOGL interface
1.2 Accountabilities and responsibilities within KOGL
1.3 Business modules - Structure of the business
1.4 Continuous review of Strategic Management Planning procedure

B Facing the Market
Sponsor: ALAN WILSON / NIGEL HIGGINS
Core Team: Tony Rae, Tom Gilchrist, Owen Evans, Mike Smith, Dave Hart, Alan Cownie, Stuart Lawton-Davies
Themes
2.1 CVP's
2.2 Bidding & Estimating
2.3 Identification of Opportunities
2.4 Relationship & Opportunities Management

C Development and Innovation
Sponsor: JOHN MOORE / HARRY NICHOLAS
Core Team: Mike Smith, Duncan McKenzie, Neil Campbell, Derek Holliday, Les Ramsey, Bob Lauder, Martin Moon
Themes
3.1 Getting upstream of the competitive process - working with operators to develop solutions
3.2 Increasing the scope of what we manage on behalf of the operators
3.3 Efficiently identifying and implementing these new technologies which will significantly improve "KOGL" business

D Operations
Sponsor: GEORGE MOWATT / SIMON HIGH
Core Team: Brian Colpitts, Graeme Swan, Pat Donaghey, Patrick Raffery, Phil Bailey, Clive Norman, Euan Cameron, Mike Davies, Dave Cram, Dave Blacoe, Phil Nunn
Themes
4.1 Innovative materials management to minimise overall project and whole life cost
4.2 Exceeding customer expectation through project management
4.3 Minimise time from sanction to production
4.4 Designed to be fabricated, maintained, operated and abandoned at least cost

E Information and Systems (DRAFT tbc 19/3)
Sponsor: PETER FOREMAN / ALEX DAWSON
Core Team: Steve Chatterton, Peter Holt, Andy Cumbor, Mike Thurlbeck, Duncan McKenzie
Themes
5.1 Process mapping / analysis of business system
5.2 Electronic communication KOGL intranet
5.3 Information dissemination and communication
5.4 Education and best practice

F People and Organisational Working
Sponsor: SUE BUSH   Core Team: John Shooter, Emma Goddard, John Kearney, Trevor Thompson, Brian Colpitts
Themes
6.1 Working Environment   Leadership & Management
                          Involvement & Communication
                          New deal - Contractual Relationships
6.2 Performance Management
6.3 Developing Competitive Capability

Performance Improvement Projects
1.1 here
1.2 here
1.3 here

Performance Improvement Projects
2.1 here
2.2 here
2.3 here

Performance Improvement Projects
3.1 here
3.2 here
3.3 here

Performance Improvement Projects
4.1 here
4.2 here
4.3 here

Performance Improvement Projects
5.1 here
5.2 here
5.3 here

Performance Improvement Projects
6.1 here
6.2 here
6.3 here

Performance Improvement Projects
7.1 here
7.2 here
7.3 here

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Goals for Excellence

Strategic Manag't Transformation Projects
A.1 here
A.2 here
A.3 here

Facing the Market Transformation Projects
B.1 here
B.2 here
B.3 here

Development Transformation Projects
C.1 here
C.2 here
C.3 here

Operations Transformation Projects
D.1 here
D.2 here
D.3 here

Information Transformation Projects
E.1 here
E.2 here
E.3 here

People Development Transformation Projects
F.1 here
F.2 here
F.3 here

ops-temp.ppt   Page 2

8 Risk management

9 Exceptional relationships with chosen supplier

10 Low cost / consistent quality

11 Exceptional management of contracts / projects

12 Leading edge technical expertise

13 Leadership and communication

14 Seamless Organisation

Targets
• here
• here
• here

Performance Improvement Projects
8.1 here
8.2 here
8.3 here

Performance Improvement Projects
9.1 here
9.2 here
9.3 here

Performance Improvement Projects
10.1 here
10.2 here
10.3 here

Performance Improvement Projects
11.1 here
11.2 here
11.3 here

Performance Improvement Projects
12.1 here
12.2 here
12.3 here

Performance Improvement Projects
13.1 here
13.2 here
13.3. here

Performance Improvement Projects
14.1 here
14.2 here
14.3 here

A B C D E F

Section 7 - IMS

7.1 Description

The development of an Integrated Management System, IMS, which documents the entire business processes and activities associated with the new company structure. Each Service and Operating centre, Executive VP's and CEO was identified as a Core Capability. Through an extensive series of workshops and meetings, all aspects of each capability were documented, challenged, improved and agreed.

7.2 Learning Outcomes

I considered this to be one of the most challenging and rewarding tasks in my career. I extended the network of facilitators within the organisation and commenced the development of the system which would encompass all management documentation. Adopting a high level appraisal of the development it was possible to merge the existing quality management systems into a seamless new IMS. The resultant system was placed on the company intranet allowing all staff to be aware and conversant with modus operandi of all sectors.

7.3 Points of Reflection

This was a time consuming programme, and the fact that it was often viewed as 'not for profit' by management affected progress in many areas initially. As with many programmes involving change there were disbelievers and often a feeling of mistrust. It was only as the new system became visible to potential users that benefits became apparent.

Similar procedures were merged and all processes were flow charted, thus providing visual understanding, increasing simplicity. Ownership of objectives and targets were made easier to identify. The system secured accreditation quicker than expected and had a strong content of improvement via process

reviews. Users generally accepted this methodology in favour of the strict regime of statuary audits, which had historically been viewed as compliance and conformance exercises. The system offered an opportunity to improve working practices which was welcomed by staff across the business. (Learning Outcome S2)

7.4 Contribution and/or impact to business

The design, development and introduction of the IMS was a major development and an exemplar for the sector. The system assisted the transition from five operating centres to the new company, and was successfully introduced with little disruption. The presence of the IMS ensured that the transition was seamless and allowed the company to retain its high profile and reputation within the oil & gas sector.

Personnel movements into a new area of the business often with a change of location benefited from easy access to the new system. Understanding of the business was eased by flowcharted processes; this early awareness of working methods ensured the new core capabilities had the ability to commence new tasks quicker than would have been possible with existing paper systems. Accreditation of the new system to the Standard ISO 9000:1994 was achieved within six months. This was a major personal achievement and had major impact for the business.

7.5 Principles addressed

2 Added Value
4 Value Based
5 Empowerment
6 Team Culture

Capability Overview

Human Resources recognises that the quality and output of our people is the only sustainable source of competitive advantage. The competence, commitment and adaptability of our employees will be the key factor in differentiating our business from the competitor and enabling the company to become the first choice provider of business solutions.

Human Resources provides a professional and consistent approach to people issues across the company, and creates a working environment where the full potential of all KOGL employees is harnessed.

The centre is responsible for providing the overall direction that the company needs in order to achieve its objectives through people. This will include support and systems which ensure we attract, motivate and retain the high-quality employees the new business will require.

Mission Statement

We will create a performance working culture throughout KOGL based on active participation to promote prosperity and progress for all employees and to enable the company to achieve its business ambition.

Core Capability: Human Resources   **Custodian:** Senior VP Human Resources

Expectations

The expectations placed on this capability by the company and its internal and external customers are that:

- An HR Strategic Plan is in place to outline the overall direction that the company wishes to pursue in achieving its objectives through people.

- KOGL attracts and recruits high calibre employees having the skills competencies and motivation to achieve company objectives on a continuing basis.

- Business objectives cascade into the goals and responsibilities of individuals and teams.

- We retain and motivate all our employees and are competitive in our market place.

- All employees have a shared sense of purpose about the direction and goals of the company, how these goals are to be achieved and the part that individuals play in the processes.

- A working environment is created where the highest standards of conduct are encouraged and provided.

- Team Leaders communicate regularly with their teams and promote an open and supportive working relationship with their teams in order to:

  - Create a culture which welcomes ideas for improvement and constructive criticism.

  - Establish a performance-oriented culture incorporating performance measures and regular feedback on performance as a feature of our working style.

  - Give employees responsibility for the quality and timely completion of their work.

- Reward is aligned to company performance.

- Employees are actively encouraged to improve and broaden their experience and skills for the overall good of KOGL and their future development.

- All applicable regulatory requirements and relevant provisions of BS EN ISO 9001 and BS EN ISO 14001 are met.

Core Capability: Human Resources   **Custodian:** Senior VP Human Resources

Processes

The basic mechanisms by which this Core Capability delivers its product(s) and meets its expectations are:

Ref	Title	Owner
IMS/12/01	Recruit Personnel	Senior HR Manager
IMS/12/02	Induct Personnel	Senior HR Manager
IMS/12/03	Reward and Remunerate Personnel	Senior VP Human Resources
IMS/12/04	Appraise Personnel Performance	Senior HR Manager
IMS/12/05	Train and Develop Personnel	Senior HR Manager - Training and Development
IMS/12/06	Assure Competence of Personnel	Senior HR Manager
IMS/12/07	Redundancy	Senior VP Human Resources
IMS/12/08	Communications	Communications Manager

Rev A01

Core Capability: Human Resources   Custodian: Senior VP Human Resources

Capability Performance Indicators

The overall performance of this Core Capability will be measured by:

- Percentage of turnover of core personnel.
- Number of vacancies filled to customer specification.
- Achieving a 50% reduction in sick leave by 2001 compared to 1990 figures.
- Achieving zero loss of production due to internal disputes.
- 50% of all KOGL employees being satisfied with the level of communications they receive by December 1999, and 75% will be satisfied by December 2000.
- Implementing management face-to-face communications schedule by July 1999.
- Auditing all managers' communication and leadership skills by July 1999.
- Establishing the skill base competence of all employees, jobs and trades in KOGL by December 1999.
- Developing an effective performance and competency review process by September 1999.
- Introducing personal development programmes to match the strategic objectives of KOGL by September 1999.
- Establishing an effective succession plan by September 1999.

Core Capability Review Frequency

Six monthly.

