FIRST LINE SUPERVISORS IN THE OFFSHORE OIL AND GAS INDUSTRY

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ABSTRACT

First line supervisors in the offshore oil and gas industry

The offshore oil and gas industry has created significant wealth for the UK economy; approximately 250 billion Great British Pounds (GBP) since oil was discovered under the United Kingdom Continental Shelf (UKCS) of which approximately 70 billion GBP was paid in tax and royalties to the UK government. The industry currently employs about 35,000 individuals directly and supports many more jobs indirectly. In short, it is a very critical industry to the UK economy. But for all its contribution, there is a dearth of social science and management research into the how the offshore industry is managed. This thesis reports the background and findings of an investigation into the first level of the platform production management team and examines this role in terms of the personal characteristics and man-management skills required within this working environment.

This thesis was the first study that attempted to investigate the non-technical characteristics of high performing supervisors. It examined the question of what makes an effective supervisor in terms of biodata, personality, job satisfaction and perceptions of the work environment. The transformational model of Bass and Avolio (1990) was also adapted to assess leadership style. A specially designed semi-structured questionnaire was developed. The research sample comprised of one hundred first line supervisors (operators and contractors), their subordinates and their superiors on three North Sea platforms.

It was hypothesised that effective offshore first line supervisors would have a distinct supervisory style compared to less effective ones. Other aims included assessing the differences between supervisors working on the UKCS and those on the Norwegian Continental Shelf (NCS); and between supervisors working for contracting companies as opposed to operating companies.

The key contributions of the thesis were in the following four areas; (i) the summary data that described the offshore first line supervisors, (ii) the findings from standard instruments, particularly the Bass leadership instrument, identified that supervisory effectiveness was dependent on the platform membership of the supervisor, (iii) the qualitative findings from the supervisory decision making vignettes and finally (iv) the platform differences that were elicited from both within the UK sector and between the North Sea sectors. For example, on one UK platform, UK1, the more effective supervisor displayed a more transactional leadership style, namely taking an active role in enforcing workplace standards. There was some evidence to suggest that dimensions of a transformational leadership style such as motivating subordinates through pep talks and depicting visions of a better workplace were positively correlated with performance. These

findings were broadly consistent with the results of previous research. In contrast, the second UK platform, UK2, produced a different finding. This was surprising given the numerous physical and organisational characteristics that these two platforms had in common. The Norwegian platform sample was small (n=19) and therefore correlational results were largely exploratory.

Further differences were revealed through multi-variate analyses between all three platforms based on leadership, job satisfaction and biodata variables. This implies that 'effectiveness' may be dependent on the platform membership of the supervisor. As an alternative explanation, these findings may suggest that the standard instruments and appraisal measures were not sensitive enough to differentiate performance within this work environment. The Bass and Avolio (1990) leadership model, in particular, produced contradictory findings and its usefulness in this context remains questionable. Qualitative evidence from the total sample of effective supervisory behaviours, using a behavioural event interview method, supported the quantitative findings from UK1 but broadly disagreed with the findings from UK2. Measuring supervisors performance without reference to objective indices remains a weakness for this style of research.

The impact of these findings is discussed in the context of both practical recommendations for recruitment, selection and development for the supervisory population and future research into management research in the offshore oil and gas industry.

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CHAPTER ONE

THE NORTH SEA OIL AND GAS INDUSTRY

1.1 INTRODUCTION

> *"What the astronauts have done is great,' he said to the rig's geologist, 'but how about this?' He held up the oil; it had a golden sheen, almost transparent, but definitely almost like gold." (Yergin, 1993, p.668).*

The above quotation described the first moments after striking oil in the Norwegian sector of the North Sea by Phillips Petroleum in November 1969. A breakthrough that was frequently referred to as 'luck', paved the way for one of the most ambitious capital investment projects in the world. Although drilling for oil onshore, began in the USA as early as the 1850s and offshore production had started with the first platform in the Gulf of Mexico in 1947, the scale of interest in finding oil in the North Sea surpassed all expectations and no oil company dared to be left out (Yergin, 1993).

In a commentary on the economic impact of North Sea oil on the UK political scene, Harvie (1994) described it as the greatest civilian project in Britain since 5,000 miles of railway were built in the 1850s. In the UK sector, within twenty years since North Sea oil was first discovered, there were 46 fields in production, 25 under development, 93 platforms, 42 mobile rigs and about 28,000 offshore employees, and the industry was generating total revenues of c220 billion GBP. Although, revenues were high, the cost base was equally large, and the industry focus particularly since 1986, has aimed to reduce costs.

Following the oil price collapse of 1986, the North Sea offshore oil and gas industry faced an uncertain future. Since then the price has remained fairly stable fluctuating between $12 and $18 per barrel and there has been little change anticipated in the price per barrel. Many previously planned offshore projects had to be shelved. The exploration arm of the upstream industry stopped drilling wells almost overnight and the existing platforms faced the need for cost reduction in order for the fields to remain viable. The North Sea is now firmly established as a mature petroleum province where rising operating costs restrict profit levels, reduce field life and risk future offshore developments. The industry needs to address these challenges by developing solutions that combine the twin imperatives of cost efficiency and improved performance whilst giving due regard to safety and the environment.

These changes have triggered a range of significant innovations within the offshore oil and gas industry such as new technologies in subsea satellite developments, information technology applications in reservoir modelling and the design of simpler platforms with low manning (and unmanned) and floating production vessels.

However, the dual needs of the offshore industry, with diminishing hydrocarbon resources from existing finds and future developments remaining in smaller marginal fields or inhospitable deep waters, are only part answered by technical solutions. The hunt for scarce resources exists not only in geological formations but also in the search for expertise. The skills demanded to manage offshore developments in this mature phase of the industry require different people of the highest calibre (Fay, 1993). Highly trained competent supervisors are a necessity to lead teams from a multiskilled offshore workforce that can operate in this cost conscious era where new opportunities and demands will challenge the "best" man-management skills.

The purpose of this thesis is to identify the skills required by an offshore first-line supervisor who can successfully lead a team in this unique working environment. The technical skills of the first-line supervisor are not in question, instead it is the non-technical aspects of the role that differentiate the effective from the less effective supervisors. These include the "soft" skills, such as the leadership/man-management/behavioural competencies. Not only is it the investigation of these skills in isolation, but also how they interact with other attributes comprising personality, job satisfaction and perceptions of the work environment. The identification of these skills and the determination of how they differentiate between effective and less effective performance among offshore supervisors will form the main thrust of this thesis. To appreciate why it is critical to diagnose these skills, it is essential to convey the background to the development of the offshore oil and gas industry. Given the dearth of research within an offshore supervisory context, it is also necessary to examine, for comparative purposes, the supervisory and leadership research conducted with onshore first-line supervisors. This approach should underpin the strategy of data collection described in Chapters Four and Five which will ultimately identify findings that address the main questions raised by the thesis.

The specific aim of this chapter is two fold: firstly to review previous research into working life on North Sea oil and gas installations, and secondly to examine in more detail those findings that relate to the role of the first line supervisor on offshore installations. One of the most interesting aspects of this investigation is the North Sea's incomparability with other working environments. "Outer space with bad weather" were the words used by one commentator to describe it, and research that examines the social impact of the offshore work environment will introduce the next section. These introductory sections will set the scene for the latter part of this chapter which will describe the specific challenges faced by offshore supervisors.

1.2 THE OFFSHORE WORK ENVIRONMENT

Several research projects have been undertaken to describe the social and environmental consequences of the offshore industry. The results of these studies will form the central part to the description of the offshore work environment. While the projects outlined do not analyse the offshore industry within a UK context, because they focus on the Norwegian and Canadian oil industries, similarities can be identified between all three upstream provinces.

In 1979, Mobil Exploration Norway initiated a comprehensive research project aimed at examining the impact of the offshore work environment on working relationships on the Norwegian Continental Shelf (NCS). The primary use of the information gathered from the research was to monitor and hopefully improve the interplay between people and the environment (Hellesoy, 1985). The impetus for the project was driven by several factors. It was suggested that the knowledge gained from previous studies into onshore work environments might not be directly applicable to large, technologically complex offshore oil production platforms. Platforms in the North Sea could be a challenging work place for the workforce and there might be problems in the successful adaptation to the physical work, the way in which the work was organised, and differences in work cultures between Norwegians and foreigners (Hellesoy, 1985). The researchers thought that risks to health and safety, such as those found in onshore process industries, might be increased by factors associated with the North Sea environment. These included; rough weather conditions, helicopter transportation to and from the worksite, physical and chemical exposures, a 24 hour society, a mixture of cultural backgrounds, living conditions, leisure opportunities, long workdays during shifts and a unique work cycle that creates long periods away from home and even longer periods away from the workplace. It should be noted that the offshore environment, might conversely improve life for the offshore employee by allowing opportunities for new and challenging tasks, improve finances and raise living standards, create secure employment and provide more uninterrupted time for participation in family and local community life.

The Statfjord A platform, with a workforce of about 500 people, had been systematically investigated by Mobil (Norway) researchers in an effort to find out how the employees thought about and reacted to their new environment. The researchers interviewed 698 people offshore during a seven month period in 1980 and complemented this by sending questionnaires to the employees' home addresses. The sample comprised of operator personnel, catering personnel, drilling personnel and flotel crews.

The ultimate aim was to predict possible consequences for health and safety in order to prevent or constructively meet possible difficulties as early as possible. As operator, Mobil wanted to improve the social climate on the platform in order to develop the best possible work environment. Hellesoy states categorically in the preface to his book that Mobil demonstrated foresight and an uncommon willingness to use research to strengthen the health and safety of Statfjord employees by initiating and financing this comprehensive project, and also allowed the researchers complete freedom to define problem areas, choose methods, formulate conclusions and publish results. The relevant details of this Norwegian study are discussed in the sections below.

A similar investigation was undertaken to examine the social impact of the exploration phase of the Canadian offshore oil industry (Fuchs, Cake & Wright, 1983). The research, which was sponsored by the Government of Newfoundland and Labrador, sought to "establish the baseline social and economic characteristics of early interaction with the oil industry and to identify the way in which rural residents employed on the offshore were adapting to their work" (p.1). The results from the research showed that the majority of the oil workers interviewed were satisfied with their offshore employment. Offshore work was described as one of the more

exotic and elite occupations available to the working man in Newfoundland, an area which has very high unemployment (Fuchs et al, 1983). They perceived that offshore work provided them with income security and an assured future within rural Newfoundland. These perceived benefits outweighed the adjustments to other factors such as changed marital roles, social and recreational life.

In 1985, a paper by House entitled "Working Offshore: The Other Price of Newfoundland's Oil" described the Canadian oil industry as "Nineteenth Century Capitalism in the Twentieth Century". The purpose of the paper was to examine both the working and the safety conditions in Newfoundland and compare them internationally. The paper argued that the Ocean Ranger disaster, the capsize of a semi-submersible drilling rig on February 15, 1982 killing 84 men, need not have happened. House claimed that reports outlining the lessons to be gained from the Alexander Kielland disaster, a flotel that capsized in the Norwegian sector in 1980 and resulting in 123 deaths, were ignored. The oil industry, the labour movement and the Canadian Government all failed to recognise the dangers associated with the offshore oil industry (House, 1985).

> *"While both industry and government have recently devoted much effort to safety issues, they continue to view them as a technical problem. But those few social scientists who have managed to gain access to the offshore workplace suggest otherwise. The problem is as much one of the political economy and social organisation of the offshore workplace as it is of technological deficiencies." (p.3).*

The Institute of Social and Economic Research at the Memorial University of Newfoundland, which published House's paper undertook a further research project describing the reactions of Newfoundland workers and their spouses to work on exploration rigs and supply boats. The research conducted by Shrimpton and Storey (1991) used questionnaires that were directed at both the workers and their spouses. The questionnaires addressed their opinions about employment experience, reactions to offshore work, and its family life impacts. Their findings suggest that improving health and safety in the offshore oil industry requires a greater emphasis on social, psychological and cultural, as against technological factors.

The importance of comparison between the Norwegian Sector, Offshore Canada and the United Kingdom Continental Shelf (UKCS) cannot be underestimated. In spite of cultural differences, there is considerable similarity between the three sectors in terms of the formation of the petroleum reserves and the types of drilling rigs and production platforms used. Although, unlike offshore Canada, the North Sea, does not have to contend with floating icebergs as a potential hazard. Comparisons between the three sectors in the production stage of the upstream industry are only applicable between the NCS and the UKCS as the Canadian Hibernia project will not produce oil and gas until 1998.

Given the commonality between the NCS and the UKCS it has been argued that each country can learn from research undertaken in the other. Both operating companies and service companies are involved in upstream activities in the two territories, specialist personnel such as directional downhole drillers and reservoir engineers frequently interchange across the two provinces and research examining the environmental impact of the

offshore industry in the North Sea has implications for both sides. House (1985) stated that the Canadian oil industry was in an enviable position of potentially learning lessons from the North Sea experience. However, he further emphasised the cross cultural nature of the research within the North Sea by describing the Norwegian government as more insistent than the British that oil companies cooperate in social science research by assisting in gaining access to installations and providing research funding. The reasons behind the differences in attitude to social science research by the two governments prior to 1985 is not of direct relevance to this chapter but the transfer of research in safety methods since then has contributed significantly to the development of a safer North Sea oil and gas industry (see Cullen, 1990, Chapter 16).

This social and environmental research into the oil industry, while important, highlights the lack of investigation into other aspects of the industry. The section above describes the key social science research projects that examined the impact of the offshore oil and gas industry at a macro level, but have largely ignored the individual; the most essential offshore asset of all. The next section aims to describe the impact of the offshore industry on the human factor and the difficulties that this posed in terms of both organisation and management.

1.3 MANAGEMENT RESEARCH IN THE OFFSHORE INDUSTRY

Perhaps surprisingly, given the importance of the industry to the host economy, there has been a dearth of management research in the offshore oil and gas industry (Flin, Slaven, & Carnegie, 1996). The importance of management and supervision was highlighted by the Cullen Inquiry (1990) and previous research into the North Sea offshore oil and gas industry primarily examined wider issues such as work environment, accident rates and occupational stress. In the early eighties, research examined the social impact of the offshore work environment (Fuchs, Cake & Wright, 1981; Hellesoy, 1985). The second half of the decade saw a change of emphasis as UK research began reporting the effects of stress on the offshore workforce (Gann, Corpe & Wilson, 1990; Parkes, 1993; Sutherland, V, & Cooper, 1986 & 1991; Sutherland, K, & Flin 1991). More recent managerial research has been undertaken in the industry, by examining the demands of specific roles such as the role of the Offshore Installation Manager (OIM) (Flin & Slaven, 1993; Mykletun, 1993). The quantity of research into the offshore industry has been increasing and while there are many contributory factors to this attitude change, the culture is very different from 1985 when House stated : "Worldwide, there have been few systematic investigations of the offshore oil industry and its impact upon oil workers and their families" (p. 7)

The rest of the chapter will focus directly on research that centres on management roles offshore and in particular the first line supervisor. Previous research, the concomitant effects of the new cost conscious climate and changes in the safety culture have placed an increased significance on both the management and human factor issues in the offshore oil and gas industry (Flin & Slaven, 1996). One of the key management positions on a platform is the first line offshore supervisor. This individual holds what is arguably one of the most important management positions in any industry. The supervisor is the key link between upper management

decisions and the implementation of these tasks, while simultaneously satisfying the potentially conflicting demands of both his or her superiors and subordinates.

The supervisors' superiors are looking for performance without problems and the subordinates are looking to their supervisor for leadership, direction and rewards (Phillips, 1985). The position is not only critical from an organisational perspective but is crucial at the cutting edge of the oil business where the supervisor has been described as the person responsible for the reliability of the interaction between hardware and a skilled and motivated workforce (Bird & Germain, 1985). The influence and significance of this role will be described in more detail in subsequent sections of this chapter.

1.3.1. Supervisory influence on social support and stress

High inventory dangers, safety critical procedures and confinement i.e., living and working in the same location, are significant stressors in this 24 hour work environment. The close proximity of the living and working life on an offshore installation, in particular, is of considerable importance and may accentuate or attenuate poor relationships at work. This may be observed through low trust, low support and poor communication and can result in low levels of job satisfaction and reduced well being. Social support makes employees feel more positive about themselves and their work, and an empathetic supervisor is a valuable prop both to self-esteem and a buffer against stress in any workplace (Cox, 1993). Previous research has identified the supervisor as a having a key role in moderating the effect of stress on his team (Hellesoy, 1985; Sutherland & Cooper, 1986). The supervisor's role in interpersonal relationships while critical in any organisational setting, appears to be more significant in the upstream oil industry. Although the proximity factor in the offshore industry may force some individuals to strive harder at their social and working relationships because they also live together (Hellesoy, 1985; Sutherland & Cooper, 1986). Hellesoy found that supervisors are themselves not immune to stress and that responsibility for the work performance of others, was itself a stressor. The supervisors indicated that support and back-up from their superiors modified the stress effect of responsibility but where support and back-up was less than they expected the supervisors rated their position as stressful.

One argument established to explain the presence of poor interpersonal relationships is that offshore supervisors and their predominantly technical backgrounds may regard relationships at work as low priority. Sutherland and Cooper (1986) state that the technical supervisor's orientation is towards "things" not "people" and that "consideration of working relationships is viewed as mollycoddling, trivial, petty, time consuming and an impediment to doing the job well." (p.57) One could argue that this view was prevalent during the pioneering days of the North Sea oil industry with the 'American hire-and-fire mentality' but that recent culture changes as a result of the Piper Alpha disaster and Ocean Odyssey blow-out, and the subsequent changes to safety regulations have had a significant impact on the attitudes and beliefs within the oil industry.

1.3.2. Supervisor influence on job satisfaction

One of the main indicators of poor social support from offshore supervisors was a low level of job satisfaction (Sutherland & Cooper, 1986) although, it could be argued that the supervisor's subordinates experience this because their supervisor is also experiencing low levels of job satisfaction. In the Norwegian study by Hellesoy, the supervisors reported more dissatisfaction with the time available to do the job properly and more dissatisfaction with pressure and stress within their jobs, than did the other offshore groups within the sample. These two variables indicated that the supervisor was subjected to heavy work pressure. Hellesoy (1985) found that supervisors differed from the other offshore workers in findings such as a greater dissatisfaction with time pressure and stress in their jobs, problems with health, well-being and life style just prior to the work period, and a tendency toward health problems and toward work being influenced by accident/illness during the work period. Hellesoy suggested that these findings of occupational strain in supervisors required further examination. He argued that further research requires not only measures of the conventional aspects of the work environment such as safety, health and job satisfaction, but should incorporate a more holistic approach that examines the degree to which work stress adversely affects onshore life. However, certain functions of the role of supervisor did create feelings of job satisfaction such as pay and communication of authority. Satisfaction with the rewards of the job were known to modify the stress impact of offshore work pressure (Hellesoy, 1985).

Job satisfaction was also measured in the UKCS by Sutherland and Cooper (1986) using the Warr, Cook and Wall (1979) Job Satisfaction Scale. Job satisfaction was an interesting variable in their study as it was rated differently between the groups in the sample i.e., operator personnel were more satisfied than contractor personnel. They also found that the offshore sample rated job satisfaction significantly lower than an onshore comparison "blue collar" group. Their study also concluded that the job dissatisfied worker was more likely to have reduced mental well being, physiological ill health and possible increased vulnerability to accidents. In organisational terms it probably results in poor performance and reduced productivity. This has significant implications for the supervisor as a substantial part of his or her role is to motivate and lead their teams (Evans, 1992). While the findings may show that offshore employees were more dissatisfied than an onshore group, direct comparisons may be inappropriate because of the composition of the onshore "blue collar" norm group which covers only manufacturing industries and excludes service construction, agriculture and mining industries (Warr, Cook & Wall, 1979).

1.3.3. Supervisory impact on risk perception

One of the key factors that influence the work environment and safety culture of an offshore platform is risk perception. The Norwegian Statfjord project examined the relationship between position in the management hierarchy of the platform and risk perception. The respondents were asked to indicate how safe they felt regarding 20 aspects of the Statfjord environment e.g., fire, blow-out and evacuation facilities. The results showed that there was an extremely strong tendency for supervisors to perceive *low* "risks of explosions", and

to experience the least risk for other "dangerous conditions". The supervisor's subordinates surveyed reported the highest perceived risk on all risk factors. (See Chapter 10, Hellesoy, 1985; & Sunde, 1983.) In a subsequent UKCS study on risk perception, a similar finding was reported describing a slight difference between supervisors and non-supervisors perception of risk (Mearns, Flin, Rundmo, Fleming, & Gordon, 1996). Their results indicated that supervisors felt safer with regard to carrying out their work task than did non-supervisors due to the additional information that supervisors possess relating to the task. These findings indicate the critical impact that a supervisor can have on both the management and communication of risk to their teams.

1.3.4. Rotation of the offshore workforce and its effect on supervision.

One of the obvious differences between an onshore and offshore environment is work rotation. The employees of an onshore factory would typically expect to work continually throughout the year and apart from weekends and holidays would retain a physical connection with their working environment. However, the offshore workforce typically work two or three week shifts (with no rest days) and then spend the same time onshore on leave. Therefore, they share their work place with another shift and do not retain the same continuous physical connection with their working environment as their onshore counterparts.

Researchers at the Rogaland Research Institute in Norway have undertaken research into the effects of rotating several individual leaders into the same position as platform manager. (Platform Manager in the Norwegian Sector is the equivalent of the Offshore Installation Manager, (OIM), in the UKCS). The research examined the effect of repeated management changes due to the work pattern and their potential consequences for effectiveness and safety hazards. One of the main problems identified by Mykletun (1993) was the effect of the rotation of not only the platform managers but also of the other leadership positions (such as the supervisors), and the crew. This created a situation where each offshore trip became a more demanding social process "a kind of unintended 'team building'" (p.5). He also argued that the offshore work environment was peculiar in other ways, for example, the leadership position remained constant while the leaders changed and this meant that in effect they were working together without really knowing the personal background of their opposite partner.

More effective team building was advocated as a solution to the problems described above. The teambuilding exercise should take place during onshore periods and also on the platform, and should highlight the need to get as close to the team as possible so that one will know how their fellow worker or supervisor will react in different situations. One other solution put forward was to reduce the room for decision making by the platform manager and subordinate leaders which allows senior management onshore to exercise control over offshore management. Although Mykletun himself claims that this may be impossible from an ideological point of view.

In another Norwegian study by Rundmo (1993) which examined risk perception in offshore workers, team working and supervisory support were identified as critical factors in supporting safety initiatives. Social

support by management and supervisors was also found as important in forming attitudes towards safety measures for all personnel. Vant and Livy (1979; 1980) in their UK study of the selection and recruitment of roughnecks and roustabouts, identified good team working as one of the most important factors that assisted the individual in coping with life offshore, and is linked to the benefits of social support (Hellesoy, 1985). Improving man management is an important part of team building and Sutherland and Cooper (1986) emphasise that this may have a substantial impact on the cooperation between operator and contract personnel. This relationship has had an ever increasing importance in the nineties as operating companies have outsourced several parts of their previously held core offshore business to services companies. This shift has had significant impact on the role of the supervisor as their responsibilities have expanded to include cultural facilitator between operator and contractor personnel.

1.4 THE OFFSHORE SUPERVISOR

This section describes the only specific previous research undertaken into the role of the offshore supervisor and secondly the major impact that the Piper Alpha disaster had on the role of the offshore supervisor.

The only specific research into the role of the offshore supervisor was a Norwegian report by Rowell (1981) (cited in Hellesoy p.365-366) who identified several factors that may contribute to the work pressure as expressed by those supervisors working on the Statjford A. The report focused on the problems of supervisors regarding the responsibility and communication in their work relationships both with their superiors and their subordinates. The factors are listed below :

"1. The supervisor organises and monitors the performance of the work of others.
2. The supervisor is the last chain of management policy, with a certain - though limited – responsibility for making decisions.
3. Since the supervisor performs his work through others he may be viewed as a facilitator and an on-the-job instructor.
4. All supervisor-jobs contain an element of personnel administration and care for the welfare of subordinates (i.e., their pay, provision of the necessary material and equipment for acceptable physical work environment decisions).
5. The supervisor must live with the fact that almost all his decisions may be overruled and, more often than others, he must see his own authority questioned or overruled by others (often as a result of agreements between union and management).
6. The supervisor is the main link in the two-way communication process of the company - a source of information for management, and a "sorting level" for complaints and suggestions from subordinates.
7. The supervisor has a clear responsibility to motivate those whom he manages." (p.365)

Rowell feels that the characteristics of the role of the supervisor described above are challenged further by four other factors. These include:-

a There may be little education, training or preparation for the role before filling the job position.

b It does appear to be generally accepted that promotion to supervisor provides a change of status which others respect.

c Supervisors must demonstrate greater patience, fairness and understanding than previously. Younger employees more readily question decisions and demand reasons. They are not satisfied with just being "told" to do something.

d Organised dialogue between management and employee representatives creates an increasing gulf in the centre of the organisational structure and the supervisor inevitably falls into it.

Hellesoy (1985) concludes that the results from the Statfjord findings support the need to action an indepth evaluation of the problems that surround the supervisory role and Rowell, in his report, emphasises this further by asserting that a complete survey of the supervisors' role and an identification of qualities and qualifications is necessary for first line supervisors.

Given the importance of the role in terms of communication among the groups offshore, it was hardly surprising that the role of the supervisor was again identified as a key one as a result of the Cullen Inquiry into the Piper Alpha disaster. The Piper Alpha disaster occurred on July 6, 1988 and was the world's worst offshore disaster. Following two initial explosions, a massive fire swept through Occidental's Piper Alpha production platform 120 miles north-east of Aberdeen. The disaster destroyed the installation and resulted in the deaths of 167 men. It led to a change of emphasis, attitude and culture by all involved in the North Sea oil and gas industry. In fact, it had a profound effect on the oil industry throughout the world. The subsequent Public Inquiry chaired by Lord Cullen had two main objectives:

> *(1) to establish the circumstances of the accident and its cause;*
>
> *and*
>
> *(2) together with any observations and recommendations which he (Lord Cullen) thinks fit to make with a view to the preservation of life and the avoidance of similar accidents in the future." (p.7)*

Lord Cullen's report was published on 12th of November 1990. It recommended sweeping changes to the UK offshore oil regulatory regime and listed 106 specific recommendations for government and industry. One of the main changes sanctioned by the Cullen Inquiry was the introduction of the safety case. The safety case is a demonstration by the Operator that the hazards of the installation have been identified and assessed, and are under control and that the general exposure of personnel to these hazards have been minimised (see Cullen 1990, Chapter 17). Within the safety case the installations have to operate a Safety Management System (SMS) which sets out the safety objectives, the system by which these objectives are to be achieved, the performance standards which are to be met and the means by which adherence to these standards is to be monitored. Cullen also endorsed the involvement of personnel at all levels in the safety management system.

> *"The first-line supervisors are a key link in achieving that as each is personally responsible for ensuring that all employees, whether the company's own or contractors are trained to and do work safely and that they not only know how to perform their jobs safely but are convinced that they have a responsibility to do so." (p.300-301)*

These recommendations only further confirm the significance of this role in terms of its influence in the workplace. The offshore supervisor is literally the only person that can react instantly to changes and can therefore be instrumental in reducing potential loss and directly influencing profit and overall performance. The failure of the supervisory process was the catalyst that created the first explosion on the Piper Alpha (Cullen, 1990, chapter 6). A breakdown in communication that solely in financial terms amounts to millions of pounds (GBP) costs to the then platform operator, Occidental, and millions more to the offshore oil and gas industry in safety related improvements. These costs were arguably avoidable had the weaknesses of the management practices of the platforms been properly identified by all oil industry senior management and they had subsequently introduced a management philosophy that was congruent with the unique demands of the upstream oil industry. It could be argued, however, that for the offshore supervisor, the resulting changes have gone too far. In practice, the offshore supervisor was a significant part of a communication system (permit-to-work) breakdown that failed to prevent the first gas leak on the platform. However, the first line supervisory level could not be blamed for failing to order shutdowns on the two other platforms that pumped oil and gas to the Piper Alpha which resulted in a second and more devastating explosion or failing to implement appropriate evacuation procedures. The safety culture promoted by the Cullen Inquiry predictably pushed responsibility for safety up the management hierarchy to the highest level. In organisational terms, this has ironically resulted in more responsibility being driven back down to the first line supervisor as he or she has to implement the new safety policies of senior management. In essence, the first line supervisor has now even more responsibility for safety and yet the errors that lead to the Piper Alpha Disaster were a combination of the harsh environment, offshore platform design weaknesses and a production at all costs culture promoted from senior management onshore rather than first line supervisors portraying a disregard for safety. Harvie (1994) reiterates the point made by Hellesoy (1985) that even amongst roughnecks safety is an important part of their role

> *"Despite their bravado and ostensible disregard for personal safety, the drillers' basic attitude is in fact quite sober and oriented toward accident prevention and safety instruction..." (Harvie, 1994, p.234)*

It is, however, the lack of management research into the performance of the role given its criticality that is most surprising. The tasks and responsibilities of being a first line supervisor are significant. They include; day-to-day workplace leadership and responsibility for vital tasks with varying levels of upper management support. These particular issues will be further explored in the next chapter. The offshore industry because of its unique working environment, thrusts even more weight on the role. For example, the impact of the environment and the burden that this may have on the supervisor in terms of providing social support and a buffer for stress have been identified as key supervisory responsibilities. The offshore supervisor is also increasingly acting as coach and facilitator to improve the cultural changes demanded by the new business strategies being implemented offshore. For example, outsourcing non-core activities to service companies is increasing and operating and contracting companies now employs the population of offshore supervisors more equally. Supervisory

differences dictated by company background are also an area of particular interest in the thesis. And, as if that was not enough, the Cullen Report has pinpointed the role as crucial to the development of a new offshore safety culture. With the plethora of sub-sea wells, the development of high pressure high temperature fields and the compulsion to increase profitability by reducing costs and minimising platform shutdowns, the safety of the offshore industry is even more reliant than ever on competent offshore supervision. The competent first line supervisor may be the major safeguard against 'an accident waiting to happen', a major environmental spill or another Piper Alpha disaster. The oil industry should not forget the prophetic words of Red Adair who said in April 1977 "*Whatever precautions are taken, there'll be a disaster in the North Sea, sooner or later* (Alvarez, 1986, p.163) and avoid the return of the "production at all costs culture" to the industry.

Supervisory and leadership literature from an onshore perspective will be discussed in Chapters Two and Three in order to fully understand the role in isolation and separate from the extra variables that the offshore environment creates. Chapter Four, describes the data collected during a pilot study of offshore supervisors. These results, together with the three literature chapters will provide a theoretical foundation that will support the methodological framework outlined in Chapter Five. This method will integrate the lessons learned from both the pilot survey of supervisors and onshore supervisory studies and be able to test the questions examined in the thesis. The main aims of this study are: -

(i) To record the experiences and perceptions of a sample of offshore supervisors in relation to the working environment, training, job satisfaction, personality and leadership skills.

(ii) To discover which of these factors differentiate a more effective from a less effective offshore supervisor in terms of job performance.

(iii) To investigate the preferred leadership styles of the supervisors and to test where these differentiate the effective from the less effective offshore supervisor by incorporating the views of the supervisors, the supervisors' superiors and the supervisors' subordinates.

(iv) To examine two alternative techniques for measuring supervisory performance.

(v) To assess whether there are any differences between supervisors working on platforms on the United Kingdom Continental Shelf (UKCS) and those on the Norwegian Continental Shelf (NCS); and between supervisors working for contracting companies as opposed to operating companies.

The results of the main study are presented and discussed in Chapters Six, Seven and Eight. A comparison of the findings from the combined group of all three platforms and the results from the decision making vignettes are presented and discussed in Chapter Nine. Chapter Ten presents a final discussion and concludes with recommendations for both management action and future research.

CHAPTER TWO

THE CHANGING ROLE OF THE SUPERVISOR

2.1 INTRODUCTION

This chapter describes the changes in the role of the first line supervisor in onshore jobs across the UK since the beginning of the North Sea Oil and Gas Industry in 1969. Previous research investigating the changing role of the supervisor has focused exclusively on the managerial and performance characteristics of jobs within an onshore work environment. The supervisory literature has to be understood with this frame of reference so that the thesis findings are discussed in context. Given the dearth of research into the effects of the offshore work environment on the role of the first-line supervisor (see Chapter One) there is a need to (i) look at onshore research and (ii) assume that there is not a significant difference between onshore and offshore work, although this theme will be addressed later in the thesis. However, it does raise the question of whether the organisational change that has affected the onshore supervisor, (such as the erosion of influence, the growth of participative management and changes in technology), also had an impact on supervisors based on a production platform hundreds of miles offshore? And given the current resurgence in the literature that supervision is critical for successful industry (Kerr, Hill & Broedling, 1986), one might ask to what extent these views are also applicable offshore?