03/12/98

Core Capability: Human Resources

Custodian: Senior VP Human Resources

Organisation Chart

```
                    Senior
               Vice President
              Human Resources
                      │
      ┌───────────────┼───────────────┐
      │               │               │
 Communications   Corporate HR
   Manager          Manager
                      │
      ┌───────────────┴───────────────┐
      │                               │
 Senior HR         Senior HR Manager      Senior HR
  Manager          Fabrication,            Manager
 Engineering       Construction &          Training and
                   Commissioning,          Development
                   Operations &
                   Maintenance,
                   Operations Support
```
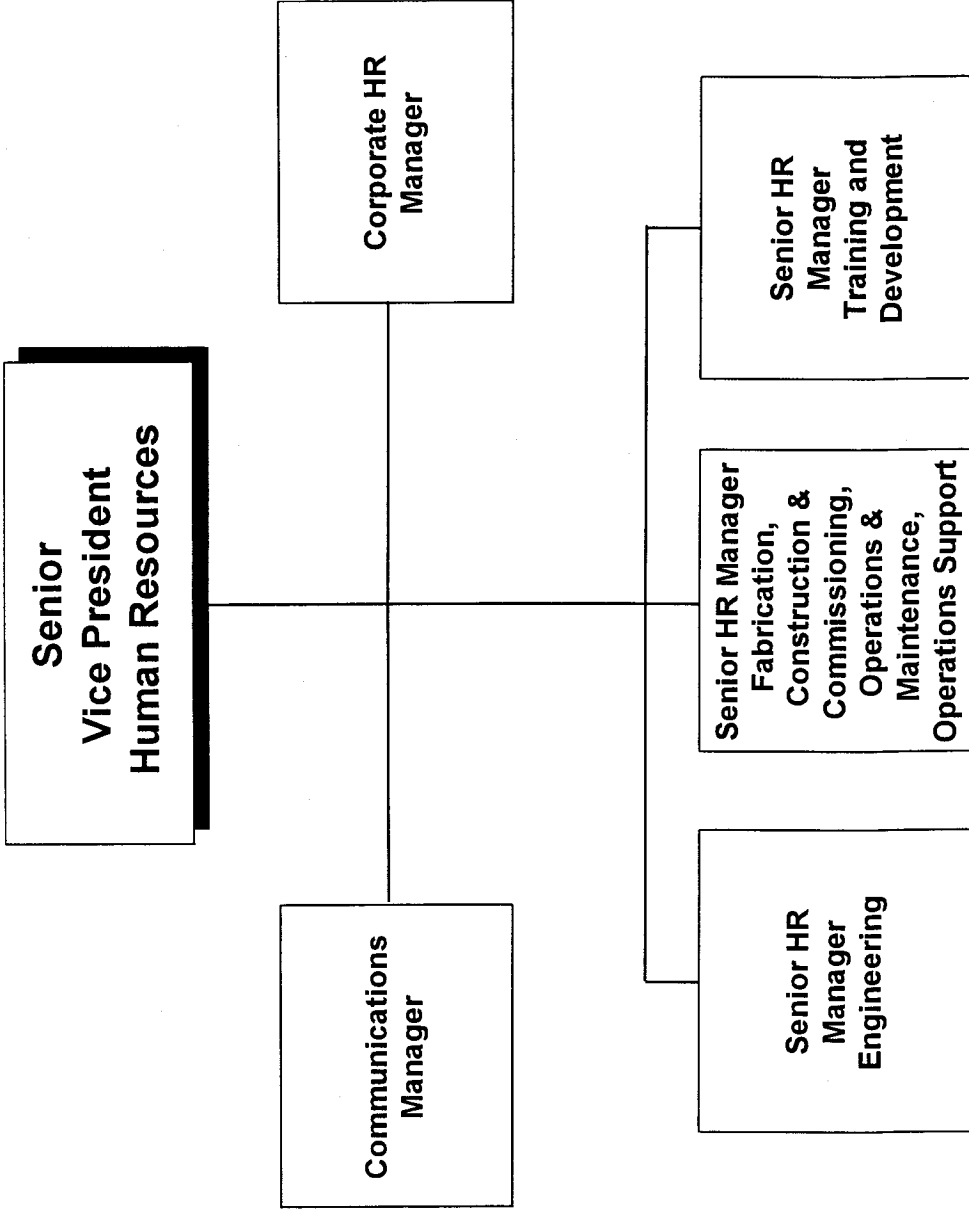
Section 8 - CMS

8.1 Description

Development of a Company Management System designed to meet the requirements of BS EN ISO 9001:2000. The CMS encapsulated the core principles which are presented and discussed throughout this project, build upon the extensive experience of management best practice which I have explored in the earlier sections of this portfolio, and represented an exemplar of best practice in management systems within the oil & gas sector at the time.
.

8.2 Learning Outcomes

The development of the system was undertaken in tandem with the start up of a new company, Saipem Energy International. The basis of design was adopted from the IMS structure, section 7. Under the direction of senior management, new staff were invited to adopt a fresh approach to quality management as the system was developed. Without the restrictions of any earlier system in place it was possible to ensure the system was process-driven and supplemented by policies, procedures and work instructions. Once again the ability to understand how a company was going to operate from basics was challenging and enlightening.

8.3 Points of Reflection

The system was developed by completing process maps of what each core capability would do and how they would do it. The opportunity to start with a blank sheet was a bonus. After flow charting the core elements of a particular area of the business, individuals were encouraged to use similar methods to document procedures. This was new territory for those involved including myself. Fully in accordance with the requirements of the standard, previous experience of overburdening paperwork ensured the participants and users retained an enthusiasm for the system. This was well supported by the decision

to ensure the system was PC based. The ability for any member of staff to identify an area of business, methodology, responsibility or pro-forma via six clicks of a mouse was considered by many as being groundbreaking. (Learning Outcomes S1, S3 & S5)

8.4 Contribution and/or impact to business

SEI was formed with the intention of competing in an already competitive market and it was visioned that to succeed it would have to offer something different to competitors. By developing and implementing a new management system it was anticipated the company would be demonstrate a practical and innovative approach to identification and delivery of business solutions for its customers. The company very quickly secured several contracts, including a major overseas contract. It was noted at the time of contract award that the CMS was a major factor in SEI's success in winning the contract and establishing their presence within the international Oil & Gas sector.

My own company secured the contract to develop the management system on this new project. Several features developed during this project were incorporated in the updated version of the CMS.

The CMS was designed to encapsulate all of six core principles which are presented throughout this project. At the time it represented an exemplar of best practice in management systems within the oil & gas sector. In particular:

- ➢ The CMS was simple, easy to use and easy to follow. It mapped directly onto corporate structure and set out in very clear terms the role and function of each area of the business.
- ➢ The CMS added, rather than detracted from, value. It was designed to be a working system which provided functions for all aspects of corporate activity.

- The CMS had the concept of continuous improvement embedded within the structure. The system enabled staff to record lessons learnt and to make suggestions for improvements to management.
- The CMS matched corporate values, and was designed to mirror the mission of the business.
- The CMS empowered staff by enabling them to take responsibility for their own area of work within the business
- The CMS was open and inclusive, thus promoting team culture across the business.

The CMS was the first management system within the oil & gas sector which met the requirements of quality standards, and utilized best practice within a single system.

8.5 Principles addressed

| 1 Simplicity |
| 2 Added Value |
| 3 Continuous Improvement |
| 4 Value Based |
| 5 Empowerment |
| 6 Team Culture |

8.6 Screen Shots

The following 9 pages are illustrations of how to navigate around the CMS. Each illustration is a direct screen shot saved from the actual system.

There is a brief summary of each figure and also a description of the relevance of the functionality and its positioning within the system and business.

The following figures 1 to 9 indicate how a user would access the general documents within the system. Basically the user would scroll the mouse over the required detail, and then left click on the selected item. The selected page then appears. At any time the user can return to the previous screen by left-clicking the Back Button. Similarly access to the home page is achieved by left-clicking the Home Page button. The same method is used to access all general documentation including questionnaire and lessons learned.

Figures 10 to 15 illustrate how the user would access details of Core Processes. As can be seen the core processes not only include procedure, work instructions and associated documents, but also details such as performance indicators, overview, responsibilities and process review are noted here. Support processes are accessed by the same method.

Hence by right clicking the mouse several times full details of any aspect of the company can be accessed.
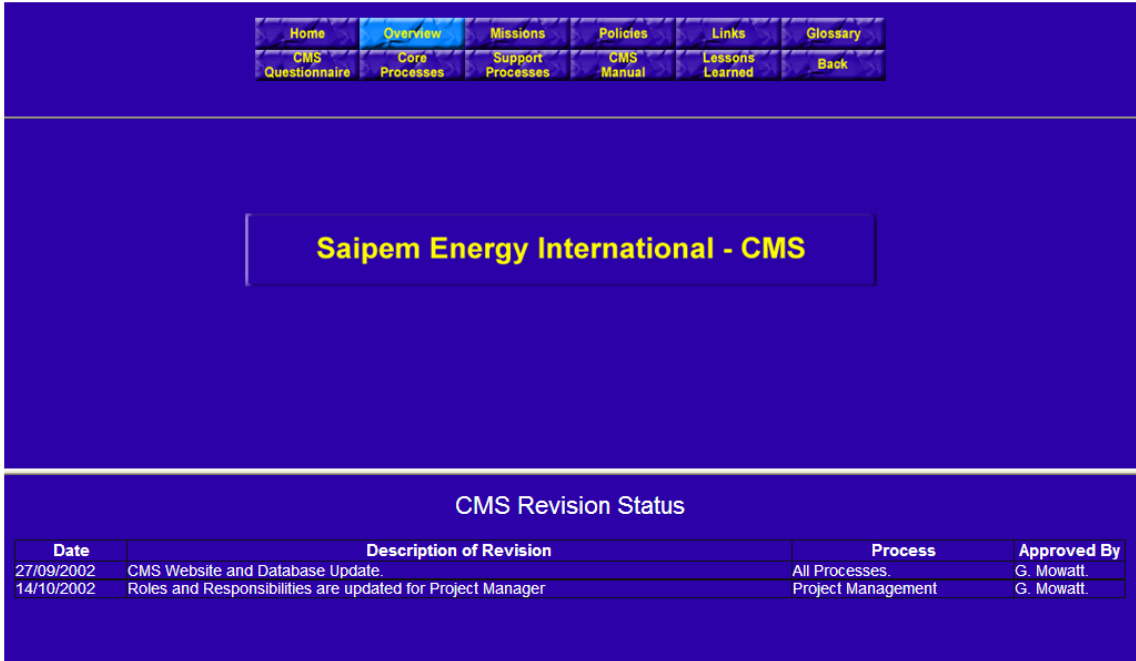
Figure 1 - Home Page with Overview selected