Few jobs in today's workforce are as important as those of supervisors. The role is arguably one of the most important management positions in industry (Drucker, 1983). The supervisor is the key link between upper management decisions and the implementation of these tasks, while the job involves simultaneously satisfying the potentially conflicting demands of both superiors and subordinates. The supervisors' superiors are looking for performance without problems and the subordinates are looking to their supervisor for leadership, direction and rewards (Phillips, 1985). He refers to this ambivalent position of the supervisor as Janus, presenting two different faces, not unlike that of the depiction of the Roman God of bridges and walkways. Sasser and Leonard (1980) describe further the supervisor's situation:

"Being a first-level supervisor is one of the most difficult demanding and challenging jobs in any organisation. Buried in an organisational web, this person must be adroit at administering a unit and at perceiving which, among all the daily tasks delegated downward, are the most important to accomplish. Through such administrative competence, he or she must be able to link the unit's accomplishments to the functioning of other organisational subunits." (p.12)

The position is critical from an organisational perspective because situated at the cutting edge of the business, the supervisor is responsible for the reliability of the interaction between the hardware and a skilled and motivated workforce (Bird & Germain, 1985). For example, the commercial impact of improving supervision at a food processing plant in the USA was the single most important factor in better operational performance (increased productivity, and reduced turnover, absenteeism and accident rates, Doud & Miller, 1980). Furthermore, an organisation must look at the cost of not having effective supervisors. The poorly supervised organisation may suffer from inefficiency, low output and poor quality products and coupled with human resource management problems such as increased absenteeism and higher employee turnover (Imberman, 1981).

The supervisor's role was previously a relatively straightforward one. The supervisor gave orders to employees who were performing simple tasks and they carried out those orders. The supervisor was selected because he was tough, loud and big, and physical strength, in particular, was a useful asset when influencing the workforce to get the job done. During the middle of the twentieth century, technological and social changes within the workplace such as production lines, trade unions, personnel departments, government regulation, employment legislation and changes in workers' attitudes dramatically re-fashioned the role of the supervisor. These new challenges for the supervisor were combined with a gradual erosion of authority and a deterioration of their status within the organisation. However, management had come to expect more and more from supervisors, adding further duties and responsibilities to be accomplished within increasing commercial constraints. Automation and technological innovation such as computer software developments have brought extra dimensions to the supervisor's role that now requires skills and aptitudes radically different from the early industry foreman. The supervisor has evolved from the brash and brutish workplace overseer to a manager, counsellor, accountant, social worker, coordinator, human resources specialist, lawyer, production scheduler, public relations specialist, and sometimes engineer (Phillips, 1985). It is this development, in particularly, that is addressed in the next section because the evolution has been mostly unplanned and in many cases has left the supervisors unsure of their new roles.

2.2 THE ROLE OF THE SUPERVISOR IN MODERN DAY

The role of the supervisor across UK industry continues both to change and to provoke fierce debate (IDS Study, 1988). One of the main problems is that supervisors are not a homogeneous group and defining accurately a supervisor in the context of his or her working environment is difficult. The traditional view of a supervisor as that of an "overseer" still exists in many organisations in the UK today. The supervisor will oversee work in the workplace, inspect it and maintain discipline in order that the company objectives are being preserved. As the first person in an organisation responsible for the work performance of non-management employees, the supervisor will allocate tasks and in turn will be held accountable for work done. The first-line supervisor is also the only layer of management that operates with 'real time' pressures, as the rest of

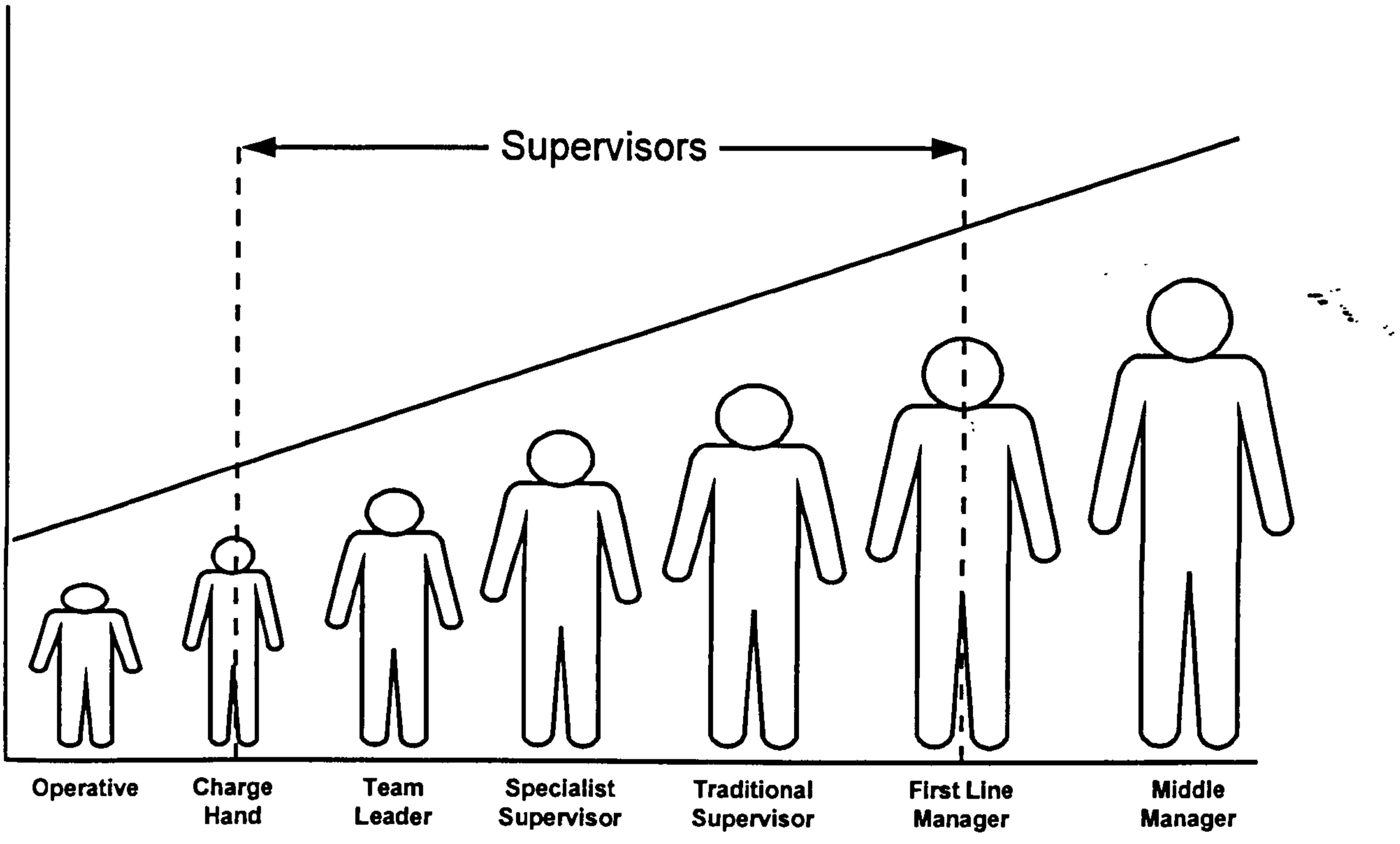
management team focus on other horizons such as the day, the week or the month. The supervisor is literally the only person that can react instantly to changes and can therefore be instrumental in reducing potential loss and directly influencing profit and overall performance (Wentworth, 1993). This is perhaps the key criterion for the supervisor for the 1990s and beyond. Increasing industrial competition is demanding that new sustainable competitive advantages are required and every role is having to justify its contribution to the organisation. However, the supervisor's performance is particularly difficult to measure and this is also an area that the thesis will examine.

From an organisational perspective, the role of supervision has now become submerged within the bureaucratic structures of firms (Sasser & Leonard, 1980). This has created a lack of clarity about the functions pertaining to the supervisor and ambivalence about their status (Bowey, 1973; Drucker, 1954; Evans, 1992; Mann & Dent, 1954; Wray, 1949.) The role varies from situation to situation and person to person and is in itself a major reason for the ambiguity. Among any group of workers there is still a need for a co-ordinator or facilitator, yet traditional managerial tasks such as budgets, training and planning may now fall within the remit of the supervisor. The term "managerial supervisor" has been used to describe this newer role, and companies such as Blue Circle and the Rover Group are adopting this approach (IDS Study, 1991).

In some organisations the responsibilities of the supervisor are being pushed further as the complexity of the workplace make it impractical for one person, traditionally the supervisor, to be the most technically competent on all processes. Complicated interdependent processes in industry demand a supervisor capable of making decisions, organising limited resources and motivating a group to increased performance, or what Ohmae (1982) has simply described as "doing more, better". Kanter (1989), updated this phrase using the words "doing more, with less" which in the 1990s might be changed to "doing more, with less, but better". Supervisors, regardless of the words, now have to accept that they are responsible for multi-disciplined teams within which technical knowledge will be greater than theirs and consequently their position has to move more to a leadership role (CBI 1992, p83).

These perspectives described above could be appropriately placed on different yet specific parts of the "supervisory continuum", where many definitions of a supervisor in industry could rest; one end being the charge hand and the other, the first line manager. (See Figure 2.1)

Figure 2.1
The variety of supervisory types



(Adapted from CBI, 1992, p.25)

Merely defining a supervisor with a stereotypical label does not by itself provide any organisational clarity or increase the understanding of the position. Supervision, has to be organisationally defined: it should vary according to the circumstances of each organisation and therefore may no longer constitute an occupational role maintaining its own consistent features across different organisations. As described above, the supervisor may exercise a more managerial role in some situations while at others the emphasis may return to a more limited one (Child & Partridge, 1982). Thus, a supervisor may operate statically within one role at one point on the continuum and then move to others when it is deemed appropriate by the situation or by senior management. Therefore, the role of the supervisor should not be defined in isolation but within a dynamic organisational context.

This definition is crucial to the understanding of the role of the supervisor. For example, the traditional supervisor who has just been trained to encourage more employee involvement in workplace decisions may find that a new management directive to focus more closely on the work done at the "coal face" necessitates a change in status, responsibility and influence. From moving towards a "first line manager" role, the traditional supervisor has to undertake a more directed role such as seen typically by a chargehand. This creates confusion not only for the newly trained supervisor, but also for the workforce whom the supervisor leads. The team may resist this shift of status and change of role for the supervisor as it is a powerful message to them about potential career opportunities. In an organisational context, however, such a directive may be redundant if the workforce

are highly trained and self motivated thus allowing the supervisor to drift back towards the "first-line management" role. The above example may explain why there is much confusion about the definition of a supervisor in the literature. Bowey (1973), in her paper 'The Changing Status of the Supervisor', circumvents the need to define the role distinctly by using the terms "supervisor" and "foreman" to be synonymous with the term 'first-line manager'. Evans (1992) uses a similar method and argues that for convenience sake "supervisor" will include everyone in a supervisory type position. A different approach was used by Child and Partridge (1982) who defined the different supervisory roles in terms of their responsibilities at various times during the production process. (See Table 2.1)

Table 2.1
Dimensions of production systems and likely characteristics of supervisory roles (from Child & Partridge, 1982, p204-205)

Dimension of production system	Characteristics of supervisory roles likely to be present when work situation is high on the dimension
(1) Variation in operations	1.1 Dealing with problems of re-scheduling work and re-allocating manpower at the point of production. 1.2 Dealing with labour problems which re-allocating and stoppages generate. 1.3 Progress chasing, dealing with materials shortages.
(2) Complexity of work-flow system: differentiation of component units	Unless the process is automatically controlled, emphasis on managing balance and reciprocity between sections (coordination with supervisors in linked sections, exchange of resources, especially manpower, and intense exchange of information on workflows).
(3) Technical complexity of problems and difficulty of their solution	Stress on inspection and technically biased supervisory system and/or use technical specialists to deal with problems such as quality control, monitoring of plant functioning.
(4) Level of mechanization	4.1 Concentration on inspecting machinery, and dealing with machine faults and breakdowns. 4.2 Dealing with problems caused by poor morale - e.g. absenteeism and consequent manpower adjustments: attempting to match employee effort to plant capability.
(5) Level of automation	5.1 If combined with low variation in operations: bulk of role is monitoring and carrying out routine procedures combined with technological understanding to handle crisis if these arise. 5.2 If combined with development work: supervisory role may be to link new system designs with practical applications in the plant. 5.3 If applied to large projects: monitoring combined with interpretation of data for resolving problems.

(a) Where incentive payments linked to output levels are not used.

One thing that is clear is that the literature fails to provide a universal definition of a supervisor. However, the work of Child and Partridge (1982) does at least begin to define the role in terms of the question; what does the supervisor actually do? By attempting to define what the job purpose of a supervisor is, they began to provide a method both for understanding different supervisory labels and for cross industry comparisons.

2.3 THE NEED FOR MORE EFFECTIVE SUPERVISION

While there may be differences of definition and debate about the role of the supervisor, one view does remain consistent and that is the potential significance of the position in performance terms (National Economic Development Office, 1991). As Peter Wickens, Director of Personnel and Information Systems for Nissan said in 1987:

> *"It is critical that we in manufacturing industry realise that the first-line supervisor, if carefully selected, well trained, highly motivated and given the status and pay appropriate to being what I call 'the professional at managing the production process' can make more difference to the long term success of the company than any other group other than top management. And even here it is the supervisor who delivers top management policies." (p. 8)*

What is particularly significant about the above quotation is that the supervisor is defined as critical, not for creating strategy, but for the implementation of the strategy. Given that premise, it follows that any commercial strategy will have little chance of success unless an organisational layer is driving it. From the evidence above, it appears that at Nissan the first-line supervisor is a critical part of the management process. What impact does the same job have in the offshore industry? Several issues were discussed in Chapter One that indicate the difficulty of providing a precise answer to this question, for example, the supervisor's decision making process could be strictly limited by the values and rules which surround the offshore way of life. This offshore "culture", with its unique properties and the lack of a precise onshore equivalent, may store many of the required answers. Solutions that if neatly extracted would enhance our understanding of how the culture modifies the social environment and management style.

Coonen (1994) examined the impact of management systems on the offshore culture briefly. In a study of a group of supervisors from an offshore services company, he sought to explain the offshore culture by use of the model advanced by Burns (1958) who developed a theory which states that firms follow one of two different organisational models. They are defined as mechanistic or organic systems. "Mechanistic" systems are characterised by rigid breakdown into functional specialisms, precise definition of duties, responsibilities and power, and a well developed command hierarchy through which information filters up and decisions and instructions flow down (Burns, 1958). "Organic" systems are more adaptable. Job roles lose their formal definition, and communication throughout the organisation is more of a consultative process than of giving and receiving orders.

Coonen (1994) found that the "mechanistic" system fitted the offshore working environment better than the organic model and that given the safety features required offshore this was unlikely to change. After the impact of The Cullen Inquiry (1990) and the resulting new safety regime, Coonen's finding is hardly surprising. However, merely defining the offshore work environment as mechanistic does not fully explain how this system impacts on the supervisor's role. This problem is not new from an onshore industrial perspective. Seminal work in this area was carried out by Woodward (1965) and while direct comparisons between onshore and offshore may have to be drawn with caution, her work does raise some interesting issues.

Woodward (1965) carried out a study of 203 manufacturing firms in south Essex examining the relationship between technology and organisational structure. The research compiled a typology of technologies according to types of production. Each firm was placed on Woodward's eleven point scale of production systems (p.39). This was a extension to a scale normally used by production engineers, which reflected the complexity of the technology in terms of the degree to which the production process was inherently controllable and predictable (Woodward, 1980). The scale ranged from the production of unit articles to customers' individual requirements through an intermediate stage of the mass production of standardised goods, to the most technically complex stage such as the continuous flow production of dimensional products.

When all the plants were grouped together Woodward was unable to find a clear structural pattern emerging. However, when she sorted them into the technological groups, she discovered that each type had its characteristic ratio of workers to first line supervisors. In unit or small batch production plants, the first line supervisor had an average of 23 persons working for him, whereas the average rose to 50 in large batch or mass production plants and dropped to thirteen for the first line supervisor in continuous-process plants. The ratios of those reporting to chief executives ranged from a median of four in unit production to ten in continuous process, with large-batch and mass production falling in between with seven. The research gathered evidence that evaluated these ratios against the efficiency of the plants. On the basis of ratings of outside observers regarding the efficiency of the units Woodward found that those rated "above average" tended to have ratios of workers to first line supervisors and of executives to chief executives that were close to the average for their category. The firms that were judged as "less successful" tended to be above or below the average ratio figures. This finding suggests that each type of technology has its own optimum ratios of subordinates to supervisors at the various levels.

Woodward found that the search for a universal principle for the span of control of a supervisor, a conclusion argued by scientific management theorists such as Taylor (1911) were unproductive. Her conclusions were that there could only be an optimum ratio under certain specified technological conditions and under a different set of conditions a different ratio would apply. This finding has significant implications for the supervisor-subordinate relationship. The behavioural requirements for the supervisor directing the work of 13 men and the supervisor directing the work of 50, ratios in part determined by technology, are considerably different. This raises the question of whether the previous universal generalisations of the supervisor-subordinate relationships were superficial or at best misguided. While Woodward's work could be criticised for arguing that ratios alone

determined supervisory performance, it is possible that "span of control" relates to the ability of the supervisor rather than the number of people working in the team. For example, a supervisor with excellent leadership skills and a respected technical background will probably be more effective in terms of job performance than a supervisor with both inadequate people and technical skills regardless of the number in the workgroup. Woodward herself considered a similar proposition. She felt that differences between the firms in both organisation and achievement could be attributed to differences in the senior management but this theory was rejected as it appeared that the senior managers had characteristics in common (Woodward, 1980).

Despite specific conclusions about first-line supervisory impact on performance in the workplace remaining unsolved, there are indications that management systems, culture and span of control have an effect in both onshore and offshore industries. The need for more effective supervision remains a critical success factor onshore and given the economic climate described in Chapter One, will probably remain in the offshore industry too.

The next section outlines UK research that attempts to identify some options for the future of supervision. These possible options have to be grasped quickly because unless industry begins to understand the full potential of this role specifically in terms of improved organisational productivity, then the opportunity could be lost.

2.4 THE FUTURE FOR THE SUPERVISOR

Child and Partridge (1982) argued from their research findings and other studies (e.g. Bowey, 1973) that there were several choices for the future of supervision. They identified four alternatives: (i) abolish the role of the first line supervisor, (ii) leave the role as it is but make improvements, (iii) develop into a first-line managerial role and (iv) technical supervision. These appear to be particularly relevant to current changes in the offshore industry and will therefore be considered in turn below. Other research, mainly from the USA, has also considered the future of the supervisor. The American research concentrates on investigating the supervisor as a leader and an individual whereas the UK research has substantially focused on the role of the supervisor from a broader perspective of organisational theory (Child & Partridge 1982; Woodward, 1965). Research carried out by Komaki (1986), undertook descriptive studies in an effort to see what supervisors actually did in an effort to understand what was effective supervisory behaviour. This work and other similar American studies will also be considered below.

UK Research

(i) Abolish the role of first-line supervisor.

This approach reassigns the delegation of traditional supervisory tasks to workgroup leaders. The workgroups are given freedom to appoint their own leaders, who carry responsibility in liaison with management for arranging the group's internal organisation, allocation of work, the availability of materials, completion of routine paperwork, inspection and routine maintenance. The group leader is expected to work as an arbitrator when human problems arise, and he or she should be trained to undertake personnel responsibilities such as the allocation of training for the members of the workgroup. By abolishing the traditional role of supervision, the untapped potential from the shopfloor is released more effectively to management, and the promotion to this new first-line role may be perceived as more attractive as it is substantially more managerial. This new model of supervision is also allied with the social goal of workforce empowerment, however attempts at introducing this model have had mixed results (Child & Partridge, 1982). In Norway, for example, the participation of the existing workplace supervisors was not gained and the success of the introduction of the scheme was determined solely by the abolishment of the supervisor position rather than by organisational performance. This suggests that abolishing the role could be a means to an end but not an end in itself and that organisational performance should remain the main indicator of success. In another example, the introduction of the model within a Swedish biscuit manufacturer occurred with the participation of existing supervisors. The supervisors as a result have become increasingly involved with senior management in the resolution of complex technical problems. This experience has made it possible for the supervisors to contribute significantly to organisational success (Swedish Employers' Confederation, 1975). Child and Partridge (1982) argue that even where the existing workplace supervisors have moved to a team adviser role, there are still potential problems, the autonomous workplace team still needs someone to intervene when significant problems arise but frequent interventions threaten the ability of the team to correct less vital mistakes by itself.

(ii) Leave the role as it is but make improvements.

This model recognises the unsatisfactory situation that many supervisors find themselves in. Part of the problem arises from the double standards between management ideology and management practice (Child & Partridge, 1982). The solution is not to dress supervisors as managers, if it is really supervision that is wanted, but to clarify the distinction between managerial and supervisory roles so that supervisors are encouraged to have a set of expectations which is concomitant both with the reality of their level of responsibility and their capabilities.

The implication of the model is that if a management thinks it appropriate to employ people strictly as supervisors then it should be clear about the nature of their role. If it is less than managerial then it should stop confusing the issue by calling supervisors front-line or first-line managers, and as stressed by Child and Partridge (1982) if this is being done in an attempt to retain their loyalty, management should find less confusing and more convincing ways of doing it.

This approach relies upon the clear definition of the supervisory role. This would be achieved through formal organisational rules such as scope for decision making and defining the supervisor as a specialised labour role rather than a management one. However, if unexpected and significant contingencies arise, denying the first line supervisor the right to make a decision, (particularly if he or she is the most competent at handling the contingency), then it could lead to a decrease in motivation of the supervisor and have an immediate effect in organisational performance. But the model also has significant advantages because it brings clarity to the previous ambiguous role of the supervisor. In theory, this model of supervision displays a definite message to the workforce about the illusion of supervisory promotion as automatic career progression into management. Therefore opaque definitions and frustration are removed bringing a strictness and clarity to the role.

(iii) Develop into a first-line managerial role

This third model envisages the transformation from first-line supervision to first-line management. Rather than focusing on what the roles and responsibilities of the first-line supervisor are, one concentrates on the needs of the first-line manager and how to upgrade the existing employee with the supervisory title to the new role. The first line manager would have responsibility to schedule work, agree manpower requirements, and also to determine new working methods. This is similar to the German or Meister model of first-line management because of the need to have a thorough technical training to combine with the benefits of experience. This provides important backing to the supervisor's expertise and authority. The German foreman is a first-line manager who can, and is, expected to make decisions which in Britain may be the prerogative of staff specialists (Partridge, 1989). This approach is more economical of staff roles and is reflected in the lower proportions of staff personnel that have been found in German compared to British companies (Child & Partridge, 1982). A move towards this model requires the delegation of the progress chasing and minor disturbance handling to what has been termed as the "progress chaser". This role would pick up the routine problems of the supervisor's job such as provision of materials and equipment, liaison with other links in the production chain, requesting services, and record keeping. The supervisor with the appropriate skills could then give more attention to management tasks and apply his or her skills over a wider sphere of influence. In the creation of the assistant-type role one may create the problems that the model of first-line manager was intended to resolve, i.e., the progress chaser would, like the supervisor in the previous model, depend for his authority on the first-line manager and possibly suffer the same ambiguities as the traditional first-line supervisor.

A further problem was identified by Child and Partridge (1982) as a possible limitation upon developing the supervisory role into a full first-line management role. There is an absence of a skill base from which to fill these roles. In Germany, the foreman will usually have served a skilled apprenticeship, followed by several years' experience as a skilled worker, and will then have obtained a formal qualification in foremanship by examination. Therefore, unlike British companies, German companies have a supply of competent manpower to fill a first-line managerial role.

(iv) Technical Supervision

In this final model, the supervisor is primarily concerned with technical problems. Routine matters, such as requisitioning normal stock items, can be delegated to employees. The next level of management would possibly handle the overall organisation of the section and the supervisor would be closely involved with assessing the technical competence of new recruits. The supervisor in this model can be expected to have a long technical experience and specialised skills not necessarily available to higher levels of management. His or her technically skilled workforce would not require or welcome close supervision, but would consult with the supervisor prior to an especially complex task or at the completion of one. The technical supervisor may require the particular skill of coordinating his department as a team because according to Child and Partridge (1982) this leadership role of integrating and motivating this type of group is distinctly difficult. One of the main strengths of this model is that as the roles are occupationally or professionally defined they remain relatively independent of "bureaucratic" organisational rules.

In essence, there are many strengths in each of the supervisory models described above. The challenge is identifying which model enhances the contribution of the supervisor to the organisation. To implement either model three or four within UK industry would require substantial training, investment and time to develop with no definite guarantee of the culture change needed to create success. "Workforce empowerment" is still a current aim of many organisations in the UK, but "supervision" even under a new title of team leader, for example, is still the role of the workplace leader i.e., the supervisor. Bringing clarity to the role (model two) has been an option throughout UK industry for twenty years and has proved problematic. As stated earlier, management researchers remain confused over what a supervisor does. Within the offshore oil industry, the cultural/environment elements will likely influence the model of supervision adopted. In fact a combination of these models could be effective offshore. Firstly, there is a strong technical component to an offshore supervisor's job and improving this expertise is essential. Secondly the drive for efficiencies offshore (Chapter One) may simultaneously raise the skill needs of a supervisor to that of a first-line manager. Finally, introducing "workforce empowerment" (model one) but retaining a distinct role for the supervisor for both organisational and safety reasons could be appropriate in developing improvements offshore. The method of the thesis will therefore examine the role of the offshore supervisor in broad terms and not be limited to testing pre-set models of supervision.

US Research

US research into the role of the first line supervisor has largely concentrated on attempts to identify the leader behaviours of the role (Dowell & Wexley, 1978; Fleishman, 1953; Prien, 1963). The popularity of studying the supervisor as an individual has led to the development of several supervisory behaviour taxonomies (Campbell, Dunnetter, Lawler & Weick, 1970 & Komaki, 1986). The driver for this style of research activity was led by the lack of definition of what constitutes supervision. For example, Bass (1991) argued that the definition of effective supervision is an enigma. Taxonomic research sought to provide a clearer understanding of the work activity of a supervisor (Dowell & Wexley, 1978). They generated a Supervisory Task Description

Questionnaire (STDQ) to obtain systematic description of the task behaviours of a supervisor which was independent of the individual's characteristics or technical job knowledge. The STDQ included 100 work activities such as observing subordinates, completing production reports and inspecting the work area. Two hundred and fifty-one supervisors with varying supervisory job titles from different industries were asked to rate these activities in two ways. Firstly, they were asked to rate how important they felt each task was on a five point scale and secondly to rate how much time they spent on each task on a six point scale. The responses were factor analysed using the principal components method. Seven factors accounted for 48% of the total variance for the frequency scores and similar results were found with the factor structure for importance ratings. These factors or job dimensions were 'working with subordinates', 'organising work of subordinates', 'work-planning and scheduling', 'maintaining efficient/quality production', 'maintaining safe/clean work areas', 'maintaining equipment and machinery', and 'compiling records and reports'. The study also concluded that the results indicated that there were few differences in the jobs of first line supervisors regardless of technology or function.

In later work, by Komaki (1986), in an effort to study differences between effective supervisors and marginal supervisors, mixed results were also found but for different reasons. She studied what supervisors ought to do when motivating subordinates to accomplish work-related goals. Her thesis was that the effective supervisor would make appropriate task requirements clear, accurately and fairly appraise performance, and regularly provide consequences contingent on performance. Whereas an ineffective supervisor would probably leave tasks ambiguously defined, appraise performance sporadically, if at all, and provide infrequent or noncontingent consequences for performance (Komaki, Zlotnick & Jensen, 1986). Her work was also driven by the theory of operant conditioning which states that two temporally different events have a crucial impact on our voluntary behaviour: Antecedents that occur before behaviour and consequences that occur after behaviour have a significant impact on the style of the supervisor (Komaki, 1986). She believed that by using a theory of behaviour (operant conditioning) her taxonomy (Operant Supervisory Taxonomy and Index, OSTI) would provide a firm basis for identifying effective supervisory behaviours. The OSTI classifies supervisory behaviour into seven mutually exclusive categories: 'solitary', 'non-work related', 'work related', 'own performance', 'consequences', 'monitors' and 'antecedents'. This is a distinctly different approach from the other supervisory taxonomies which gathered statements about what supervisors did and then using a post hoc technique such as factor analysis classified supervisory behaviour. Her study of two groups of supervisors found that more effective supervisors spent significantly more time understanding the tasks of their subordinates than supervisors from the marginal group. But in real terms the differences were small (2.9% of time spent 'performance monitoring' by effective supervisors and 2.0% by marginal supervisors). The effective group also sampled the work done by subordinates more than the marginal group by watching employees and checking reports etc. Overall, however, the effective supervisors essentially undertook the same actions as marginal supervisors. But as Komaki (1986) argues even the small differences in behaviour are important because of the similarities of the two groups in other ways e.g., age, education, span of control and supervisory experience. Although her claim that any differences confirm the validity of the OSTI as a model for describing effective supervisory behaviour are slightly premature without further research. The strengths of her approach, though,

are in the method of data collection. The primary approach was observation and thus a qualitative approach to understanding effective supervisory behaviour. This differs from the approach by Dowell and Wexley (1978) which was questionnaire based but given both studies undertook a taxonomic approach it is of interest that neither produced convincing results. These leader behaviour studies have, however, significantly added to the supervisory literature and combining this work with research by Child and Partridge, for example, should provide a broad foundation on which to develop the method of investigation which is described in Chapters Four and Five. The models of supervision discussed above identify alternative ways of both understanding the problems of supervision and what is effective supervisory behaviour and this will be re-examined in Chapter 10 in the context of the offshore workplace.

2.5 MEASURING THE CONTRIBUTION OF SUPERVISION

One of the difficulties of researching supervision is attempting to find an outcome measure that is both accurate and reflects the contribution of the supervisor. Child and Partridge (1982) argue that supervisors do not normally produce any tangible output which can be measured in isolation. As the supervisory role is ill-defined and variable, it does not lend itself to a standard performance measure. The problem of assessing effectiveness is made more difficult by attempting to identify a unique supervisory contribution within the overall performance of the group. Thurley and Wirdenius (1973) advocate that there is grave doubt as to whether there is any real purpose in designing studies which purport to measure supervisory effectiveness as a single and discrete problem. However, differentiating what the supervisor does as a variable which contributes to overall performance of the group may not be necessary. From other studies of effective work groups (McIntyre & Salas, 1995) it remains intuitively appealing that while there are potentially many factors which can influence a group's overall performance, good and effective supervision remains a significant element. Reviewing the methodological difficulties of identifying this element is worthy of study on its own. Some of these challenges are discussed in the next section.

2.5.1 Methods of supervisory research

Given that several years of management research have failed to find the answers to what "management" is (Stewart, 1984), it is unlikely that easy answers will be found for the closely related concept of "supervision". Although work by Komaki (1986) argued that while the supervisor's job was 'woven with intricacies' it was not 'hopelessly complex', and 'it should be possible to reliably describe supervisory behaviour' (p.271). The next part of this section reviews the specific methods of data collection used by the studies described earlier in the chapter. This review was utilised in the development of the method used in the thesis that is outlined in Chapter Five.

Woodward (1965) surveyed over one hundred companies in South East Essex. Information that was collected included:

" 1. History, background, and objectives.
2. Description of the manufacturing processes and methods.
3. Forms and routines through which the firm was organised and operated.
4. Facts and figures that could be used to make an assessment of the firms commercial success. " (p.11)

The types of firms that took part in the study included batch manufacturing companies, unit production companies and process production companies such as oil refineries. Case study analysis was the primary method of investigation used by Woodward and her research team. The researchers looked to create an organisational picture of each industry type. Visits to each "factory" lasted from half a day to up to a week. Information that was gathered included objective indices such as turnover rates, salaries and other costs. They also collected data about the management style of each organisation which included the training and development policy, and the qualifications of their supervisory staff. They finally gathered information about the commercial success of the organisations from annual reports and stock market data, where appropriate. The researchers also interviewed managers and supervisors with no set questions, although each interview followed a similar pattern (Woodward, 1980). The interviewers also had informal meetings with managers over lunch, attended management meetings, and took part in social activities to supplement the questionnaire data. Woodward commented that data collected in this way helped to confirm the information from the interviews and that there were few contradictions. More detailed research was undertaken in organisations where technology was either changing or fixed to investigate more thoroughly the hypothesis outlined above i.e., companies that fit their organisational style to their production technology are more likely to be successful than those that do not. This more detailed method included the use of a semi-structured questionnaire and some managers and supervisors also kept work diaries describing incidents that they had been involved in. The questionnaire allowed a more detailed investigation of the roles of the managers and supervisors but as the questionnaires were open-ended, duplicating the questions across each organisation for comparative purposes was impossible. While Woodward's method assisted in understanding organisational structure her approach demonstrated that research methods may have to be modified to some extent to fit the circumstances of each situation studied (Woodward, 1980).