Figure 2 – Overviews Page
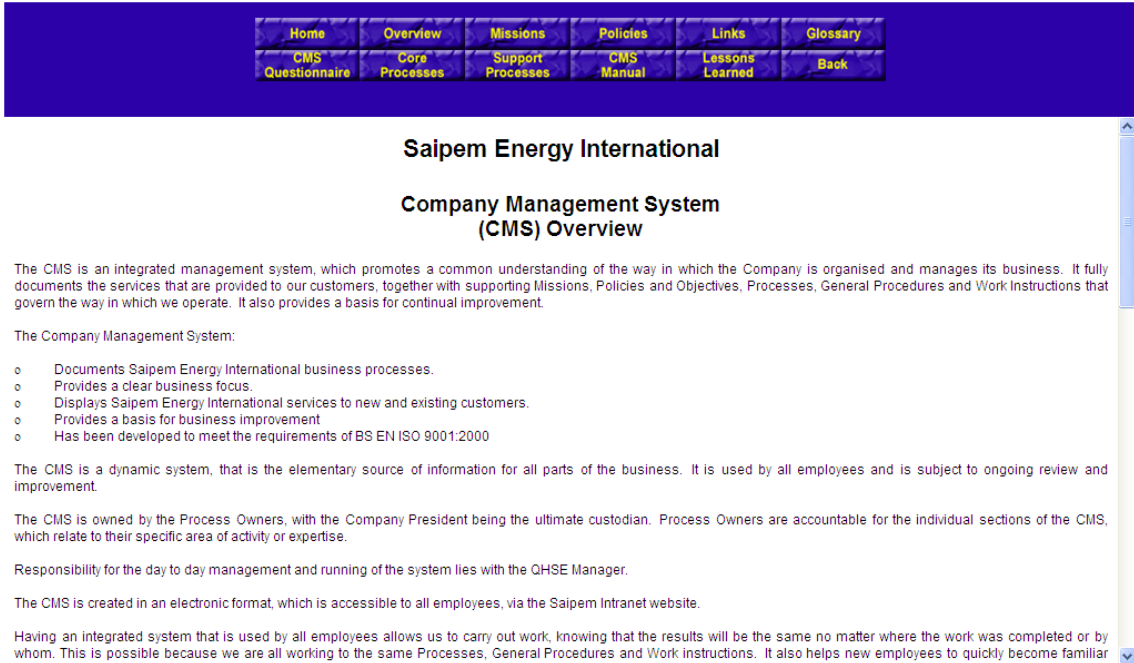Appears when the link in Figure 1 is selected

Saipem Energy International

**Company Management System
(CMS) Overview**

The CMS is an integrated management system, which promotes a common understanding of the way in which the Company is organised and manages its business. It fully documents the services that are provided to our customers, together with supporting Missions, Policies and Objectives, Processes, General Procedures and Work Instructions that govern the way in which we operate. It also provides a basis for continual improvement.

The Company Management System:

o   Documents Saipem Energy International business processes.
o   Provides a clear business focus.
o   Displays Saipem Energy International services to new and existing customers.
o   Provides a basis for business improvement
o   Has been developed to meet the requirements of BS EN ISO 9001:2000

The CMS is a dynamic system, that is the elementary source of information for all parts of the business. It is used by all employees and is subject to ongoing review and improvement.

The CMS is owned by the Process Owners, with the Company President being the ultimate custodian. Process Owners are accountable for the individual sections of the CMS, which relate to their specific area of activity or expertise.

Responsibility for the day to day management and running of the system lies with the QHSE Manager.

The CMS is created in an electronic format, which is accessible to all employees, via the Saipem Intranet website.

Having an integrated system that is used by all employees allows us to carry out work, knowing that the results will be the same no matter where the work was completed or by whom. This is possible because we are all working to the same Processes, General Procedures and Work instructions. It also helps new employees to quickly become familiar

Figure 3 – Details of the CMS Overview
This appears when the link in Figure 2 is selected

Saipem Energy International - CMS

CMS Revision Status

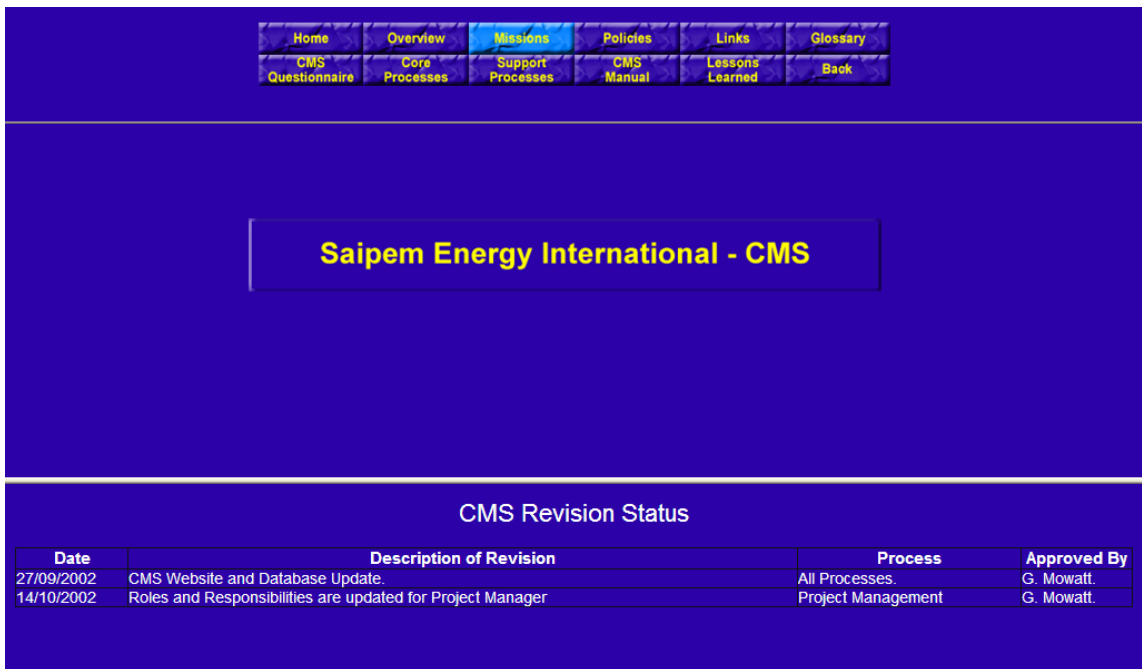| Date	Description of Revision	Process	Approved By
27/09/2002	CMS Website and Database Update.	All Processes.	G. Mowatt.
14/10/2002	Roles and Responsibilities are updated for Project Manager	Project Management	G. Mowatt.

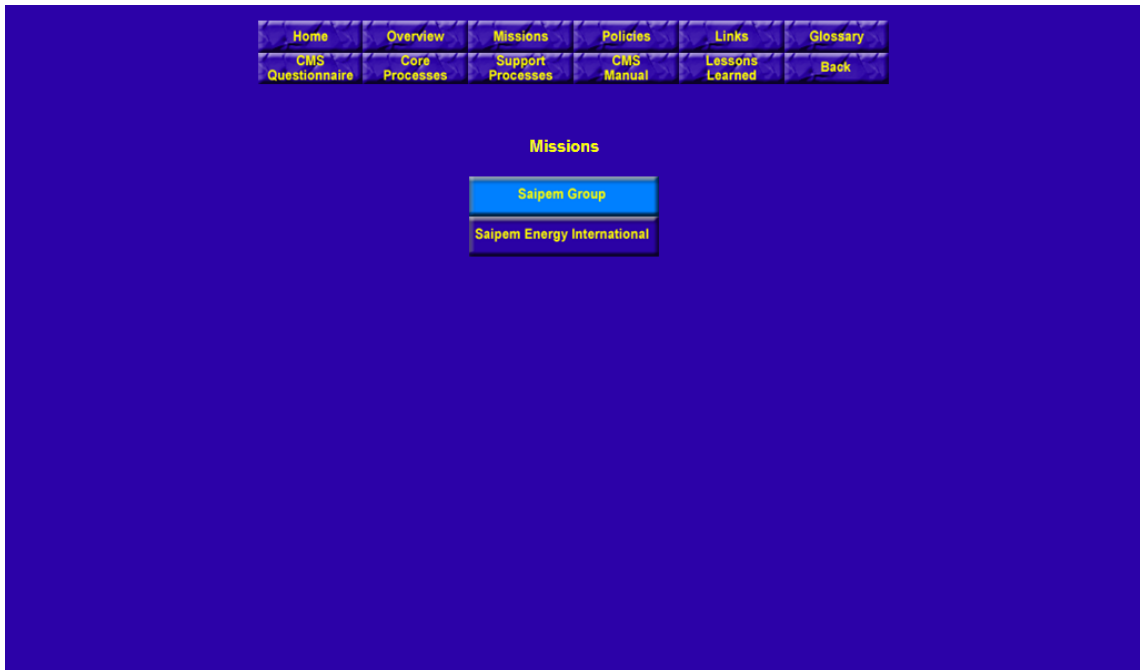Figure 4 – Home Page with Missions selected

Figure 5 – Details of the Missions Page
This appears when the link in Figure 4 is selected

Figure 6 – Saipem Group Mission Page
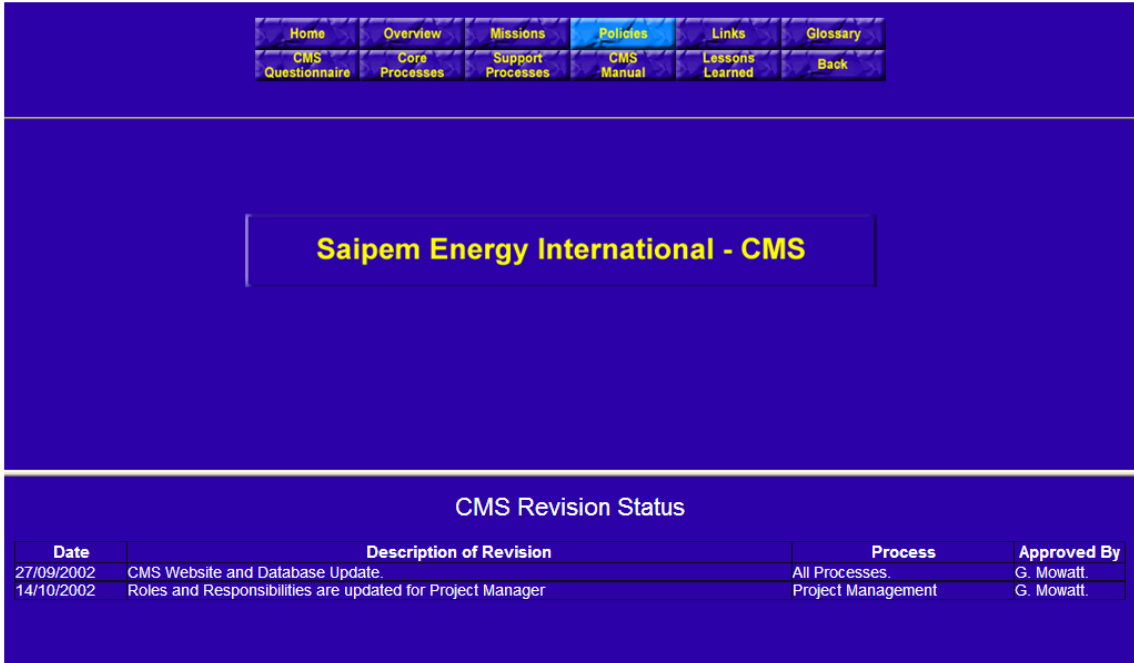This appears when the link in Figure 5 is selected