Interviewing was also the primary method for data collection by Child and Partridge (1982). This technique was justified on several grounds; the sample size which was relatively small, the need to attempt to investigate a range of supervisory decisions that would be limited if observation alone were used, and management of the supervisors' expectations and perceptions which the researchers felt was most appropriate through an interview. The supervisors were each interviewed twice. The first set of interviews concentrated in the more traditional areas of supervision such as questions about their job roles, influence and authority. After a period of three months, the supervisors were interviewed again but this time the questions focused on how the supervisors

viewed their role in respect of ambiguity, conflicts and stress. The supervisor's manager was also asked similar questions relating to the jobs of the supervisors and they were also asked to rate the supervisor's performance. They further added that the problem of capturing insights of how supervisors carried out their roles within their complex jobs may require the interviewing to be complemented by some direct observation. The researchers carried out direct observation as part of a familiarisation process prior to conducting the interviews. After the interviews 16 supervisors were selected to take part in a series of half-day observations by one of the researchers. The objectives of the observations were:

"(1) to check the validity of information collected through the interviews on supervisors' priorities, authority and influence style and problems; (2) to extend our appreciation of how supervisors actually go about their job; and (3) to clarify the ways in which supervisory behaviour may be a function of the work situation." (p.31)

One of the problems of research on supervisory styles concerns the reliance on the ubiquitous questionnaire survey (Dowell & Wexley, 1978; Pfeffer & Salancik, 1971). Although this is one of the most popular data collection methods in business research, it is limited in that it does not easily capture the dynamics of social behaviour, i.e., what is actually "going on" and describing the differences between the formal and the informal organisation. Questionnaires frequently provide conclusions not only about worker attitudes but also about the supervisory behaviour that the workers thought they were experiencing. For example, a supervisor who tells his subordinates that he is task oriented and yet continually misses deadlines may still be perceived as task oriented. Therefore, the categorisation of supervisor behaviours tends not to be based upon direct observation of supervisors but upon the inferences of subordinates (Prien, 1963). By using a questionnaire for data collection, the results could imply that the supervisor and the workers were living exclusively in a world of 'cause and effect'. Previous research (Likert, 1965) using a questionnaire found that, in production departments, foremen who were rated by workers as high in "initiating structure" (such as telling workers what to do and checking up on performance) were judged by their superiors to be more effective foremen than those who were lower on "initiating structure" and higher on "consideration". But in maintenance departments, those foremen higher on "consideration" and lower on "initiating" were more highly rated by their superiors. Likert's finding suggests that the relationship between leadership style and productivity may be a function of working conditions and this is not easily gathered by a questionnaire.

The use of the questionnaire, although popular, can produce information of questionable reliability (Mintzberg, 1973). It is of interest that the studies undertaken by Child and Partridge (1982), Woodward (1965) and Komaki (1986) all sought to collect data from a variety of different sources which sometimes included using the questionnaire. In particular, the method of supplementing quantitative data with qualitative approaches by Woodward appeals as a more holistic and complete method of collecting data. This multi-method approach, arguably one of the first examples of triangulation aims to help validation by not relying on one single method (Campbell & Fiske, 1959). This approach to data collection will be discussed in more detail in the method chapter; Chapter Five.

2.5.2

The Management Charter Initiative (MCI)

One mechanism recently devised for measuring supervisory performance is the Management Charter Initiative (MCI) standards of competence approach, which is described in more detail in this section. This method splits up the role of the manager/supervisor into outcomes and self standing units. Each unit is then split into elements and is measured against predetermined performance criteria. These performance criteria create nationally recognised benchmarks against which managers can measure their performance at work. Those in favour of this type of approach for management and supervisory development such as Day (1988) argue that while it is a significant move away from traditional academic models of studying a body of knowledge and then being tested primarily on memory retention, the standards of competence process measures the ability to use skills and knowledge in practice.

Background

The effects of the 1980 and 1982 recession may well prove to have been the significant turning point in management development in the UK. Corporate sector profitability suffered at a time when the UK's competitors were strengthening their economic and export positions. It was recognised that UK industry was significantly underperforming against our German competitors and some studies estimate this difference to be up to 50% per employee (Hitchens, Wagner & Birnie, 1990). As UK companies reduced their staffing levels and management structures became leaner, those managers left within these new decentralised structures faced increasing demands and challenges. Attention was drawn to their weaknesses and deficiencies in management. As a result, UK management development and education was put under the spotlight by both industry and academics. The resultant debate within UK management education was fuelled by four key reports. Institute of Manpower Studies (1984), Coopers and Lybrand Associates (1984), Handy (1987) and Constable and McCormick (1987) all contributed to a change in emphasis in management training within the UK. The Institute of Manpower Studies report highlighted major differences in the British approach to vocational training and education compared to three of the UK's competitors: the USA, West Germany and Japan. (All three were competing in World Markets more effectively than the UK; OECD, 1985). Two significant factors that differentiated the UK from these countries: their attitude to investment in training, and the type of training provided. The UK's competitors all perceived a link between investment in education and training and competitive success - a perception absent in the UK; and their primary concern was on developing effective work performance rather than concentrating on narrow skills development. Handy (1987), argued that management training education and development in France, West Germany, USA and Japan was more systematic than in the UK and that management groups from the UK's competitors were more likely to have been educated to a higher level. This finding was corroborated by Constable and McCormick (1987) as they described British managers as lacking in educational development and training. Training in the UK was not seen as an important contributor to competitiveness and profitability, but rather as an overhead to be cut when margins were under pressure (Coopers & Lybrand Associates, 1984). The weaknesses and deficiencies within the UK system and the need to improve in order to compete in world markets lead to a major initiative by the Confederation of British Industry (CBI) in October 1987. The CBI, the British Institute of Management (BIM)

and the Foundation for Management Education were supporting a new body, the Council for Management Education and Development (CMED) headed by Bob Reid, the then Chairman of Shell UK. This organisation launched the Management Charter Initiative (MCI) in July 1988, which outlined proposals for "good practice" in order to address the shortfalls of management education within the UK.

The Role of The MCI

In 1990, the MCI was nominated by the government as the lead body responsible for developing management standards. By 1992, the MCI had published standards for the three levels of operational management - middle management, first line management and supervisory management. These are outlined in Table 2.2.

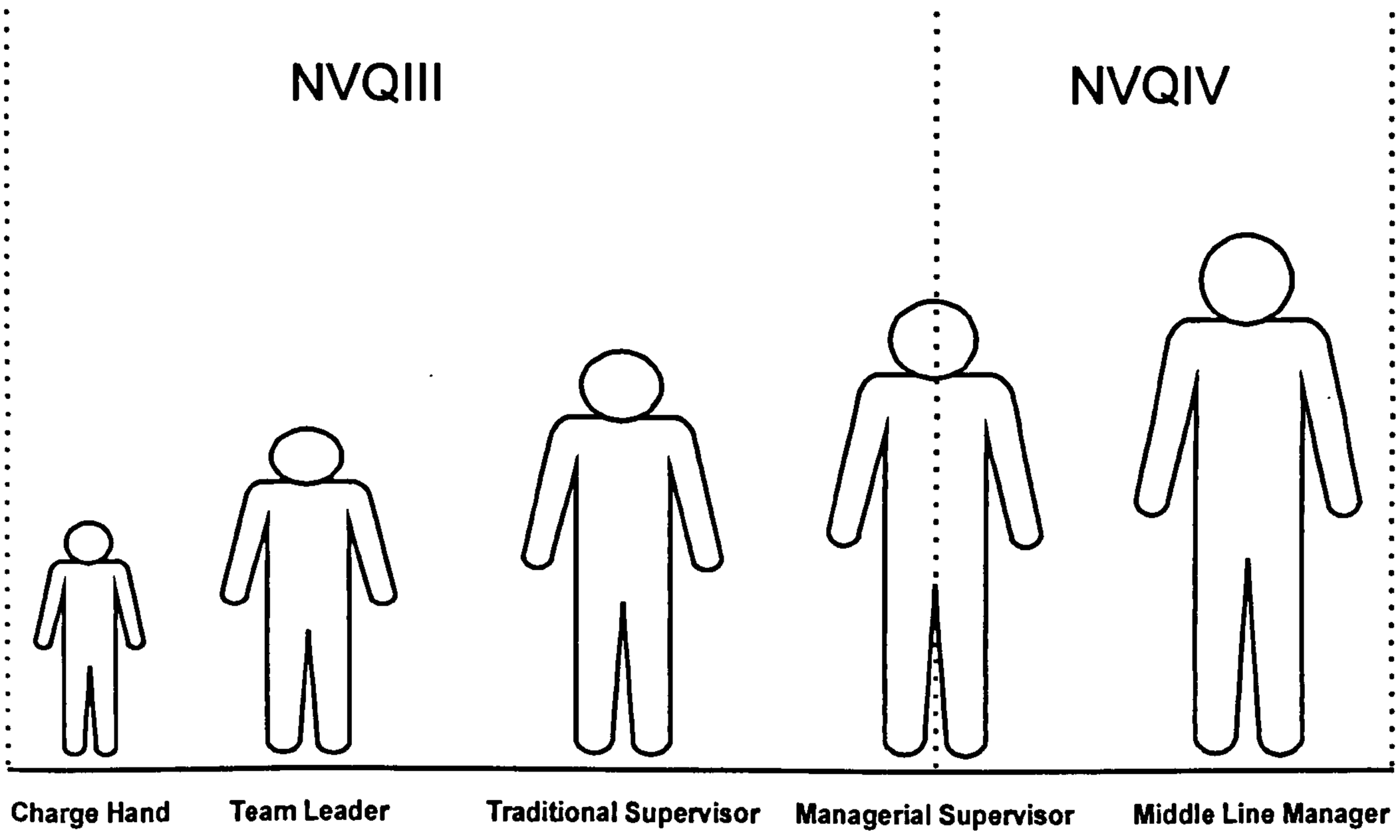
Table 2.2
The Three Roles within the Management Standards

Middle managers	First line management	Supervisory management
♦ Middle managers are responsible for interpreting and implementing policy. Their role includes converting policy into operational objectives, perhaps to be handled down to first line managers. Middle managers do not, generally, have the direct responsibility for strategic management of their operations	♦ First line managers are responsible for a particular area of activity within an organisation. This involves being proactive within the narrow focus of that function, but reactive in relation to the general direction of the organisation. First line managers are responsible for the direction and control of the activities of other people, the achievement of results and the efficient and effective use of resources.	♦ The role of a supervisory manager includes a significant amount of managerial activity. However, the supervisory manager contributes to the management process, rather than taking full control or responsibility for activities.
♦ Management of and through other managers is an important aspect of the role. Middle managers manage the work process and lead people so that work is carried out and desired objectives achieved. This will involve initiating change and development in systems, practices and procedures.	♦ As well as dividing up and managing the flow of work, setting performance targets, developing their staff, providing instructions, monitoring and controlling progress against the objectives set for them, there is likely to be a good deal of negotiating with colleagues responsible for other functions within the organisation.	♦ The supervisory manager will function within limited boundaries and make significant contributions to the management activities for which a first line manager would have a full responsibility.
♦ The span of control is usually considerable for middle managers allowing for significant freedom of decision making.	♦ The role of the first line manager is narrower than that of the middle manager.	♦ The role is less extensive than that of the first line manager.

(Introducing management standards, 1992, p. 11-12)

The aim of the standards was to set the boundaries of management decision making for the management roles within an organisation. The middle managers are described as having a responsibility for implementing the strategy of their senior managers, the first line managers as having management responsibility for their own function and the supervisors undertaking responsibility for the day-to-day process. The strength of these standards is beginning the debate about what managers in an organisation do and not creating a definitive and limiting framework. The management standards were developed by in-depth research, consultation and interviews with more than 6,000 managers about what they did during every day jobs (MCI, 1996) and as a result the standards describe skills required by managers for good management performance. Another approach was described by the Confederation of British Industry (CBI,1992) who provided a link between the first line manager and the supervisor in terms of vocational qualifications. The is shown in Figure 2.2.

Figure 2.2
Supervisors' Competence Levels



(From CBI, 1992, p.101)

As outlined above, the management standards create a broad framework and as shown in Figure 2.2 the CBI use the term managerial supervisor to facilitate the gap between the supervisor and the first line manager. However, it is the demonstrable behaviours or competence which is key to the management standards.

The concept of competence is central to management standards, defined as the ability of a manager to perform to the standards required in employment (MCI, 1992, p13). The detailed competencies are grouped under four broad areas that are the key roles of management. They are:

- manage operations
- manage finance
- manage people
- manage information

Managers also have to develop personal transferable competencies required in the managerial role and to understand the management context. The Personal Competence Model indicates the key personal competencies which are required in order to achieve results within the four key management roles. The managers need to develop competencies in the following areas:

- Planning
  - Showing concern for excellence
  - Setting and prioritising objectives
  - Monitoring and responding to situations

- Managing Others
  - Showing sensitivity to the needs of others
  - Relating to others
  - Obtaining the commitment of others
  - Presenting oneself positively to others

- Managing oneself
  - Showing self-confidence and personal drive
  - Managing personal emotions and stress
  - Managing personal learning and development

- Using intellect
  - Collecting and analysing information
  - Identifying and applying concepts
  - Taking decisions

For endorsement purposes the managers have to demonstrate their competencies in these areas by keeping a record of personal examples.

By 1993 the Management Charter Initiative (MCI) had a membership of almost 1000 employers representing about 25% of the UK workforce. (Personal Communication with the MCI, 1993). In 1995, a market research study commissioned by the MCI found that the recorded awareness of the management standards was 33% of respondents and by 1996 this figure had risen to 44% (MCI,1996). This clearly indicates a growing awareness among companies within the UK about management development. One of the key areas of management development is the supervisory management standards since there are many more supervisors than managers within UK industry, and more importantly it is the main learning area for future middle and senior managers.

The Supervisory Standards of Competence

The key purpose of a supervisor is "to achieve the organisation's objectives and continuously improve its performance" (MCI, 1992). This key purpose is driven by seven units of competence. They are:

1 Maintain services and operations to meet quality standards
2 Contribute to planning, monitoring and control of resources
3 Contribute to the provision of personnel
4 Contribute to the training and development of teams, individuals and self to enhance performance
5 Contribute to the planning, organisation and evaluation of work
6 Create, maintain and enhance productive working relationships
7 Provide information and advice for action towards meeting organisational objectives

Each unit of competence is further broken down into "elements of competence". These are available from the MCI, but for example the elements for Unit 4 are as follows:

4.1 Contribute to planning the training and development of teams and individuals
4.2 Contribute to training and development activities for teams and individuals
4.3 Contribute to the assessment of teams and individuals against training and development objectives
4.4 Develop oneself within the job

Performance criteria measure how well a supervisor is performing in each element. As these standards are generic and are designed to be used by supervisors in all sectors of industry, the range of instances and situations in which competent performance should be demonstrated is also indicated. However, this approach to understanding both supervisory and management performance has its critics.

Wills (1993) argues that there are six main weaknesses with the competency-based schemes. They are:
The holistic manager. Advocates of the competency approach suggest that managers act as if they are using tools (or chunks of competencies) one at a time, out of a tool-kit of managerial competencies. Some management theorists such as Burgoyne (1988) argue that managerial performance is a complex whole which cannot be split up and represented in separate parts.

The moral/ethical aspects of management. All professions have a duty to concern themselves with both the technical efficiency/effectiveness of their craft and their moral and ethical responsibilities to society. Lists of managerial competencies focus on the technical and ignore the moral/ethical dimensions.

The changing nature of managing. Managing people and systems is not static activity as suggested by lists of competencies. It is dynamic in the sense that it is always at the boundary between order and chaos. Managing is essentially a creative activity with boundaries which are continually in flux.

Managing as a flexible craft. Competency approaches to managing imply that in specific situations there are correct ways to manage. Research and common-sense observations refute this idea, preferring the notion instead that managing is a flexible, adaptive craft.

Individual differences. Having a ready-made tool kit of competencies gives no indication of how they are used, how the person is using them and how this person develops. Advocates of the competency approach appear to create their lists mechanically as if existing independently of the people who are using them.
Collaborative competence. The competency movement begins and ends its analysis with a focus on the individual. Clearly, high levels of individual member competence does not automatically guarantee group or organisational effectiveness (Wills, 1993).

Another difficulty of the competency based approach is trying to identify pieces of behaviour that are not observable such as leadership, creativity, assertiveness and other personal qualities. As a result these attributes are omitted from the competency-based systems. Moreover, these invisible competencies cannot be described easily by senior management, and as shown in a survey of British managers conducted by Mangham and Silver (1986) few respondents were able to articulate what they required of their managers other than with vague terms such as 'good communicator' or 'effective leader'. It is, however, these qualities that are probably the most critical to the future development of industry. Pye (1988) cites the analogy used by Polanyi (1967) in his book 'The Tacit Dimension', that may explain the reason why describing the complete set of managerial skills is rarely achieved by those asked. This analogy is the police identikit compilation of a face. From a choice of many pieces of physiognomy, the line drawn picture may not mirror exactly what is required, yet one would recognise the correct one among a thousand faces. Likewise the picture of the ideal high performing manager could be recognised amongst a group of managers but describing him or her is reflected by the statement "I know a good manager when I see one, but I can't tell you why in any specific way." Pye (1988) further extends this analogy. "In essence, the 'face' is a composite still, as opposed to a moving picture which would be a closer

representation of the way you 'saw' the mugger or, indeed, the doing of management." Therefore, by focusing on just a snapshot of a manager's behaviour at one point in time, one ignores the dynamic process of leadership that is inherent in the reality of management.

The next chapter outlines the literature that studied the supervisor as the workplace leader. As with the investigations into the supervisory skills of the supervisor, there are many challenges that face the researcher in attempting to understand and identify "leadership" at the workplace.