Figure 7 – Home Page with Policies selected

Figure 8 – Policies Page
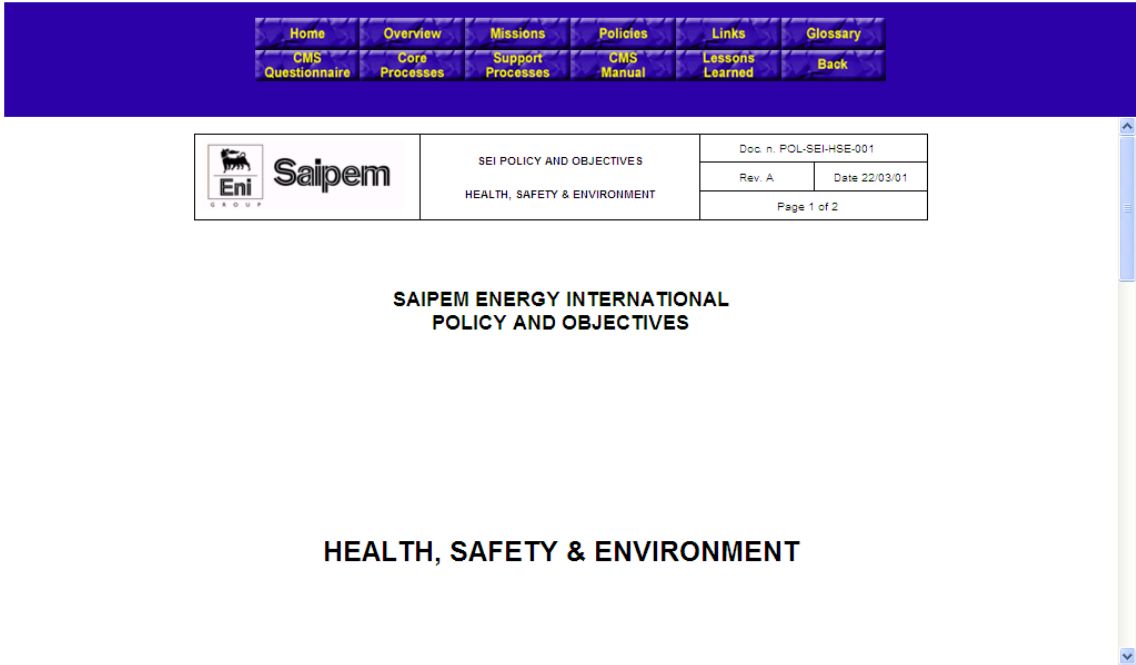This appears when the link in Figure 7 is selected

Figure 9 – Health, Safety & Environment Policy and Objectives
This appears when the link in Figure 8 is selected

Figure 10 – Core Process home page appears when Core Process is selected

Figure 11 –Core Process Illustrated
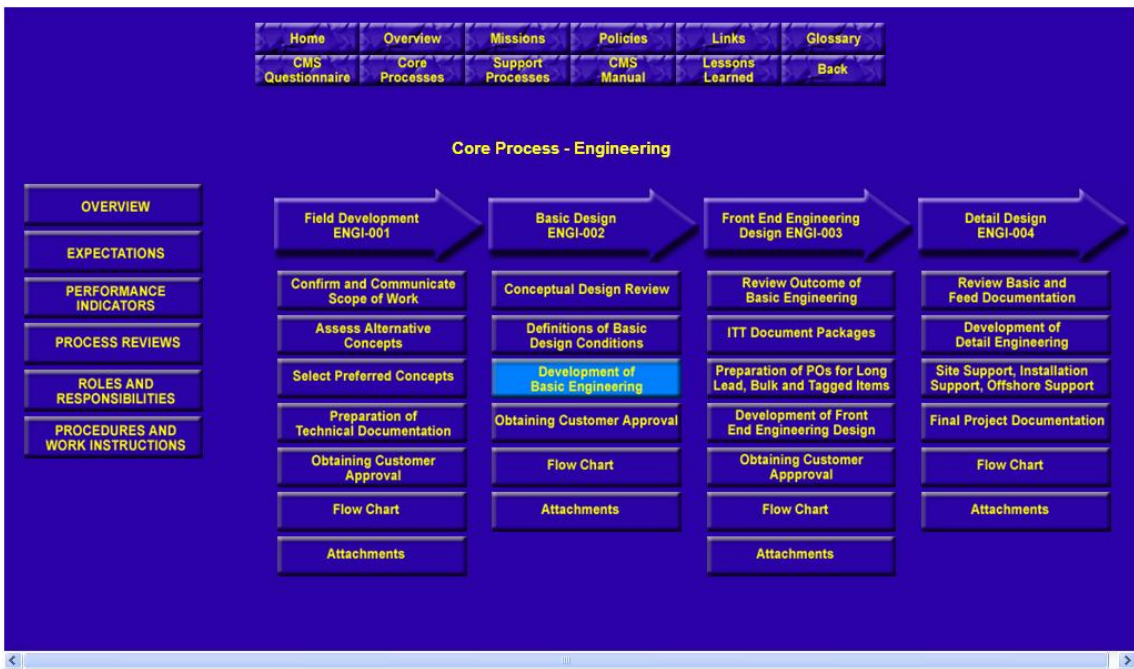This screen appears when the link in figure 10 is selected

Figure 12 – Engineering Core Process
This screen appears when the link in figure 11 is selected

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4.3   Development of Basic Engineering

No.	Activity	Responsible Party
1.	Receive concepts and develop preliminary layouts, flow diagrams, P&IDs, equipment layouts.	Study Team
2.	Incorporate customer or development engineering changes to the design.	Study Team
3.	Obtain data from equipment suppliers and include in layouts.	Study Team
4	Produce registers for data and equipment.	Study Team
5.	Check buildability and methods of construction with appropriate personnel and agree on the feasibility of solutions chosen.	Study Team
6.	Check and agree on the optimisation of the facilities alternatives.	Study Team
7.	Review installation alternatives to ensure compliance with programme requirements.	Study Team
8.	Review conceptual cost estimate class 2.	Study Team
9.	Issue final basic documentation.	Study Manager

4.4   Obtaining Customer Approval

No.	Activity	Responsible Party
1.	Submit draft report to customer.	Study Manager
2.	Receive customer comments, document queries, clarifications and omissions.	Study Manager
3.	Issue final report to customer.	Study Manager
4.	Feedback report into SEI norms and benchmark.	Study Manager

5.   FLOW CHART

Figure 13 – Development of Basic Engineering section of the procedure
This screen appears when the link in figure 12 is selected

Figure 14 – Core Process Engineering – Attachments highlighted

8.7 Leighton Evaluation

Review of CMS

This review evaluates the CMS system under a number of different headings.

Ease of Use

This system is easy to use. Without any guidance or initial training it is possible to navigate the system easily and quickly. It is quite intuitive and because it has been developed in HTML it works on any computer with a browser. It was tested on both desktop and laptop machines using Windows and Mac operating systems and also using MS Explorer, Firefox and Apple Safari and appears to be compatible with all of these browsers. The system is clearly laid out and it is possible to navigate through the individual elements quickly and easily. Accessing the system's numerous attachments needs Microsoft Office to be installed but the documents are then easily called up and are ready for amendment and use. This system does not require any IT knowledge or expertise and as such would be suitable for use by a range of people who are not particularly experienced in using software. It could be easily adopted across a project, a company or a range of companies and would not require any long period of induction or costly training.

Visual Appearance

The existing look of the system is clean and uncluttered. However it is not 'designed' in the way that professional software would normally be presented and as such it would benefit from some work by a professional designer who would improve the look and feel of the system overall. As it has been created in HTML and uses documents in industry standard formats this would be a relatively straightforward 'make-over' with transferable templates for the HTML, word and excel documents. There could be a general 'look' for the overall system and then a 'company specific' look when particular clients use the system.

Content

The system has a very comprehensive content that covers many aspects of a company's business processes however because it is easy to amend and add to, it can be tailored by the user to match the specific needs of an individual project or company. This gives the user the ability to expand and grow the system with use. It is not a 'locked' system as with much software but instead can grow with the company and the project.

Affinity to the business

This system could be customized to be used in most businesses with a similar business model. It is therefore not restricted to a particular industry or sector. From this review of the system it would appear suitable for any process industry that required essential documentation, system flows and management and measurement of KPIs. In the first instance it would be sensible to concentrate on one sector in which a reputation and expertise could be established but then it would be relatively easy to move horizontally into other industry verticals.

Improvements

All systems can be improved and this is no exception. Certainly as already mentioned the look and feel would benefit from a professional designer working on it although the current version is usable and easy to follow. It would also be possible to 'script' more of the functions, as the html is generally very basic.

Marketability

The ability to market this system really depends on the amount of resource that could be committed. It would be competing in a market that already has some strong products and as such would need to have a clear market niche in which it could be promoted. It does have the advantage of not being too large in terms of file size and therefore could be distributed using the Internet. Most probably the best way to sell the product would be through a reseller channel using consultants as the resellers. With a relatively short training period to understand how the system works and how to set it up the reseller could be given a share of the revenue and the opportunity to earn additional revenue through customization and training. However setting up such a channel although easier than direct sales is still an expensive exercise.

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August 2008

Section 9 - DPMS

9.1 Description

Development of a Project Management System, DPMS, to meet the requirements of BS EN ISO 9001:2000

9.2 Learning Outcomes

Following the successful development of the CMS, section 8, I secured a contract to develop a similar system for a project in Canada. The system development was completed using a similar methodology to that used for the CMS. Retaining the fundamental features of the system to generate improvements, there was an opportunity to further develop the system. (Learning Outcomes S1, S3 & S5)

9.3 Points of Reflection

The concept of a new version of a Quality Management System was exciting to the project members, however it was heavily resisted by the quality management group. The underlying reason was that the group felt comfortable with the old regime and use of the existing system, despite its many failings, was an option they wished to pursue. One of the first tasks I faced when visiting the project was to agree a series of corrective actions identified by Lloyds during a recent audit of the existing system. This was accomplished by the introduction of new proposals to be encompassed in the new system.

9.4 Contribution and/or impact to business

The contract to develop the DPMS came as a result of the successful development and implementation of the CMS. This was strong evidence of the quality of the system and its growing profile within the international oil & gas sector, especially as the DPMS was a Canadian project.

The impact on the Deep Panuke Project was almost instantaneous. The project had previously been subjected to an audit by their certifying authority and a number of corrective actions remained outstanding. Following presentations of my DPMS development proposal to Lloyds and by completing some initial tasks, the project team was able to come to an arrangement with Lloyds. They confirmed they intended to have a system in place capable of ensuring that the project could proceed in a consistent and reliable manner.

9.5 Principles addressed

1 Simplicity
2 Added Value
4 Value Based
6 Team Culture

9.6 Screen Shots

The following 7 pages are illustrations of how to navigate around the DPMS. Each illustration is a direct screen shot saved from the actual system.

There is a brief summary of each figure and also a description of the relevance of each function and its positioning within the system or business. Navigation around the system is similar to that outlined in the previous section; the CMS.

PanCanadian energy

Deep Panuke Management System

Figure 1 – DPMS Home Page
Policies button highlighted

Policies

Health, Safety & Environment
Policy and Objectives
Information Security
Policy and Objectives
Quality
Policy and Objectives

Figure 2 – Policy Page
Appears when the link in Figure 1 is selected

Date	Revision	Description of Revision	Prepared	Checked	Approved
14/12/01	0	Draft for comment	R West	M Thurlbeck	

This document is the property of the **Deep Panuke Project** who will safeguard its rights according to the civil and penal provisions of the law

Deep Panuke Project
Quality Policy and Objectives

Deep Panuke Project is committed to achieve and maintain standards of Quality within its business activities. In order to meet this commitment, Top Management has made Quality Management an integral part of its business, and ensures that adequate human, financial and technical resources are provided.

Deep Panuke Project has established a Project Management System (PMS) with an integrated approach, which is based on the requirements of BS EN ISO 9001:2000, Quality management system – Requirements.

In respect of Quality Management, the projects key objectives are:

- Monitoring of customer satisfaction.
- Management of the Company processes and resources in a planned, efficient and controlled manner.
- Promotion and implementation of a process of continual improvement.
- Involvement and training of personnel in Quality Management activities.

The PMS promotes a common understanding of the way in which the Project is organised and manages its business. It fully documents the services that are provided to customers, together with supporting Missions, Policies and Objectives, Processes and Procedures.

Top Management is responsible for:

- Establishing and maintaining the quality policy and quality objectives.
- Promoting the quality policy and quality objectives throughout the Project to increase awareness, motivation and involvement.
- Reviewing the quality policy and quality objectives for continuing suitability and deciding any necessary actions.

All Project personnel are expected to support the quality policy, contribute towards the achievement of quality objectives and the effective implementation and operation of the PMS.

As Project Director, I am personally committed to achieving our quality objectives and believe that by a process of continual improvement we will enhance the

Figure 3– Quality policy and Objectives
Appears when the link in Figure 2 is selected

Core Processes

Project Management
Engineering
Regulatory / Compliance
Management of Major Contracts
Construction
Installation
HUC
Commercial
Contracts & Procurement
Reservoir / Drilling
RFO / Operations / Maintenance

Figure 4 – Core Processes
Appears when the link in Figure 3 is selected

Figure 5 – Overviews Page
Appears when the link in Figure 4 is selected

Figure 6 –Project Review Procedure Page
Appears when the link in Figure 5 is selected

4.2 Determine Scope of Work

No.	Activity	Responsible Party
4.2.1	Review documents to establish scope of work.	Project Manager / Project Review Team
4.2.2	Identify key suppliers and third party involvement.	Project Manager / Project Review Team
4.2.3	Identify project special requirements.	Project Manager / Project Review Team
4.2.4	Develop scope review responsibility matrix.	Project Manager
4.2.5	Identify reviewers of responsibility matrix.	Project Manager / Project Review Team
4.2.6	Issue responsibility matrix to Project General Manager for review.	Document Controller
4.2.7	Review matrix and resolve any deficiencies.	Project General Manager
4.2.8	Issue scope of work to Project Review Team.	Project Manager

4.3 Review and Refine Work Program

No.	Activity	Responsible Party
4.3.1	Provide work program to Planning.	Project Manager
4.3.2	Review the program for the project compliance of key dates, milestones and schedule.	Lead Planning Engineer
4.3.3	Document any queries, clarifications or omissions.	Planning Engineer
4.3.4	Gain resolution and advise the project team members as appropriate.	Lead Planning Engineer
4.3.5	Confirm the availability of resources and capabilities to complete the program requirements.	Project Services Manager
4.3.6	Confirm the method for measurement and payment of	Project Services Manager

Figure 7 – Procedure Content

Appears when the link in Figure 6 is selected

5. FLOW CHART

Figure 8– Flow Chart

Appears when the link in Figure 6 is selected or user scrolls down

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Home
Overview
Missions
Policies
Glossary
DPMS Manual
CoreProcesses
SupportProcesses
Questionnaire
Back

● Direct Responsibility
○ Collaborates in the Activity
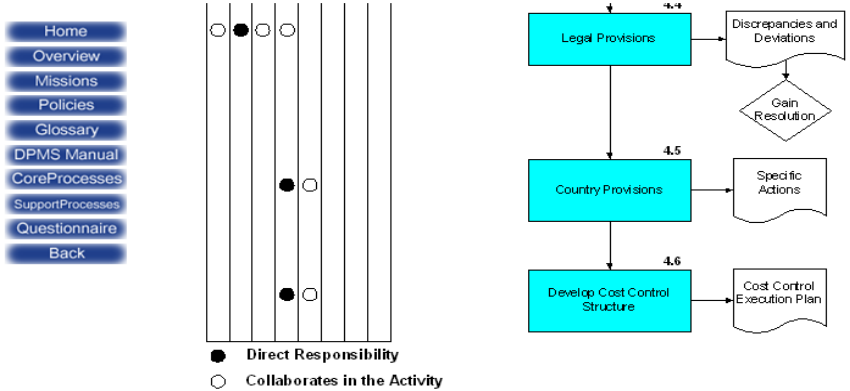
6. ATTACHMENTS

The following documents are an integral part of this procedure:

- Responsibility Matrix (DP00-1Z-0051.1)
- Work Programme (DP00-1Z-0051.2)
- Cost Control Report (DP00-1Z-0051.3)

Figure 9 – Bottom of Flow Chart
Appears when the user scrolls down from Figure 8

		Form #: DP00-1Z-0051.
DEEP PANUKE	*RESPONSIBILITY MATRIX*	Doc N°: Sheet: of Date:

#	Activity	S	PM	EM	CM	QA	FM	VM	MI	PS	P	TM	HE	PP	KEY
1	Contract Review	S	P												**P PRIMARY RESPONSIBILITY**
2	Project Mobilisation & Co-ordination	S	P(1)												**S SECONDARY RESPONSIBILITY**
3	Contract Change Control	S	P(1)												S Project Sponsor
4	Planning & Cost Control	S	P(1)												PM Project Manager
5	Progress Control	S	S	S	S										EM Engineering Manager
6	Work Instructions	-	S	S	S										CM Commercial Manager
7	Interface Control	-	S		S										QA HSQE Manager
8	Document Control	-			S		S		S	P					FM Fabrication Manager
9	Quality Assurance	S		S	S				S						VM Vessel Manager
10	NCR/CAR	S		S				S							MI Marine Installation Manager
11	Management Reviews	P(1)													PS Project Services
12	Continuous Improvement	S	S		S										TM Facilities Manager
13	HS&E	S	S		S										HE Hull Engineering Manager
14	Concession Control	-	S	S	S										P Procurement
15	Resources & Training	-	S	S	S					P					PP Planning Manager
16	IT Management	-	S	S	S					P					
17	Design Control	S	S	S	S										
18	Supplier/Sub-con. Control	S													
19	Construction Management	S													
20	Commercial Management	P(1)													
21	Submissions & Approvals	-													
22	Cert. & Verification	-													
23	Permits & Consents	-													
24	Material Traceability	-													
25	Concessions/Deviations	S													
26	Contract Close-out	S													
27	Quality Records	S													

THIS DOCUMENT IS UNDER DEVELOPMENT.

FOR FURTHER DETAILS PLEASE CONTACT THE PROJECT MANAGER

(1) Primary responsibility shared between the individuals indicated.

Figure 10– Example Responsibility matrix
Appears when the link in Figure 9 is selected

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Section 10 - Export Market Research Survey

10.1 Description

Business>IAM was a management consultancy specialising in the development of management systems and alliance contract coaching. I undertook an export market research visit to Australia to establish if there was a demand of products and/or services of Business>IAM.

10.2 Learning Outcomes

I learned a significant amount regarding the operations and cultures of many Australian businesses and institutions. As well as meeting many new people I gained a valuable insight into how their economy worked, how people connected with one another, operational methods and what the near and long term futures of the oil and gas business were. (Learning Outcome S2)

10.3 Points of Reflection

With regard to the results of research into the Australian market there was a consistently strong message that they will aim to succeed without external assistance unless absolutely necessary. Not in the realms of skills or technology but in other areas there was too much evidence of "what worked before will work again". For example evidence of computer based systems was wide spread; however there was still a large presence of paper back-up.

On reflection the Research Report I produced could be improved in terms of structure and clarity. In particular the introduction and methodology sections could be improved and expanded. The narrative assumes that readers will be aware of the characteristics and products of Business>IAM and the Northern Offshore Federation (NOF) and also of their respective roles and standing within the oil & gas industry.

10.4 Contribution and/or impact to business

The report was well received by the BCC and was circulated to members noting that it would be of substantial benefit to companies considering entering the Australasian markets. Whilst it was apparent there was a shortage of companies similar to Business>IAM, there was little encouragement to enter into discussions to rectify this either by way of joint venture, partnership or license. I did return to Western Australia some months later and despite hosting a meeting and presentation to operators and contractors received little encouragement to proceed further.

10.5 Principles addressed

1 Simplicity
2 Added Value
3 Continuous Improvement

Export Market Research
Visit to Australia
October-November 2002

Final Report

Author Mick Thurlbeck

Index

1. Introduction

2. Methodology

3. Existing market

4. Competitors

5. Selection of Suppliers

6. Overseas Supply

7. Setting Up in Australia

8. Executive Summary

9. Recommendations

Introduction

The market research initiative was prompted following appointments Business>IAM staff had with members of the Perth Consulate General's Office visiting NOF on Inward Trade Missions in June and August of 2002.

Information received at these meetings was encouraging and it was suggested that there may be a requirement for Business>IAM services in Australia. The Oil & Gas Market in Western Australia was particularly buoyant at this time and a requirement for managements systems such as those currently being developed by Business>IAM, were viewed as being particularly suitable for the expansion in corporate and project teams.

A great deal of time was spent with NOF export club staff to assist in the research of the projects and market. Whilst it had been intended for Business>IAM to join the 2002 Trade Mission to Perth, this had been not been possible due to high work load at the time. Commitment had been made to the 2003 mission but it was becoming increasingly apparent that detailed research could be hampered due to the Oil & Gas Conference taking place at the time.

Application was made to Trade Partners UK to seek funding to undertake a market research visit to Australia to gather market information. It was envisaged that such information would be of great benefit when aligning Business>IAM goals for the forthcoming trade mission to take place in March 2003.

Having reviewed the proposal in detail, the application was completed with the proviso that other areas of Australia were visited. It was also agreed that market research was not restricted to Oil & Gas industries and that other areas

of business should form part of the research. Therefore plans were made to visit Sydney and Brisbane during the visit.

1.   Methodology

Having completed desk research at Business>IAM home offices, a selection of business type and organisations was selected. Using this list extensive research and communication was undertaken to establish firm interview times and dates.