CHAPTER THREE

THE SUPERVISOR AS LEADER: A THEORETICAL REVIEW

3.1 INTRODUCTION

The desire for effective leadership in the workplace is the result of increasing world-wide competition within global markets, intense technological change and a rapidly evolving awareness that the survival of an organisation rests with sustaining and improving the performance of all its employees. It has been argued that an organisation's ability to cultivate leadership at all levels of management is not a short term solution but an imperative for continued existence. While the most senior managers may be required to develop and articulate visions for the organisation's future, the supervisor has to organise and direct a team towards accomplishing that vision: both can be defined as key factors of effective leadership (Peters, 1987). As described in Chapter Two, there is a growing realisation among business leaders that first-line supervisors are vital to sustain the competitiveness of industry. For example, Ian Gibson, Managing Director of Nissan Manufacturing (UK) Ltd., said in 1991 (NEDO, 1991),

> *"The competitiveness of our industry suffers greatly from the lack of satisfactory arrangements for developing and properly using supervisors... It is they who must translate management plans into action on the shopfloor and win the positive commitment of the workforce."*

Effective leadership at any level is grounded in a knowledge of the business environment; an intimate understanding of the industry, company, and work group; plus an awareness of the organisation's strategy, culture and values. Workplace leaders who do not understand the organisational context and surrounding commercial environment may lead the workforce in the wrong direction, prioritise resources incorrectly and adopt an inappropriate leadership style. Stogdill (1974) asserts that the most effective leaders appear to exhibit a degree of versatility and flexibility that enables them to adapt their behaviour to changing and contradictory demands.

This chapter will review the most influential theories of leadership which relate to the training and development of leaders in the workplace such as Fleishman (1953), Likert (1965; 1967), Fiedler (1967), Vroom and Yetton (1973), Hersey and Blanchard (1988) and Bass and Avolio (1990). Given the volume of the leadership literature, (Bass & Stogdill's, 1991, Handbook of Leadership includes over 7,500 references) this is a selective examination and of particular interest are the main empirical studies of first-line supervisors. The review will

consider these studies within the broader leadership research framework such as leadership trait theory, leadership style theory, situational/contingency leadership and transformational leadership. The chapter will conclude by examining the key to leadership research i.e., the definition and measurement of leadership effectiveness in the workplace.

3.2 DEFINITIONS OF LEADERSHIP

The study of leadership and leaders dates back 5,000 years from early writings in Egyptian hieroglyphics through to the modern biographies of "great man" leaders such as Napoleon, Churchill and Carnegie (e.g., Adair, 1991). This chapter will not focus on leadership from an historical nor "great man" perspective but will describe leadership theories and their development in the occupational context under investigation i.e., leadership in the workplace or in other words supervisory leadership. As Bass (1990, p.20) writes "The definition of leadership should depend on the purposes to be served by the definition." For the purposes of this narrative, 'leadership' and 'leadership effectiveness' shall be described within the context of the work environment.

Within the management literature there is a perennial debate about the difference between a leader and manager, and even whether these labels can co-exist in the description of the same role. This can often cause confusion when distinguishing between the two functions. Described below are some examples that illustrate this view. Bennis and Nanus (1985, p.21) propose that "managers are people who do things right and leaders are people who do the right thing". Zaleznik (1977) described managers as concerned with getting things done and leaders as concerned with what things mean to people. Whereas, Guest (1987) argues that the essential distinction is that leaders influence commitment, whereas managers merely carry out position responsibilities and exercise authority. The Oxford English Dictionary defines leadership as the ability to lead, with "lead" defined as going in front. Adair (1973) suggests that the Anglo-Saxon root of the word leader i.e., "laed," which means a path or road, provides clues as to the function of a leader. The leader was someone who showed the way either on land or at sea. French, Scot and Irish Celts use leader in terms of 'head' providing a different metaphor from "path" i.e., one being horizontal and the other vertical. "Manage" comes from the latin "manus" i.e., hand, suggesting control. It is not the intention of this project to add further to the debate but rather to highlight briefly the difficulties of precise definition not only in leadership research in general but also in selecting an appropriate leadership/management definition.

Given that leadership is complex, any definition of it would also have to be broad and multifaceted. This would facilitate the opportunity for leadership and management to be defined as mutually exclusive processes while also allowing for overlap if applicable. Kotter (1988) argues that it is possible to be a leader and a manager simultaneously and that writers serve no useful function by defining them separately. Empirical research, not arbitrary definition should determine whether management and leadership are mutually exclusive actions or are

performed better by different types of people (Yukl, 1994). If our knowledge of leadership is to be improved, it adds little value to the debate to differentiate a person's tasks in terms of leadership and management especially when in the social sciences one requires a wide enough definition to accommodate the phenomenon that is leadership and yet make it specific enough to increase understanding of the problem. Perhaps the Bennis and Nanus (1985) phrase should read "managers and leaders are people who both do things right and also do the right thing." This phrase does not imply that the labels are synonymous but that where leadership and management skills are required simultaneously then there is little purpose in literary semantics. The problem is probably best summed up by Burns (1978) who described leadership not as a set of discrete acts but as,

> *"a stream of evolving interrelationships in which leaders are continuously evoking motivational responses from followers and modifying their behaviour as they meet responsiveness or resistance, in a ceaseless process of flow and counterflow." (p.440)*

The debate about the terminology will probably continue but for the object of this research the initial definition of leadership will not predetermine the answer to the research question of what makes a leader effective (Yukl, 1989). For the purposes of this chapter, leadership is defined as the influencing of commitment towards a task or goal by a supervisor or manager over the team in the workplace. Management, when it exists separately from leadership, is the exercising of authority within organisationally defined legitimate boundaries. The terms manager/supervisor and leader will be used interchangeably except when it is appropriate to discriminate between the two.

3.3 THE MAJOR LEADERSHIP THEORIES

The dominant theories of leadership revolve around research addressing three main themes: the characteristics of the leader; the behaviour of the leader; and the relationship between the leader and the follower with regard to different situations. Or in other words trait, behavioural or style and situational-contingency theories. From the early 1980s trait theory has staged a comeback in leadership research and is finding prominence in the literature with terms such as charisma (Bass & Avolio, 1990), and intelligence (Fiedler, 1986). This will be discussed separately from the traditional view of trait theories. After these are considered, the question of leadership effectiveness in the workplace is examined i.e., the extent to which the goal, or task with which the group is concerned has been achieved - an effectiveness measure. In industry this is the most important aspect of leadership in the workplace as it closes out the strengths and weaknesses of leadership success and is ultimately the rationale behind leadership research at this level.

3.3.1 Trait theories

Trait theories focus on the personal characteristics of the leader such as intelligence, personality, age or physical strength. The trait theorists believed that if leaders had distinct qualities compared to non-leaders then they

should be able to identify what these were and furthermore measure the extent of the differences. Personal characteristics of leaders have been identified and correlated against measures of effective leadership, although consistent results have not been found. A review of literature by Jennings (1961), concluded that fifty years of study have failed to produce one personality trait or set of qualities that can be used to discriminate between leaders and nonleaders. In a more recent review of the literature, Yukl (1989), qualifies this negative conclusion by saying that while trait research has been unable to substantiate the premise that certain leader qualities were necessary for effective leadership, it is now recognised that certain traits increase the likelihood that a leader will be effective. However, as no distinct set of traits were identified that differentiated effective leaders from less effective leaders, pure trait theory was discredited by many reviewers such as Stogdill (1948) and Gibb (1954). Smith (1994) argues that the earlier studies of trait theories were discarded because of inadequate research methods such as crude statistical analysis, artificial situations using students and ratings of performance by only one person. Moreover, while the search for global trait solutions may have been fruitless, domain specific studies have shown more promise. In earlier work, for example, Ghiselli (1971), demonstrated that through careful analysis of a specific leadership position, such as a manager in a formal work organisation, a set of traits relating to managerial effectiveness can be identified and measured. He examined 306 American middle managers aged between 26 to 42 years who were all employed in business or industrial organisations. Managers were rated as above average and below average from ratings of performance by their immediate superiors. Thirteen traits were measured by Ghiselli's self description inventory and were grouped into three distinct categories: 'Abilities' (which included supervisory ability, intelligence, and initiative); 'Personality Traits' (which included self assurance, decisiveness, masculinity-femininity and working class affinity); and 'Motivations' (which included qualities all prefaced by the phrase "need for" such as occupational status, self-actualisation, power over others, high financial reward and job security). The traits that were found to differentiate above average managers from below average managers were supervisory ability, intelligence, initiative, self assurance, decisiveness, occupational achievement, need for self actualisation and need for power over others. It is of interest that the weak correlation between intelligence and leader effectiveness was re-examined as part of Cognitive Resource Theory by Fiedler (1986) which will be discussed in section 3.3.3.4.

In a recent review of leadership theory by Fieldler and House (1988) they said,

> *"While there is no one ideal leader personality, effective leaders tend to have a high need to influence others, to achieve, and they tend to be bright, competent and socially adept, rather than stupid, incompetent and social disasters." (p.87).*

With hindsight it was fortuitous that early trait theory produced unconvincing results because these results stimulated research into other factors within the leadership process. It could be argued that the leadership literature is returning to trait theory, but it does so with a much broader foundation. The current UK debate on the performance of its managers (See Chapter Two) highlights the need to examine what it is they actually do and subsequently to develop better models of practice (Handy, 1987). The Management Charter Initiative (MCI) aims to identify knowledge, skills and qualities of effective managers (CMED, 1988) which appear

similar to the aims of the original trait theory studies. Should the MCI model successfully discriminate between an effective and less effective manager, it would help stimulate a renewed interest in the trait approach to leadership.

In the US, however, a different approach was undertaken to identify the knowledge, skills and qualities of effective managers. This was described as a job competence assessment model and was developed by staff at McBer and Company (Boyatsis, 1982) in order to identify the characteristics that distinguished superior from average performers. In essence, they developed a critical incident interview technique (Flanagan, 1954) called behavioural event interviewing. This technique when combined with job performance as a criterion measure created competence tables that outlined the managerial characteristics of superior performance. These characteristics described the person within the role and not solely in terms of outputs or objectives and as a result could easily be grouped under a modern approach to trait leadership theory.

There has, also, been recent work on personality and its relationship to leader effectiveness (Hogan, Curphy & Hogan, 1994). For instance, Hogan et al (1994) argue that "bright characteristics" of a potential leader's personality such as intelligence, charisma and ambition can co-exist with dark-side characteristics such as inability to form and work within a team. A candidate can be selected for a leader position based on positive evidence gathered at interviews, assessment centres or through personality questionnaires and yet also possess less visible characteristics that are detrimental to team performance. Luthans (1988) also makes this distinction, although in a different way. He argues that there is a difference between what successful managers do and what effective managers do. "Successful" managers i.e., managers who had many promotions in fewest years, spent more time socialising and networking and less time on traditional management activities such as planning and decision making than less "successful" managers. "Effective" managers i.e., managers whose work unit was perceived as producing high quality products with satisfied and committed employees, spent more time communicating with their employees and other general human resource activities. From their sample, there was less than 10% belonging to both groups suggesting that there is a real difference in Luthan's definition between success and effectiveness. Furthermore, the assumption that the number of promotions is based on performance seems flawed and as Hogan's (1994) work suggests the future leaders of organisations have to be selected for promotion against more carefully selected criteria. Work by Bass (1985) on transformational leadership and the dimension "idealised influence", arguably the positive side of charisma, will be described in section 3.4.

It should be noted that UK companies are making increased use of intelligence and personality questionnaires in managerial selection (Smith, 1994), indicating their commitment to the view that traits can predict job performance.

3.3.2 Leadership style theories

Limitations in the use of traits to predict effectiveness led researchers in the 1950s to switch their attention to behaviour as a possible predictor of leader performance. They began to examine what leaders actually do and whether better managers could be identified on the basis of their style of management. Early behavioural models suggested that leader behaviour can be described in terms of two dimensions: autocratic or democratic. They also examined two other behavioural elements; being "task centred" and focusing the group's attention on the quantity and quality of work to be accomplished, and secondly by being "people centred" and supporting the group in order to achieve the organisational goals. This section will describe the main style theories of leadership from the seminal experiment by Lewin, Lippet and White (1939) to the Ohio State and Michigan University studies in the 1950s. The description of style theories prefaces the change of research emphasis towards situational theories which is described in section 3.3.4.

3.3.2.1 Authoritarian, Laissez-faire and Democratic styles.

Lewin, Lippet and White (1939) conducted an experiment into the effects of different leadership styles at the Child Welfare Research Station at the State University of Iowa. The study's main aim was to investigate patterns of aggressive behaviour in artificially created social groupings as a result of a changing leadership philosophy. Smith (1991) described it as "probably the classic experiment on leadership style" (p.210). The experiment involved the study of 20 ten year old boys organised in small groups engaged in hobbies over a period of five months. The boys were led by an adult who adopted one of three leadership styles, i.e., autocratic, democratic or laissez-faire. The leaders took it in turns every sixth week to adopt a different style. The authoritarian leaders made all the decisions and told the boys what to do, the laissez-faire leaders left everything to the group and the democratic leaders encouraged and helped the group to make the decisions. The groups were observed while they participated in their hobbies.

The results showed that the groups with the authoritarian leaders worked well enough when the leader was present but slacked off noticeably when he was absent. The group atmosphere was characterised either by tension and hostility toward one another. Their relationship to the leader was "...one of submission or of persistent demands for attention." (Lewin et al, 1939, p.277). The groups led by the laissez-faire leaders did little work and achieved little. The group atmosphere displayed higher levels of aggression than in the authoritarian group. Their relationship to the leader was psychologically non-existent. The groups led by the democratic leader did as much and probably more than the authoritarian led group, and they continued to work at the same rate even when the leader had left the room. Friendly, "cohesive and involved" described the group atmosphere. Their relationship to the leader was categorised by feelings of mutual understanding and equality. Each boy was interviewed individually one day before a change of leader and again at the end of the whole experiment. All the boys had a relative dislike for the autocratic leader regardless of the leader's personality. Nineteen of the 20 boys liked the leader more in a democratic style than in an autocratic one. It is of interest that the twentieth boy was the son of an army officer and "consciously puts a high value on strict discipline" (Lewin et al, 1939).

The study indicated that democratic leadership appears to be the most effective style particularly over a long period. The satisfaction of the followers is also highest with the democratic style. Although conducted with ten year old boys and in an experimental setting, the work of Lewin et al (1939) was significant enough to prompt more leadership research investigating the continuum of autocratic to democratic conceptions of leadership (Fiedler, 1967; Fleishman, 1953; Likert, 1965).

3.3.2.2 The Michigan State Studies

Following the study by Lewin et al (1939), leadership researchers at the Institute for Social Research at the University of Michigan began in 1947 investigating human problems of administration (Likert, 1965). The research project was funded by the Office of Naval Research, the Rockefeller Foundation, the Carnegie Corporation, the Schwartzhaupt Foundation and the National Institutes of Health. They examined a large number of work groups in diverse organisations, ranging from railroad workers to insurance office workers. Effectiveness criteria were determined by several factors: These included productivity per man hour (or some similar measure of the organisation's success in achieving its productivity goals), job satisfaction, turnover, scrap loss and motivation.

The supervisory leader behaviours of these groups were identified by collecting information from interviews and questionnaires. The objective measures described above were used to group supervisors into effective or less effective categories and it was found that three types of leader behaviour differentiated between effective and less effective supervisors. These were task-oriented behaviour, relationship-oriented behaviour and participative leadership. The two primary behaviours were respectively labelled employee centred and production centred supervision. Employee centred was used to describe behaviours which were predominantly concerned with the social and emotional needs of the team. They would "inform the men on what is happening in the company" and "keep them posted on how well they are doing" (Likert, 1965, p.18) Production centred, described behaviours which were directed towards task accomplishment such as planning and scheduling work. Initially the researchers felt that the two primary behaviours were dependent, so that the strong employee centred supervisor was weak on being production centred. However, as the research developed the two dimensions of behaviour were recognised as independent and not opposite ends of the same continuum. Participative leadership occurred when the supervisor facilitated discussion, cooperation and decision making among his subordinates with the supervisor remaining responsible for the decision taken.

Likert (1965) found that for every criterion of productivity, supervision and the general style of leadership was more significant in influencing organisational performance than general factors such as attitudes towards the company and interest in the job itself. The more effective supervisors displayed a different style of leadership from less effective supervisors. From the research at Michigan University, Likert described two main styles of supervision in the workplace. The leadership style which broadly made clear to the employees what the objectives of the task were and then gave them the freedom to achieve it was entitled 'general supervision'. Whereas the style of those supervisors who felt that taking an interest in employees was a luxury only

achievable after production targets were met, he named 'close supervision.' General supervision did not always result in higher production or close supervision in lower production but Likert (1965) argued that there was an increased probability of higher productivity from general supervision.

In later work Likert (1967) found that the prevailing management styles of organisations could be depicted on a continuum which he called System 1 through System 4. System 1 and System 4 are described below, for more detail see Likert (1967).