Once the appointments had been fixed, it was necessary to carry out further research on the companies and organisations to understand their position and profile within their respective industries.

Using this information it was then possible to draught specific areas that would be used as a template to undertake individual interviews. Details of the templates can be found in the interview summaries included in the appendix to this report.

Arrival in Australia was delayed due to bad weather and the visit was also cut short by one day due to emergency business matters in England. However over 90% of the arranged appointments were successfully completed.

Due to the extensive content of the interview summaries contained in the appendix of this report, much of the detail has not been included in other sections. Therefore the report should be read in it's entirety with reference made to the appendix as necessary.

2. Existing Market

Establishing the existing market was basically split into two sections for the interviews. It was necessary first of all to establish the general market in the

areas being visited. Secondly it was necessary to establish if there was a market for Business>IAM services. The Oil & Gas Industry is experiencing a constant expansion, having suffered a dip in investment in recent years. There are many projects sanctioned and the agreement of gas sales is viewed a s a key factor in future development. Similarly the Mining industries in Queensland are expanding at a record rate of growth. It is expected that within the next ten years that Queensland will have a capacity to mine in excess of 90 % of the worlds light metals requirements.

As a result of such huge investments there is obviously an increasing market for project support, particularly in the area of management system development and project control. There are specialist companies in existence within both the Perth and Brisbane areas who cater for the requirements of operators and contractors.

Further investigation revealed however that products on offer are generally not tailored for the customer or are out of date with the latest technology. Examples were shared demonstrating that due to the ineffectiveness of existing systems to support major projects, many of the personnel resorted to "doing their own thing" which by it's very implication does not realise any long term benefit or improvement.

It was encouraging to learn that most of the standards on which Business>IAM base their systems are similar to those used in Australia. Further probing revealed that having the facility to access these standards by use of electronic systems was particularly attractive to most project personnel.

4. Competitors

There was a great deal of interest from the local service suppliers, similar in size and capability of Business>IAM. It was encouraging to learn that many of these suppliers were interested in skills and knowledge transfer. Several were already investigating the possibilities of entering the UK and European markets as part of their own expansion plans.

The suggestion that partnering between Business>IAM and a 'local' business could provide a fully integrated solution was received very well by all parties interviewed. It was accepted without exception that the use of electronically based systems were a fundamental requirement as the size of individual developments continued to grow in size and cost.

An obvious hurdle is the UK/Australia cost/rate structure currently a ratio of approximately 2:1. Whilst this is not insurmountable it would be impossible for Business>IAM to relocate their personnel, even on a temporary secondment, if the Australian rates were the base reimbursement. There was an acceptance however that specialist skill could realise UK rates providing there was a definitive requirement. The prospect of skills transfer was viewed as an attractive return for the increase in cost.

5.   Selection of Suppliers

Without exception the operators and contractors will only use suppliers who have credible standing in their field and have a proven track record. As in the UK it is common for these companies to retain approved suppliers lists. It was also recognised that it can be a task in itself to be accepted to an approved list. Similar to gaining an equity card, which you need to get a job but you need a job to apply for the card.

In the majority of cases it is also a requirement for suppliers to have documented management systems and in many circumstances to retain third party accreditation.

It is viewed by several interviewees that satisfactory performance is acceptable and that the introduction of new suppliers with different products or services is viewed with an amount of scepticism. This was quite revealing as it seemed to infer that many are content with doing the same thing again and again, even if it is not really adding value.

6.   Overseas Suppliers

Use of overseas suppliers is not uncommon in the Australian Oil & Gas and Mining Industries. In fact there is plenty of evidence that in specialist areas foreign, particularly British and US, companies are used extensively. Ex-pats hold most of the senior management positions with both operators and contractors in Perth. There are no visa or work permit restrictions as these are generally granted to UK citizens upon application.

One of the obstacles regarding overseas supply as noted earlier is the cost base for undertaking such work. The average WA salary for mangers and engineers performing similar duties and tasks to that of Business>IAM personnel is about 70%. This is further reduced by the fact that there is a deduction of around 50% for tax, insurance and health benefits etc. It would be difficult therefore for Business>IAM to relocate personnel from UK to Australia on a long-term basis.

The preferred solution would be to engage local employees to supplement Business>IAM personnel drafted in to complete a specific task. As we focus our

sales on the transfer of skills and do not require to be engaged long term this would appear to be a favoured approach.

7. Setting Up in Australia

The key finding from the market research visit is that there is a requirement for services offered by Business>IAM. Many of the local companies have adequate resources and are successful in securing contracts. What they do lack in comparison is the experience and expertise within Business>IAM.

With the rapid growth in the Oil & Gas market similar in profile to that which occurred in the UKCS during the 80's and 90's there are great opportunities for Business>IAM to bring their experience to the projects therefore providing significant benefits to the stakeholders.

Whilst it would be unfair (and unwise I am told) to suggest that the local companies lack innovation they tend very much to be reactive rather than proactive in their approach to project management. The fundamentals of the new Quality Standard ISO 9001:2000 require an improvement-based system, not widely recognised by the companies interviewed. However there was some suggestion that projects were not under control and that budgets and schedules would be at risk.

Having identified the market potential as being favourable it would be unwise to proceed alone. For many reasons particularly cost and tax, it would be unprofitable for Business>IAM to operate as an individual company in any of the regions visited. What is an attractive proposition is to investigate further the probabilities of successful joint venture partner.

This result based upon the findings is that there is little evidence of electronic management systems in place. There is however much interest in there being

so. The experience of managing the development of a Management System for a Canadian Client from our home office demonstrates the capability to undertake similar development work within Australia.

As in the Canadian project a representative from Business>IAM would be present in the Client's office to supervise development work undertaken by local personnel. There are obvious advantages therefore to enter into a joint venture as the Business>IAM representative would eventually be sourced 'locally'. Moving forward with this proposal would effectively require Business>IAM to franchise their management systems.

8.   Summary

The Oil and Gas and Mining Industries of Australia are certainly enjoying a period of enormous growth. The research, whilst visiting three centres identified that there was a high potential of securing work in Oil & Gas in Western Australia and also in Mining in Queensland. The prospects in New South Wales, whilst being a vibrant area, were mainly restricted to the Construction Industries. At this moment in time Business>IAM do not possess specialist resources or sufficient in-depth knowledge of this sector. For that reason it has been judged that there will be no further detailed investigations into this sector in the immediate future. This does not discount revisiting this market a later date, particularly if the recommendations in Section 9 are achieved.

Western Australia

Currently there are a number of large projects underway and thus the activities within the operators and contractors are reaching record levels. Major investments such as the LNG export to China and Japan, estimated to be 3-4 billion AUD, are generating funds that in turn are being used to fund increased offshore exploration. Add to this the prospect of gas sale agreements increasing steadily and the predictions by the Department of petroleum resources that in

excess of 100m AUD will be spent in exploration over the next two years do not seem to far from the reality.

All areas of this business sector from operators, contractors through to university and trade organisations repeated the same message that levels of investment will continue to rise steadily within the next five years. This all bodes well for the interests of Business>IAM to continue to be positive as there appears to be a shortage of specialist management to cater for this increased investment and new projects. Additionally it was reported by many candidates interviewed that because there had been an increase in the level of field development, existing systems and management experience is lagging behind project requirements.

There is also a lack of visibility of similar companies to Business>IAM to assist companies satisfy the future developments. This is a fact well supported by the trade advisors within the Consulate Generals' office who strongly advised that Business>IAM undertake a high profile marketing exercise to confirm availability to enter the market. Further details of this initiative are noted in Section 9 of this report.

Queensland

Appreciating the size and scale of industries in Queensland was quite a challenge. There is a major Oil & Gas project sanctioned and is dependent on agreement of pipeline routing The project in question is the PNG pipeline which is planned to run south throughout Queensland into NSW. The budget for this pipeline alone is in excess of 6 billion AUD. Add to this the current mining and construction projects already sanctioned being estimated at being in excess of 16 billion AUD and it can be judged that the potential market is huge. It was established during the visit that approximately 50% of companies involved with these projects in possession of electronic management systems.

It has to be noted much of the investment involves construction, civil and infrastructure. There are a number of major mining projects underway which are closely aligned with the key components encountered within the Oil & Gas industry. Particular interest was indicated in systems Business>IAM could develop to support project work.

The underlying result of the research mission was that there is indeed a requirement for expertise such as that retained by Business>IAM. There are the obvious complications involved should we decide to enter the market but many of these can be overcome.

The greatest challenge is how to enter the market, accepting that there will be sufficient contracts available. It is envisaged that the best method would be to source a partner who has similar capabilities to Business>IAM. It will then be possible to develop a joint business development plan to secure valuable contracts, of which there is no shortage. Having a previous track record of completing much of our system development work remote form the customers' home base, it will be possible to undertake Australian contracts using a local joint venture partner.

Such a partner will also help reduce the costs as UK rates are substantially higher than those in Australia. There is much evidence that companies are prepared to pay UK rates for expertise when necessary but it is viewed as a better alternative to use this method selectively. This approach fits well with Business>IAM strategy in developing business systems.

A further visit to Perth will take place in February to present the range of services available from Business>IAM, to an invited audience selected from operators, contractors and resident consultants.

Time will be taken at the end of the March trade mission to re-visit Brisbane. There has been subsequent dialogue with the project team responsible for the development of the Australian Magnesium Corporation new plant development at Rockingham. The project does not have a formal management system and project personnel are interested in entering into further discussions.

9.   Recommendations

As result of the research visit it is recommended that the prospects of Business>IAM progress with the investigations of entering the Australian market through a joint venture or partnering arrangement. It has been identified that there is a need for the services Business>IAM have in their portfolio, the only restriction is the feasibility to complete this as a stand alone, new business venture. Whilst this is not to be discounted the development of a business plan for this new region should certainly be developed with joint ventures in mind.

Following discussions with the Consulate General office in Perth it is recommended that Business>IAM undertake another visit to Perth prior to the trade mission in late March. The purpose of the visit would be to carry out a presentation to a selected audience of Operators, Contractors and Consultants who have an interests in the Management Systems developed by Business>IAM. This event is scheduled to take place week commencing 24th February 2003.

The objective of this event will be to identify potential contracts and possible joint venture partners. It is expected that there will be sufficient interest to enter into detailed negotiations on both fronts during the March trade mission. This will facilitate a decision on how, when, where and who we enter the Australian market with.

Section 11 - Conference Papers

11.1 Description

This section presents two papers which have been accepted for presentation at international conferences. The papers are:

Thurlbeck, Smith and Kinnaird
Principles of Management Systems: a practical case study from the oil and gas sector, The European Conference of Management, Leadership and Governance, ECLG, Poland, 2011.

Thurlbeck, Smith and Kinnaird
Do Management Systems relate to Quality Systems?: A Qualitative Study The Institute for Business and Finance Research (IBFR) Global Conference, Las Vegas, USA, 2011.