> *"System 1 - Management is seen as having no confidence or trust in employees since they are seldom involved in any aspect of the decision making process. The bulk of the decisions and the goal setting of the organisation are made at the top and issued down the chain of command. Employees are forced to work with fear, threats, punishment, and occasional rewards. Need satisfaction is at the physiological and safety levels. The limited management-employee interaction that does take place is usually with fear and mistrust. Although the control process is highly concentrated in top management, an informal organisation generally develops in opposition to the goals of the formal organisation.*
>
> *System 4 - Management is seen as having complete trust and confidence in employees. Decision making is widely dispersed throughout the organization, although well integrated. Communication flows not only up and down the hierarchy, but among peers. Workers are motivated by participation and involvement in developing economic rewards, setting goals, improving methods, and appraising progress toward goals. There is extensive friendly management-employee interaction, with a high degree of confidence and trust. There is a wide spread responsibility for the control process, with the lower units fully involved. The informal and formal organizations are often one and the same. Thus, all social forces support efforts to achieve stated organizational goals."*

In testing his systems of management theory, Likert (1967) asked hundreds of managers from many organizations to indicate where the most, and least, productive departments, divisions, or organizations they have known would fall between the continuum of System 1 to System 4. The ratings of the most and least productive departments varied among managers but almost without exception the managers rated the high-producing unit closer to System 4 than the low-producing department.

The findings from this research indicate that the closer the management style of the organisation is to System 4 the more likely it will be to have a record as a high producing unit and conversely the closer the organisation is to a System 1 style of management the more likely it is to have a sustained record of low productivity. Therefore, from Likert's findings it would appear likely that organisations should attempt to move towards a System 4 style of management. Coch and French (1948) reported a change of management style similar to that described in Likert's management style continuum i.e., from 1 to 4 that produced improved results by a leading US pyjama company. After an initial drop in productivity the change program initiated by the organization created a productivity increase by almost 30 percent within two years, manufacturing costs decreased by 20 percent, employee turnover was reduced and the company began to show a profit.

From this example, work by Bose (1957) and the results of Likert's research it would suggest that the ideal leadership style and most productive for industry is employee centred and democratic. However, even Likert (1961), himself argued that the research indicated only a general pattern and,

> *"technically competent, job-centred, insensitive, and tough management can achieve relatively high productivity. Members of units whose supervisors use these high-pressure methods, however, are more likely to be among those which have the least favorable attitudes toward their work and their supervisors and are likely to display excessive waste, scrap loss, and turnover. In general, these are the work groups which show the greatest hostility and resentment towards management, the least confidence and trust in their supervisors, the largest number of grievances that go to arbitration, and the greatest frequency of slowdowns and work stoppages, and similar difficulties." (p. 59).*

In fact, Likert (1975) cites the example of General Motors who reported a labour efficiency increase between 1969 and 1970 as a result of moving from System 4 to System 1.

While this work is more than 30 years old many British organisations in the nineties are attempting to move to a style of management similar to that of Likert's System 4 by adopting new democratic initiatives such as empowerment, "Investors in People" and other quality management initiatives.

3.3.2.3 The Ohio State University Leadership Studies

The most extensive leader behaviour study began in 1945 at The Ohio State University with the research aim of identifying the behaviour of organisational group leaders (e.g. Hemphill et al, 1957; Katz & Kahn, 1952). The groups studied included bomber crew members from the US Airforce, foremen in a manufacturing plant and college administrators (Stogdill & Coons, 1957). The work was sponsored by many different organisations - among these were Air Force Personnel and Training Research Center, The Office of Naval Research, The Rockefeller Foundation and the Kellogg Foundation.

The research had two underlying assumptions: "leadership" should not be regarded as synonymous with "good leadership" because the experimental variable and the criterion are then attenuated (Shartle, 1957), so they studied leadership whether it was effective or ineffective. The second assumption was that certain leader behaviours are more effective than others although measuring effectiveness was a separate issue. The priority for the Ohio State Leadership Studies was to investigate leadership behaviours first and then determine which behaviours were more effective, for example, in terms of productivity.

Shartle and his colleagues developed a list of 1,790 statements that described different aspects of leadership behaviour by using the following method. The members of the multi-disciplinary research team differed in opinion and orientation in how to classify specific leader behaviour. Therefore their views were grouped into nine dimensions: 'integration', 'communication', 'production emphasis', 'representation', 'fraternization', 'organisation', 'evaluation', 'initiation' and 'domination' (see Stogdill 1957, p.8 & 9 for a detailed description of

each dimension). Each member of the research team wrote items of behaviour which seemed to apply to the above areas such as "speak in a manner not to be questioned" and "wait for people in the work group to push new ideas". They could draw their ideas for items from personal experiences and the leadership literature. To increase the range of leader behaviour described, two advanced university classes also wrote 12 items in each of 4 different categories. Many of the 1,790 items were found to overlap and overlapping items were grouped together, leaving 200 distinct leader behaviour statements for the preliminary questionnaire. This was further reduced to 150 by redefining the statements back into the nine original categories described above. This subscale was used to form the Leadership Behaviour Description Questionnaire (LBDQ) by Hemphill (1950) containing descriptions of how leaders behaved. Halpin and Winer (1957) intercorrelated and factor analysed the subscale and identified "consideration" and "initiating structure" as primary factors, accounting for 83% of the total factor variance. Fleishman (1957) found a similar result with industrial supervisors in studies conducted in 1951, 1953 and 1957. The Supervisory Behaviour Description Questionnaire (SBDQ), was developed as a specific industrial version of the LBDQ, although this scale included some autocratic items such as "he rules with an iron hand". Versions of the SBDQ (Fleishman, 1953) and the Leadership Opinion Questionnaire (Fleishman, 1957) were used in the pilot study with offshore supervisors (See Chapter Four).

Consideration describes the extent to which a leader exhibits concern for the welfare of the group. The considerate leader expresses appreciation for good work, stresses the importance of job satisfaction, makes special efforts to help subordinates feel at ease, puts subordinates' suggestions into practice and obtains their approval on important matters before going ahead. The inconsiderate leader criticises subordinates in public, treats them without considering their feelings, threatens their security and refuses to accept their suggestions or explain his or her actions.

Initiating structure shows the extent to which a leader initiates activity in the group, organises, and defines the way in which the work is to be done. This factor includes such leadership behaviours as insisting on maintaining standards, meeting deadlines and deciding in detail what will be done and how it will be done. The leader acts in a directed way towards the task and does not consult the group.

In studying leader behaviour, the researchers at Ohio found that initiating structure and consideration were separate and distinct dimensions i.e., a high score on one dimension does not necessarily mean a low score on another. Therefore, the leader behaviours could be plotted on two separate axes rather than on one single continuum. Despite initial evidence that the two dimensions of the LBDQ had an orthogonal factor structure, later uses of the scale indicated that there was a correlation between the two scales (Schrieshman, House & Kerr, 1976). However, a review by Fleishman (1973) of 32 studies showed that the SBDQ had a median correlation of -.02 between the consideration and initiating structure scores.

Industrial studies investigating the effects of consideration and initiating structure on productivity and satisfaction have found mixed results. Fleishman, Harris and Burt (1955) found that production foreman received higher performance ratings by their superiors when they were higher in initiating structure and lower in

consideration. However, absenteeism and turnover were higher in the work groups when the foreman had this pattern. Several additional validation studies have confirmed a similar pattern (Bass, 1990), although other studies, such as Evans (1970), found the opposite situation. It may, however, be the choice of the effectiveness criteria that is producing these differing results. For example, if the satisfaction of subordinates is the criterion of effectiveness it is likely that supervisors that are high on consideration will also have higher ratings of subordinate satisfaction. There is a problem of determining causality in concurrent analyses, for example in the case of subordinate satisfaction, the supervisor's behaviour (high consideration) contributes towards high subordinate satisfaction, alternatively high subordinate satisfaction allows the supervisor to be more considerate. The Ohio Leadership Studies found, as with the other leadership studies, that measures of effectiveness such as subordinate's productivity and satisfaction can be seen to be as a result of the supervisor's behaviour; yet, they may also be influencing the supervisor's behaviour.

By investigating leadership in terms of leader behaviours, The Ohio Leadership Studies have provided an easy to administer instrument (e.g LOQ & SBDQ) that measures the extent of consideration or initiating structure exhibited by a leader. An understanding of leadership effectiveness is dependent on the performance criteria selected. Furthermore, the environment may have an effect on the leader's behaviour, and leader effectiveness may better be explained when there is an appropriate fit of leader behaviour and the leadership situation.

3.3.3 Situational and Contingency theories of leadership effectiveness

The situational approach to leadership is built on the concept that effectiveness results from a leader using a behavioural style that is appropriate to the demands of the environment (Hersey & Blanchard, 1993). The focus of the situational approach is on observed behaviour and not hypothetical characteristics such as an inborn ability or potential for leadership. This situational approach to leadership was raised as early as 1948 by Stogdill, who concluded that the effectiveness of leader traits is dependent on the situation and that both the person and the situation had to be considered for the emergence of leadership. The situation is defined as a combination of the characteristics of the leader, the group, the task and the organisational structure.

3.3.3.1 Tannenbaum and Schmidt Continuum of leader behaviour.

The work by Tannenbaum and Schmidt (1958) directly reflects the thinking concerning leadership research during the 1950s. This began examining wider issues relating to the leadership process and, due to the failure of trait research, attempted to identify a common set of leader traits that predicted performance. The research method moved away from focusing solely on the leader toward recognising the influence of the followers in the leadership situation. Theories relating to motivation and human relations (Likert, 1965) generated a departure from a directive leadership style toward a more democratic one. This new style would in theory create employee involvement in decision making, increase motivation and ultimately improve organisational performance.

"Training laboratories" (Tannenbaum, 1958, p.96) assisted in the practice of allowing the "designated" leaders the opportunity to reduce their power and allow the followers the opportunity to make their own decisions. However, leaders in the "real" leadership situations felt as supervisors that democratic leadership was not always effective. Tannenbaum and Schmidt (1957) describe the supervisor's dilemma:

> *"...there are times when he is torn between exerting 'strong' leadership and 'permissive' leadership. Sometimes new knowledge pushes him in one direction (I should really get the group to help make this decision), but at the same time his experience pushes him in another direction (I really understand the problem better than the group and therefore I should make the decision)." (p.96)*

The leader also has the dilemma of not knowing whether his or her choice of leadership style is the most appropriate one. Tannenbaum et al developed a continuum to facilitate the possible ranges of leadership behaviour that are available to the manager. This ranged from (i) the manager making a decision and announcing it to the team to (ii) permitting the team to function with limits defined by the superior. Once the leader is aware of the various styles of leadership, he or she must then decide which is the most appropriate. The authors felt that the leader should consider the following three forces prior to the adoption of a leadership style: forces in the leader; forces in the subordinates; and forces in the situation. The most successful type of leader, argued Tannenbaum et al (1957), was one who was not only able to identify the significant forces within the leadership interaction but also able to act accordingly within those perceptions.

3.3.3.2 Hersey and Blanchard's situational model

Hersey and Blanchard's (1969) Situational Leadership Model, which is currently used in training seminars by the UK by the Industrial Society, focuses on the leader's relationship and task behaviours in relation to the maturity of the follower. Task behaviour is the extent to which a leader tells followers what to do and how to do it. Leaders who use task behaviour closely supervise their subordinates and use structure and control over the workplace. Relationship behaviour is defined as the extent to which a leader listens, provides support and encouragement and shares the decision making process with the team.

The situational leadership model describes four distinct styles which link the task with both the leader's behaviours and the readiness (in terms of competence and commitment) of the followers. The four styles are: (i) directing, (the leader provides clear and specific instructions to his subordinates as they are either unable or unwilling to perform the task); (ii) coaching, (the leader is aware that the subordinates are willing but have low task competence, so he or she uses leader behaviours which are a mixture of both task and relationship oriented and should build confidence in the subordinates' ability to do the task); (iii) supporting, (the subordinates are able but are not fully confident in their ability to perform the task, so the leader encourages and supports the skills of the subordinates); and (iv) delegating, (the leader exhibits neither task nor relationship behaviour because the subordinates are able, willing and confident, so they are allowed to decide what to do and when to do it.)

While the situational theories have been useful by providing alternative explanations to the trait and style theories for leader behaviour, most of these theories have not explained why these situational characteristics affect leader behaviours. In addition these theories assume that leaders are equally affected by and do not differ in their perceptions of these situational characteristics. More research is needed to determine if and how individual variables moderate the relationships specified in these situational theories of leadership. Contingency theories, although similar to situational theories, differ in one key aspect in that they assert that effectiveness of the leaders' behaviour depends on specific characteristics of the situation. What these key characteristics actually are is described as part of the next section.

3.3.3.3 Fiedler's Contingency Approach

Fiedler's (1967) approach to leadership effectiveness argues that leadership effectiveness depends upon the relationship between leadership style and the degree to which the group situation enables the leader to exert influence. His Contingency Model concentrated on (i) the relationship between the leader and his group, and (ii) the structure of the task, and (iii) the power base between the leader and the group, as determinants in the choice of the most effective style of leadership. He argued that a structuring style was most effective when the situation was either very favourable to the leader or very unfavourable. When the situation was only moderately favourable then a supportive style worked best.

Fiedler defined "favourableness of the situation" as the degree to which the situation enables the leader to exert influence over the group. Leadership style was measured through an instrument developed by Fiedler which asked leaders to describe their most and least preferred co-workers. The scale had 18 bipolar adjective scales such as pleasant and friendly to unpleasant and unfriendly, respectively. Each item was rated with an eight point scale and each score was added together to form the subject's least preferred co-worker (LPC) score. (The LPC score formed a measure of leadership style in a UK study of supervisor-manager relationships in manufacturing industry by Watson, 1989). The relationships identified in the model have been endorsed by over 50 studies (Fiedler, 1976). One experiment by Fiedler and Chemers (1974) at the US Military Academy, West Point, assigned 128 cadets to 32 separate 3-man teams. The researchers assembled the groups into one of the eight situations in Fielder's Contingency model based on scores reflecting leader-member relations obtained three weeks prior to the study. In half of the groups, the leaders and members had expressed liking for working with each other; in the other half, leader and members had previously expressed their dislike for working with each other. In half the teams, the team leaders were given strong position power by being told that they would have the final say on all group decisions and that their ratings would influence members' military grades. In the low position power groups, leaders were told to act as chairmen. Half the groups began with an unstructured task requiring them to design a program increasing interest in world politics among enlisted men who are assigned overseas. The other, more structured task required the group to draw a plan for a barracks building to scale from a set of specifications. After completing the first task the groups would then swap over and attempt the other. Correlations were made between the LPC scores for the leader's style and an objective measure concerning the task performance of the whole team.

Fiedler argued that in order to improve the group performance one can change the leader's motivational structure such as his basic goals or modify his leadership situation. While it is possible to change personality and the motivational structure within personality it is clearly a difficult and complex process. Fiedler, himself argues that since motivational structure is so central to our personality "it would be naive to expect a cold and business like person to become a warm, cuddly leader within a few hours or days" (Fiedler, 1976, p.14). Although Bass (1990) has argued that the leader can change his or her style relatively quickly.

However, Fiedler contends that it is comparatively easy to change the leadership situation. This can be done by selecting a different type of person for leadership depending on the task by giving him or her more or less responsibility, or giving him or her leadership training in order to increase or decrease their power and influence. Most leadership training seeks to increase the favourableness of the situation by increasing the leader's control and influence (Fielder, 1976). Therefore, those leaders who, for example, start off in an unfavourable situation will gradually move into a zone of moderate situational favourableness. Such a change in control and influence would also change leadership performance. For example, the task motivated leader who performs well in the unfavourable zone will perform less well with training, whereas the relationship motivated leader should improve with training as he moves from the unfavourable to the moderately favourable zone. This can be broadly summarised by stating that in theory, training will decrease performance of some leaders but increase it for others (Fielder & Chemers, 1976).

Although Fielder's model is useful, he implies that there is only a single continuum of leader behaviour, with only two basic leadership styles, task oriented and relationship-oriented. By examining leadership in this way it excludes the leadership style that may exist which is both high on task orientation and high on relationship orientation such as the 9,9 - Team Management style (Blake & Mouton, 1964). Also the weakness of LPC as a measurement device has been widely discussed. Peters, Hartke and Pohlmann (1985) found during a meta-analysis of Fielder's laboratory results that while there was general support for the Contingency Theory, the result for Octant II was contrary to theoretical expectations, i.e., instead of observing a negative leader style-performance relationship, a positive one (.21) was observed.

Handy (1985) directs two criticisms at Fiedler's approach: firstly for researching unusual groups such as focusing on basketball teams and bomber crews; and secondly for only examining the problem in terms of the nature of the task and the relationship between the leader and his subordinates - the results may not be strong enough to support his conclusions and the method too narrow in its approach to understanding leadership.