11.2 Learning Outcomes

Preparation of papers for presentation at conferences enabled me to focus upon the contribution of my doctoral studies. It also introduced me to the practice of preparing papers for the academic community.

11.3 Points of Reflection

Summarising the work that I had undertaken within the constraints of the format of the conferences was a challenge. Having selected the subject, it was necessary to undertake detailed reflection of not only the project report but the wider information I had encountered and gathered is completing my research. By undertaking this reflection I was able to consider the validity of my work from a different perspective thus consolidating my proposal of the core principles for a successful management system.

11.4 Contribution and/or impact to business

Dissemination of my work at international conferences enables it to make an impact in the international academic and professional community. The publication and presentation of the papers facilitates the broadening of the audience to whom my work has already been exposed.

11.5 Principles addressed

1 Simplicity
2 Added Value
3 Continuous Improvement
4 Value Based
5 Empowerment
6 Team Culture

Principles of Management Systems: a practical case study from the oil and gas sector

Mick Thurlbeck, Peter Smith, Vivian Kinnaird
University of Sunderland UK

Abstract: This paper explores the areas of quality, management, management systems and corporate values. It discusses a piece of research which reflects upon professional experience, sets it within an academic and professional context and proposes a set of principles which we believe to be key to the success of any organisation. The paper also presents a management system which was developed for use in the oil and gas sector. The management system is based upon the set of principles developed in the earlier section of the paper. We discuss the first author's experience in developing the system and the principles behind it. The work is based upon formal reflection on 20 years experience in the oil and gas sector. The work is further underpinned by a piece of qualitative research, which explores the use of management systems in a range of organisations.

1 Early Reflections

This section of the paper is based upon the first author's reflections on more than 20 years experience of working in the oil and gas sector. In particular, it focuses upon his experience of quality systems and how they relate (or not in some ways) to the management function.

1.1 First Experiences of Quality Management Systems

I entered the Oil & Gas industry in 1980 and part of the induction to my new role was to be issued with a number of Quality Procedures or "QP's" as they were termed. This was effectively my first introduction to a QMS (Quality Management System). Curiosity was probably the only way to describe my interest at this time, as the documents handed to me meant very little. Compliance with the requirements of BS 5750 (Whittington 1989) had become a pre-requisite for my employer to secure contracts with major oil companies. There was no explanation of what the documents were or why I would need them; just an instruction to read them and to be aware of the content. When this was done I was then asked to sign a form which effectively stated that I would work in full compliance with the documents. This was alarming; as the QP's were then retrieved by the Quality Engineer! The responsibility of the quality engineer had now been completed and the relevant form, now signed, could be inserted in a folder forming part of the QMS. For the next 4 to 5 years, this was the limit of my exposure to any QMS. Procedures and other elements of the QMS were not easily accessible to staff who were not members of the quality department.

In the mid 1980's I moved employment and accepted a management role with a leading oil and gas contractor. My "promotion" came with responsibility for the ownership of several quality procedures. During this project and several which followed, I like many others found myself sometimes at odds with the manner in which the QMS operated. The main criticism I had was that procedure content for each project tended to be expanded to include what the clients wanted to happen. This was often at odds to what we actually did in the execution of our duties. Despite the QP's being comprehensive, non-conformances would often be raised during audits which suggested errors in our working methods. Frequently corrective actions were introduced to satisfy the audit report that did little to add value to the business. I often challenged why it was not possible to write the procedures to be a true reflection of how we worked; rather than how the client wanted us to work. I was never given a satisfactory answer.

This raises a fundamental question of what, if any, advantage there was of having procedures which do not accurately identify true working practices. Surely if procedures regularly have such inaccuracies then they cannot be deemed to be contributing to the business. Consequently anything which prevents a management system from operating with minimum additional resources is actually adding cost and not adding value.

1.2 Towards a set of principles

<div align="center">1</div>

Throughout my work in the oil and gas industry I was constantly asking questions about the need for quality systems. I believed that systems should be simple, add value to the business, encourage continuous improvement, encompass the core values of the company, empower staff and engender a team culture. These conclusions became the basis for six principles which I believe to be key to good management. These principles were reached by using Schon's model of reflection (Schon, 1983) to reflect upon my experiences across a range of companies. This was done by setting out my experiences on a story board and examining and interrogating the story board, looking for common themes.

These six principles which I arrived at are through the process of reflection:

- *Simplicity.* Management systems must be developed to accurately document business processes. Clarity rather than complexity have will have a much greater impact on users. Enthusiasm for the use of management systems is greatly enhanced when they are simple and easy to use.
- *Added value.* The design and operation of a management system should ensure the system adds value to the business, is dynamic and is able to function with a minimum amount of additional resources dedicated to its maintenance.
- *Continuous improvement.* The main focus of the standard ISO 9001:2000 is process driven management. This provides an opportunity to introduce simpler documentation with associated performance measurements promoting continuous improvement.
- *Value based.* The opportunity to incorporate corporate, department and individual values into a management system ensures ownership rather than a compliance culture.
- *Empowerment.* Ownership of the management system encourages employees and system users to become empowered, flexible and open to change.
- *Team culture.* Staff should be involved in developing the system as part of a team working ethos. This will also ensure that they adopt a team approach in the general execution of their duties.

2 The Six Principles
This section of the paper examines the six principles in detail and relates them to published literature

2.1 Principle 1 - Simplicity
Quality systems should be simple. They should match directly the systems which they are aiming to measure and comment upon. Any documentation should be straight forward, easy to follow and comprehensible to all staff.

To many employees, the quality system function is a new concept, with day to day operations undertaken by separate groups. Much of the work carried out by these groups is often unexplained and may include the use of complex procedures. This is in direct opposition to theory (Hammer & Champney 1995): '*We say that in order to meet the contemporary demands of quality service, flexibility and low cost, processes must be kept simple. This need for simplicity has enormous consequences for how processes are designed and organizations are shaped.*' Often the documentation of a process is achieved via a lengthy, prescriptive procedure and not a simple description of process (Hunt 1996).

The advent of Six Sigma (Benbow & Kubiak, 2005) appeared to provide a solution as it involved the users in the development of quality documentation. Six Sigma was originally developed as a set of practices designed to improve manufacturing processes and involves employees using process capability studies to eliminate defects. Mayle (Mayle at al 2002) states that '*Six sigma gained popularity in the USA in 1986 when Motorola introduce it as a means of measuring process quality using statistical process control.*' However, the perception of quality management became more and more complex. 'Effecting a Quality Change' only helps to preserve the theory that Quality Management is complex and can only be effectively handled by experts. Harrington (Harrington 1991) recognised that: '*Most business writing today cannot be read or understood easily. After cursory glance, it usually is*

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routed to the nearest file cabinet or trash can.' This indicates the response many non quality professionals give to such material.

Simplicity in documenting work processes and procedures will generate enthusiasm within those people who access such systems. Unlike complex, prescriptive managements systems, simple, easy to use systems will encourage use and are much more likely to be used within organisations. This will prevent people working in an ad-hoc fashion which could have severe implications in areas such as safety, schedule and cost. Another advantage is that if documentation of the system is simple, then it will follow that the steps in the activity will be simple too. This will give rise to a greater awareness of wider company activities to indirectly involved employees, strengthening a commitment to the overall corporate objectives.

2.2 Principle 2 - Added value

Quality systems should add value to the business rather than detract from it. Unfortunately the latter is often the case. Indeed, there is evidence to suggest that quality management is a stand-alone industry which adds little value to business. Seddon (Seddon 2000) for example cites an assessment organisation which sets targets for assessors to sell "value-added" services. 'Quality is Free' (Crosby 1993) is an almanac of how Quality Management should be correctly implemented.

Any additional work which is not core to the businesses activities must add value in some shape or form. For example, financial aspects of a structural fabrication company do not directly add value to the product. However without having robust financial procedures in place the business would soon be at risk of survival. Using this analogy any other management system must add value to a business to be worthy of time and resource to support it. A simple method to test this proposal is to identify what the effects would be if the activity was removed. If there is no real cause or effect on the product then the question has to be addressed is it adding value? Marketing is another key area which may well have no direct effect on a business product however it must play some part in the performance of the business.

If the introduction of documented quality systems and procedures is undertaken simply for the sake of compliance or customer request, management should be guarded against introducing such measures just for the sake of doing so. This will not facilitate any method of improvement to the organisations function or product nor will it add any value.

2.3 Principle 3 – Continuous improvement

Quality systems should encourage and ensure continuous improvement. In contradiction to previous approaches to quality management (BS5750 and ISO 9000:1994), the standard ISO 9000:2000 is a management standard which includes quality. This is a key difference and encompasses the philosophy intimated by Crosby (Crosby 1995). Hoyle (Hoyle 2009) states: '*Process approach is one of the eight quality management principles used as a basis for developing ISO 9000. The principle is expressed as follows: A desired result is achieved more efficiently when activities and related resources are managed as a process.'*

By engaging organisational personnel to map such processes, there are many indirect benefits which were not usually present in older quality management systems. Previous management systems developed in accordance with the previous standard BS5750 were descriptive and did not include such process maps. Hunt (Hunt 1996) provides an example of the way to proceed with a process approach: '*A tremendous amount of learning and improvement can result from the documentation and examination of the input-output (customer-supplier) lineages depicted in a process map.'* However Braganza (Braganza 2002) states: '*The cynic might suggest that 'process' mapping is an excellent way of not actually doing anything at all'* and questions the added value to be gained from this approach.

In appointing process owners as suggested by the standard, Harrington (Harrington 1991) comments that '*The business process owner's goal is to improve the assigned process to*

the point at which it reaches best-of-breed status and to keep it at that level.' In doing so continuous improvement and not conformance is thus achieved.

Process based methods differ from previous methods adopted in the era of BS 5750 which promoted a system which merely required the utilisation of "document what you do". As Hoyle (Hoyle 2009) contrasts, '*Improvement by raising standards requires a different process, a process which results in new standards. With the Document what you do' method you define departmental tasks. With the business process method you firstly define the processes that convert inputs into outputs and the requirements of the standard onto the process model that has been created, omitting those that are not relevant to your business and adding activities that are needed to meet the standard.'*

All organisations can realise benefits from having a continuous improvement facility within their organisation. Quite often when problems arise, the main focus of management is to get to the root cause and to rectify the problem. By adopting a continuous improvement methodology not only is it possible to discover the root cause but it is feasible to learn what causes things to happen and introduce appropriate improvements. In doing do so we can remove activities that have no value to the organisation, reduce variation and improve customer satisfaction.

2.4 Principle 4 – Value based

In adopting a process approach whilst documenting a management system, support must be given to an organisations values and objectives. It is therefore important that the process owners are aware of these values and objectives and selection of the process owners is carefully considered. *"The main criterion for selecting process owners is in fact ownership.'* (Harrington 1991).

Having identified the process owners, mapping activities will follow. '*Define your processes, map these processes, and prioritise the core business processes important for your business success and survival.'* (Hunt 1996). This facilitates the inclusion of core values within the system and is capable if identifying performance indicators and targets which underpin business success in all areas. Process owners must be fully conversant with the company's objectives and all interfacing departments and sections as well as their own to achieve maximum benefit from the systems.

This has synergy with Braganza (Braganza 2002) who states: '*Radical process-based change is more likely to be achieved when people accept the organisation's drivers for change, which can be both opportunities and threats.'* Braganza later endorses this scenario. '*Radical process-based change is more likely to be achieved when people recognise that organisational elements namely strategy, structured people's responsibilities and appraisal criteria, collaborative behaviours, information systems, will change and that these elements should align to a function and process orientation.'*

To help satisfy corporate values and objectives reference is made to Hoyle (Hoyle 2009) who states: '*Life cycle of the management system has five components: Establishing the system, Operating the system, Evaluating the system, Maintaining the system and Improving the system.'*

Values represent the core objectives of an organisations culture and can be developed to identify the direction of the organisation. The performance of an organization should be measured against its objectives (Hofstede 2005, Stacey 2003) . Usually the objectives are developed to include the perceived requirements of customers, stakeholders, employees and the community or sector. By developing such objectives, a concrete target against which decision makers can compare performance is provided (Sterman 2000). An organisation cannot function if values are not shared (Stacey 2003)

2.5 Principle 5 – Empowerment

One of the key principle elements of ISO 9001:2001 is that of leadership. Previously, quality systems would be endorsed as being owned by senior management. In practice this would

follow the assurance of the quality manager that all was compliant. This is no longer sufficient if the principles of ISO 9001:2001 are to be achieved.

Whilst recognising the level of senior management involvement is important, leadership and commitment alone are not sufficient to gain success as others need to be aware of their role in achieving corporate objectives. You must communicate to others what has to be done (Hammer & Champy 1995). A number of other factors will dictate the level of success in achieving this, not least management style. However to attain successful empowerment and to ensure it is not confused with delegation the support of a consultant is frequently called upon to achieve maximum success.

2.6 Principle 6 – Team culture
To develop and implement a management system in accordance with the standard ISO 9001:2000 it is necessary to have the total support of both the authors and users of the system. In doing so there is the opportunity to develop a culture based upon the strengths and advantages of teamwork. This is particularly necessary to ensure continuous improvement.

The book "The Circle of Innovation" (Peters 1999) illustrates effectively what can be achieved via an embedded company culture. "*The Ritz-Carlton experience enlivens the senses, instils well-being, and fulfils even the unexpressed wishes and needs of our guests.*" There is a strong argument to suggest that a positive, improvement-focussed and high performance culture promotes better results for customers and suppliers.

Conversely the novelty of newness may be viewed with scepticism by users. In developing a culture of teamwork and understanding the benefit of a new system delays in acceptance maybe overcome. There is long standing evidence that many new products are delayed in their acceptance *"Products that invent/reinvent a market are (almost unfailingly) rejected at the start by customers. A painful process that takes years to work out"* (Peters 1999).

2.7 Summary
This section of the paper has covered a review of literature which relates to the six principles which the authors propose are necessary factors of a successful management system. In doing so we have also examined whether the principles are core elements of organisation development. Many of the principles are interconnected, particularly when judged in connection with the development of organisations, their values and strategic development.

3 A Corporate Management System based on the Six Principles
This section of the paper reflects upon a Corporate Management System (CMS) which was developed by the principal author. The aim was to develop a system which incorporated each of the six principles which we have identified in the previous sections of the paper.

In developing the CMS, full cognisance was taken of the six principles discussed above. Staff were encouraged to ensure the system was simple, dynamic and reflected corporate and individual values. This promoted team ownership of the system which generated a culture of continuous improvement and encompassed added value (see Figure 1).

PRINCIPLE	CMS
1 Simplicity	yes
2 Added Value	yes
3 Continuous Improvement	yes
4 Value Based	yes
5 Empowerment	yes
6 Team Culture	yes

Figure 1 Principles incorporated in the CMS

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The prospect of assisting with the development of the system provided an opportunity to introduce the six principles as integral supporting elements of the system. Senior management viewed the introduction of the system as a key factor in the company's development and were keen that it fully endorsed and supported the company vision (principle 4). They were also committed that the system would be developed by the users, for the users, thus satisfying the requirements of principles 5 and 6. It was also to be simple and easy to use (principle 1) and would be subject to continual review for improvement (principle 3), rather than being monitored by audit alone. By developing the system in this manner the system added value to the business (principle 2).

This was a major step forward from previous systems which tended to have been imposed and were heavily quality system biased. This was because the systems were developed and controlled by the quality department with little, if any, input from system users. This was also an opportunity to develop a single system which promoted best practice and gave identifiable, tangible benefits whilst still incorporating a robust quality system (principles 1, 2 and 3)

The system was easy to access and was available to all personnel. It was simple and easy to navigate (principle 1). The system incorporated function which allowed staff to suggest improvements (principles 3 and 5). It also included in a simple and clear manner the objectives of each department (principles 5 and 6). It was based entirely upon the corporate values and mirrored these at all levels (principle 4).

At the time of development the system represented best practice in the sector and was a major step forward from previous systems. As a result it was the start of a journey towards a new corporate culture and a new way of working.

4 A Qualitative Study of Management Systems

4.1 Aims
The section presents the results of a qualitative study the first author undertook to investigate senior management awareness of quality standards, and the management systems which they had in place to support quality within their respective organisations. This was done to further explore the six principles identified in the earlier sections of this paper. Semi-structured, in-depth interviews were conducted with senior managers working in a variety of sectors. The aims of the study were:

- To investigate the management system which was in place in a range of organisations
- To investigate to what extent, the systems in place in the organisations incorporated the six principles, which I propose to be the core requirements of an effective management system
- To explore the motivation for having a management system
- To identify the benefits which the organisation was gaining from a management system.

4.2 Research methodology
The purpose of this study was to obtain qualitative data which would achieve the aims outlined above. It was decided that structured interviews was the most appropriate method for data collection. Data collection by questionnaire was discounted as this would not provide the level of detailed qualitative data required.

Six organisations were selected from the private, public and voluntary sectors. From the private sector three companies were selected, each with their own characteristics. The organisations selected were designed to cover a range of organisations for which management systems and quality are of interest. The organisations selected were:

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In order to establish the level and use of any management system in place within these organisations, an interview questionnaire was developed to cover a range of topic areas, as shown in Figure 2. The questions were selected to cover the aims of the research study, and to be open-ended enough to allow the interviews to expand upon their answers. The questions were designed to give a natural progression; first to obtain details of any system in place, its basis, how it is used and the user perspective. The collection of the data was completed during face to face discussion with a nominated representative for each organisation.

Topic Areas	Principles explored
Aim: *To investigate the management system which was in place in a range of organisations*	
Questions	
What type of management system do you have in place? How long has it existed?	1
Does it have properties similar to any proprietary system, e.g. SAP, Prince, Six Sigma?	1
Do you have a dedicated quality manager?	5
Aim: *To investigate to what extent, the systems in place in the organisations incorporated the six principles, which I propose to be the core requirements of an effective management system*	
Questions	
What, if any, operational activities are constrained by the system?	4
How does the system bring about conformance to company values?	4
Would you say the system provide a creative culture?	3,6
How would you describe the management perspective of the system?	5
How would you describe the employee perspective of the system?	6
How does the system compare with the requirements of BS EN ISO 9001:2000?	1,2,3,4,5,6
Aim: *To explore the motivation for having a management system*	
Questions	
What is the reason for having a management system? For example is it present for compliance with customer requirements?	2
How do you manage improvement? Is this a feature of the system?	3
Aim: *To identify the benefits which the organisation Was gaining from a management system*	
Questions	
Are you registered with Investors in People, IIP? If yes, is the system in line with your IIP programme?	5
Can you outline the aspects of any external coordination with your company and system?	3

Figure 2 Interview Topics

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4.3 Results

The results of the study are depicted in Figure 3. It can be seen that only one organisation (organisation C) appeared to cover all of the six principles, and the others covered them to varying degrees. Those organisations which hardly covered the principles (organisations B and D) did have management and quality systems. These were not integrated and quality was seen to be a separate function. However all of the organisations recognised the importance of the six principles for a successful management system. These results show that much still remains to be done in terms of developing management systems which support the business and which integrate quality within day to day operations.

PRINCIPLE	ORGANISATION					
	A	B	C	D	E	F
1 Simplicity	Yes	no	Yes	no	yes	no
2 Added Value	Yes	no	Yes	no	no	no
3 Continuous Improvement	No	no	Yes	no	no	no
4 Value Based	Yes	yes	Yes	yes	yes	yes
5 Empowerment	No	no	Yes	no	no	yes
6 Team Culture	Yes	no	Yes	no	yes	no

Figure 3 Comparison of results with the six core principles

5 Summary

This paper has explored the areas of quality, management, management systems and corporate values. It has presented a piece of research which reflects upon professional experience and presents a management system which was developed for use in the oil and gas sector. It has also used qualitative research to further explore the principles derived. The principles are:

- Simplicity
- Added value
- Continuous improvement
- Value based
- Empowerment
- Team culture

The authors believe that these six principles are fundamental to good management systems. This piece of research has gone some way to demonstrate this.

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Do Management Systems relate to Quality Systems?: A Qualitative Study

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Asbract

The paper will present the results of a qualitative study which was undertaken to investigate senior management awareness of quality standards, and the management systems which they had in place to support quality within their respective organisations. Semi-structured, in-depth interviews were conducted with senior managers working in a variety of sectors.

The aims of the study were:
- To investigate the management system which was in place in a range of organisations
- To investigate to what extent, the systems in place in the organisations incorporated the six principles, which I propose to be the core requirements of an effective management system
- To explore the motivation for having a management system
- To identify the benefits which the organisation was gaining from a management system.

The purpose of this study was to obtain qualitative data which would achieve the aims outlined above. Six organisations were selected from the private, public and voluntary sectors. From the private sector I selected three companies, each with their own characteristics. The organisations selected were designed to cover a range of organisations for whom management systems and quality are of interest. The organisations selected were:

Organisation A – a software company who specialise in the supply of collaborative management systems used primarily in the construction industry.

Organisation B - a social housing company who operate on a not-for-profit basis. The business includes construction, maintenance and property acquisition in addition to its social housing activities.

Organisation C - a very successful company operating in the oil and gas industry.

Organisation D - a Hospital Care Trust.

Organisation E - a police force, as are another public sector organisation that has performance indicators, and which are very much in the public arena.

Organisation F - a charitable youth training organisation which focuses on the requirements of disadvantaged young people.

The paper will present and discuss the results of the study and what they mean for management systems.