3 3.3.4 Cognitive Resource Theory

The contingency model developed by Fiedler (1967) has been justly criticised because it predicts leadership effectiveness but fails to explain the underlying processes that result in effective performance (Fiedler, 1989). His more recent work, Cognitive Resource Theory (CRT) provides an integration of the roles played by intellectual abilities, competence and experience, as well as leader behaviour and stress, in determining leadership and group performance (Fiedler & House, 1988). The theory directly addresses the question of why

the leader's intellectual abilities and job experience, under conditions of stress, correlate so poorly with performance (Bass, 1991). This theoretical problem has significant practical implications as job experience and perceived intellectual abilities are two of the key traits that determine selection and promotion in industry. In fact, it could be argued that such results are contrary to common sense and organisational practice. The CRT theory states that the performance of a leader's group is determined by a complex interaction among two leader traits (intelligence and experience), one type of leader behaviour (directive leadership), and two aspects of the leadership situation i.e., interpersonal stress and the nature of the group's task (Yukl, 1994).

Fiedler and his associates examined the relationship between leaders' intelligence and stress from several groups from 1960s to the mid 1980s. He used the same data set that was used for researching the Contingency Model and is therefore open to the same criticisms that were aimed at this model. The groups included Army Squad Leaders, a group from the Belgian Navy, Coast Guard, Company Commanders and Batallion Staff Officers, Cadet trainees, Dutch University Students, Fire Service Officers, Illinois Farmers, US Army Personnel (dyad groups), US Army Mess Hall Personnel, US Army Infantry, High School Students in Public Health from Honduras and Guatemala and ROTC Cadet teams. Factors such as intelligence (an aptitude test, for example the "Wonderlic Personnel Test") experience (job tenure), stress (rated as stress with boss and stress with job) and performance (objective output measure, if applicable, then superior ratings) were calibrated for each group.

The findings show that when stress with boss is high, experience correlated positively but intelligence correlated negatively with performance evaluations. Intelligence was uncorrelated with performance when the individual reported relatively low stress with his or her boss (Potter & Fiedler, 1981). These findings indicate that in a stressful situation an individual selected for his or her intellectual abilities will perform less well than those who lack these abilities. Some suggestions are raised by Fiedler & House (1988) as to why these results may occur. Firstly, the more intelligent leaders may have higher expectations of themselves and as a result seek more risky solutions than less intelligent leaders. The more intelligent leaders may be more aware of potential failure and as a result be more anxious about their decisions. Finally, the more intelligent leaders may have many new ideas but are unable to provide an integrated solution.

While Fielder established support for CRT, recent work by Vecchio (1990) has found mixed results. In fact he found that stress that originates from failing to meet personal professional standards may have a positive effect on future performance, and that "intelligence" was measured too generally against task performance to provide specific results. One suggestion made by Vecchio (1990) was to adopt Sternberg's (1985) view that intelligence should be viewed as having three major facets: reasoning ability, social judgement and creativity, and that measuring intelligence this way would benefit the empirical research of CRT. Another criticism of Fielder's approach is that the theory examines only directive leader behaviour and there are already inconclusive results in the literature relating this behaviour to performance. The idea, though, that intelligence (and tacit knowledge) may have an important role to play in predicting managerial performance appears to be gaining ground in North America (Sternberg, 1995) and is likely to be a focus for future research.

3.3.3.5 Vroom and Yetton Contingency Model

The contingency approach developed by Vroom and Yetton (1973) is based on a model commonly used by those who endorse the situational approach to leadership - this is based on the assumption that situational variables interacting with personal attributes of the leader result in leader behaviour that can affect organisational effectiveness. Therefore change in the organisation, as it is part of the situation, affects the next leadership intervention. The researchers assume that the leader can choose a leadership style along a continuum ranging from highly autocratic to highly democratic. The range of styles are dependent on the situation are described below :

AI Leader makes decisions alone, using information available at the time.

AII The employees provide specific information to the leader and then the leader decides on the solution himself.

CI The leader shares the problem with team members individually and gets their feedback without bringing them together as a group. The leader then makes the decision which may or may not reflect the suggestions of the group.

CII The leader shares the problem with the employees in a group meeting. After obtaining feedback the leader makes the decision which may or may not reflect the suggestions of the group.

GII The leader shares the problem with the group. As a group they generate and evaluate solutions and attempt to reach a solution. The solution is generated by the group and is implemented with the support of the entire group.

For situations that do not fall strictly into these categories, there are alternative options which can be followed. These new choices can be based on criteria such as time, subordinate needs and the individual preferences of the leader. The fundamental problem with the model is that yes/no responses over simplify the situation. These weaknesses were updated by Vroom and Jago (1988) by providing 5 possible responses for each decision making question, and two extra outcomes to account for the quality of the decision creating a total of four i.e., "decision acceptance", "decision quality", subordinate development" and "concern for decision time". The updated model has much support in the literature and even a computer software program has been developed to assist in working through the many potential answers to the model.

3.3.3.6 Path goal theory of leader effectiveness

The impact of the leader on the performance and satisfaction of group members was examined by another situational model, the Path Goal Theory of Leader Effectiveness (House, 1971). This model is derived directly from the "path goal" theory of motivation (Georgopolous, 1957). The main hypothesis is that the force on an individual to engage in a specific behaviour is a function of (i) the leader's expectations that the behaviour will result in a specific outcome, and (ii) the value the leader places on the outcomes that are associated with his or her behaviour. This description clearly fits the transactional style described by Burns (1978).

Other studies, identified by House, have produced some conflicting findings which concern the relationship between initiating structure, performance and organisational effectiveness. House (1971) replicated the earlier work by Fleishman and Harris (1955) and investigated the leadership style of salaried engineers, scientists, and technicians in three larger research, design and development organisations. He found that leader initiating structure had a significant relationship to half the satisfaction measures in two of the three companies and significant positive correlations with company management in all three companies studied. In a another study with 192 non-technical corporate office employees from a chemical company, House (1971) measured positive relationships between leader initiating structure and six measures of satisfaction. Several hypothesis were put forward by House to account for these conflicting findings. For example, initiating structure was hypothesised to clarify path-goal relationships for higher occupational level jobs which are frequently ambiguously defined. High initiating structure from the supervisor reduces role ambiguity and as a result increases the employee's perception that extra effort will result in goal attainment. This would explain why lower level occupations (which are more routine) receive lower ratings of satisfaction. If the job is itself not intrinsically satisfying then the employee may perceive that high initiating structure is a strategy by the supervisor of keeping them working at unsatisfying activities.

House developed three separate studies (see House, 1971) to attempt to reconcile whether the path-goal theory, described above, actually explains the confusing findings. The findings generally supported the theory that among high occupational groups, leader initiating structure was generally positively related to subordinate satisfaction and performance. The findings for the relationships between consideration, satisfaction and job satisfaction varied significantly.

Yukl (1994) lists six fundamental criticisms of path-goal theory. They include: the conceptual problems that are associated with expectancy theory and the assumption that role ambiguity is unpleasant to an employee, but some employees, like supervisors (see Chapter Two), for example, may like a job in which duties are not specified and there is freedom to define their own role. In general the criticisms for the situational approach also apply to the contingency models. (Fielder & Chemers, 1984) has argued that these theories are actually more similar than different, as they both assume that leaders can accurately diagnose situations and behave in a flexible manner. Two further criticisms can be aimed at the situational/contingency models: there is a tendency to over simplify the situation and it is assumed that decision making takes place only once.

3.3.4 Transactional and Transformational Leadership

Research by Burns (1978) into how US political leaders motivated followers was one of the first attempts to describe the differences between transactional and transformational leadership. He argued that political leaders who emphasised the exchange process i.e., jobs, subsidies and government contracts in return for campaign contributions and votes were exhibiting transactional leadership. Whereas, those leaders that raised the consciousness and values of their followers in areas such as justice, peace and humanitarianism were described

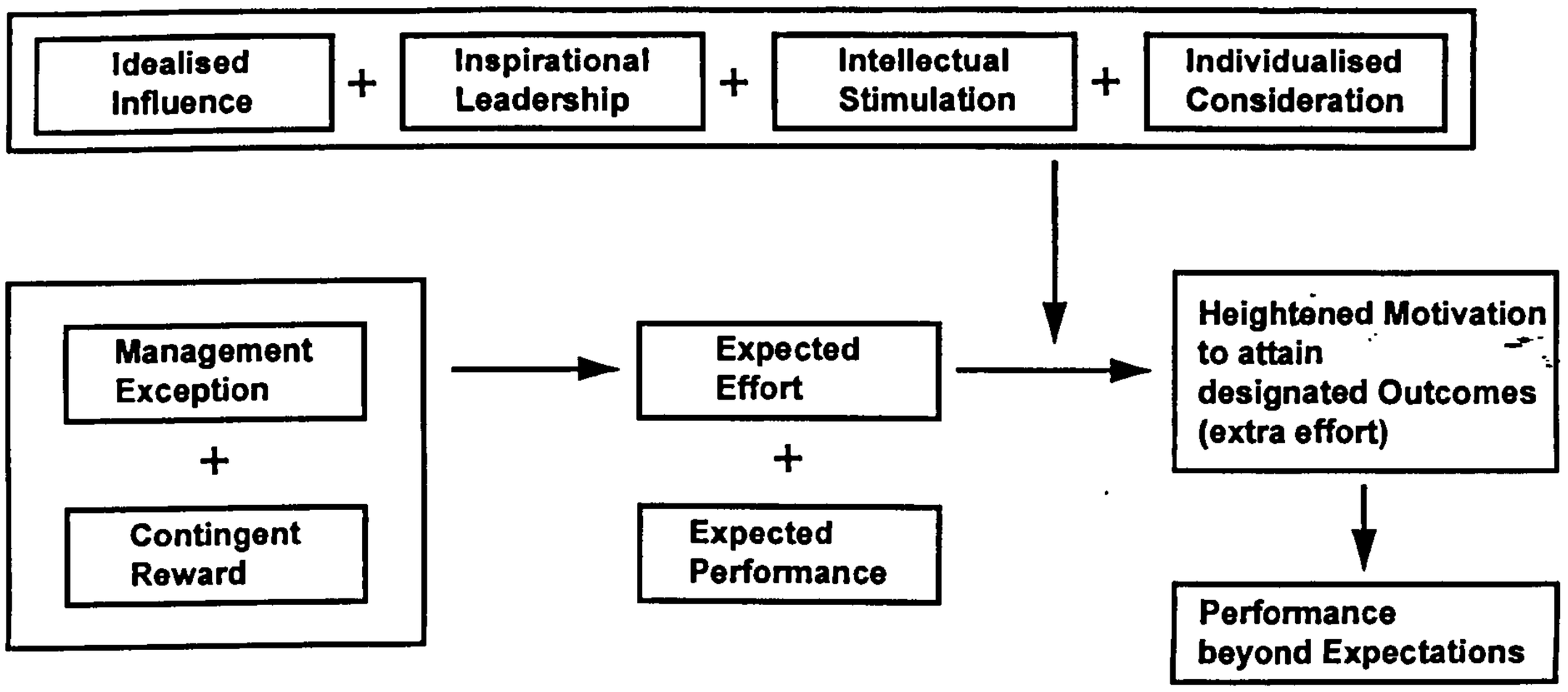
as transformational. Burns' model placed transactional and transformational at opposite ends of the same continuum which meant that in his opinion a leader was either one or the other. Bass (1985) using the theoretical perspective of Burns extended the model in two ways. Firstly Bass's definition of transactional and transformational leadership was extended to include supervisor-subordinate relationships in general and more importantly, he developed a model that augmented the effect of transformational on transactional leadership, thus allowing for a leader to be both transactional and transformational. In fact, it is argued by Bass (1985) that this model is not only building on previous work but is also in itself a new leadership paradigm.

A more detailed description of these two styles is described below. The transformational leader can develop followers, raise their need levels and energise them, and promote quantum positive changes in individuals, groups, teams - even entire organisations (Avolio, 1990). Transformational leadership is usually found at the more senior ends of the organisation, especially when leaders are selected on their ability to change and improve their work unit. However, Avolio (1990) claims that transformational leadership has been observed at lower organisational levels, including the project leaders, who were not in management positions. This suggests that transformational leaders either select transformational leaders, develop them, or do both (Bass, 1990). Moreover, the Multifactor Leadership Questionnaire (MLQ) has been used successfully at many levels in organisations including team leaders and supervisors (Hater & Bass, 1988; Bycio, Hackett, & Allen, 1995).

Transactional leaders define and communicate the work that must be done by followers, how it will be done, and the rewards followers will receive for successfully completing stated objectives. The followers or employees understand their job roles and the expectations set out for them by the leader and the organisation. The employees are motivated and directed to achieve these expectations because their transactional leaders clarify what they will receive in return. These rewards, which are very dependent on the organisational context, may include satisfactory performance ratings, pay increases, praise and recognition, and better work assignments. The skills and behaviours that are apparent within transactional leadership include the leader's recognition of the goals that are expected of him or her them by their superiors. The leader must then be able to specify the work activities and goals that his followers have to achieve, while concomitantly gaining their cooperation so that the followers expectations are met. Thus, the effective transactional leader should be skilled in identifying the individual follower needs and desires and communicating effectively the needs and desires of the organisation to his followers.

In contrast, the key behaviours of the successful transformational leader include articulating goals, building an image, demonstrating confidence and arousing motivation. These behaviours convince and motivate followers without bartering for goods and rights, which characterises transactional leadership (Kuhnert & Lewis, 1987). The augmentation model of transformational and transactional (Bass & Avolio, 1994) is shown below.

Figure 3.1
The Augmentation Model of Transactional and Transformational Leadership



(Bass & Avolio, 1994)

TRANSFORMATIONAL LEADERSHIP DIMENSIONS

Idealised influence is defined with respect to follower reactions to the leader as well as to the leader's behaviour (Bass & Avolio, 1991). Followers identify with and emulate these leaders. The leaders are trusted and convey a vision to their followers that the followers can identify with. The leaders also have much referent power and set challenging goals for themselves and their subordinates.

Inspirational motivation can overlap with charisma depending on how much the subordinates want to identify with the leader. This measures the extent to which the leader uses symbols and short emotional messages to motivate the team towards mutually desired goal.

Intellectual stimulation assesses the amount of encouragement a leader gives his followers to question their old way of doing things. The followers are supported if they change their old ways of thinking and develops creative ways of approaching new problems.

Individualised consideration is a measure of how a leader treats his followers differently but fairly. The leader raises the expectations and needs of his followers through individual coaching.

TRANSACTIONAL LEADERSHIP DIMENSIONS

Contingent reward describes the interaction between leader and follower that emphasises exchange especially in terms of what a follower knows to expect from the leader in return for the follower's attainment of agreed objectives.

Management-by-exception is a measure of what the leaders do when things go wrong. The leader usually intervenes to make corrective action with criticism, discipline and negative feedback.

Most of the research on Bass' theory has involved the use of the Multifactor Leadership Questionnaire (MLQ) and this was also used in the main study of offshore supervisors (See Chapter Five). Several studies have found support for the theory that transformational behaviours correlate more strongly with leadership effectiveness than transactional behaviours (Bass & Yammarino, 1991; Seltzer & Bass, 1990). The leadership effectiveness measure was based on appraisal ratings by superiors and a similar pattern of positive correlations was repeated with "hard measures" such as financial or productivity records (Bass & Avolio, 1991). The augmentation model has also received empirical support (Waldman, Bass & Yammarino, 1989) where transactional leadership is perceived as the basis for effective leadership, but greater effort and satisfaction is possible from employees by augmenting transactional with transformational leadership (Bass, 1985). While another study of US military personnel by Curphy (1991) found little evidence for Bass' augmentation theory but did indicate that transformational leadership positively affected organisational performance and climate.

There is considerable evidence to indicate that Bass's (1985) theory of transformational leadership and the related MLQ can contribute to the identification of effective leadership behaviours. Bass and Avolio (1990) argue that transformational leadership will be particularly effective in organisations undergoing change, and given the current competitive global market place, change may become the norm. Given that transformational theory builds on existing models of leadership and also attempts to train leaders to face the changing economic environment, it appears well matched to fit the organisational requirements of the future.

3.3.5 A UK MODEL OF LEADERSHIP EFFECTIVENESS

3.3.5.1 Adair's Model - Action Centred Leadership

All of the leadership theories and models reviewed above were developed in the US. However, given the internationalisation of institutions and the general convergence of cultures, American developed leadership theory has found significant transferability across nations (Murphy, 1991). While there are many UK leadership researchers (e.g. Mant, 1979), one British model of leadership effectiveness is discussed because of its popularity within UK based supervisory training schemes (e.g. The Industrial Society). Adair (1973) developed his Action Centred leadership (ACL) model while he was an adviser on Leadership Training between 1963 and 1968 at the Royal Military Academy, Sandhurst. The model which was created from established military principles about leadership, reflects aspects of trait theory, situational theory and group dynamics. Adair developed an integrated concept of the role of a leader which is referred to as the "Three Circles Model." This encompasses three essential themes described above within the leadership paradigm. He describes them as the "qualities" of personality and character, which are appropriate to the general "situation", plus the ability of the leader to guide a group towards its purpose or task while simultaneously developing and building the "team".

The three areas of the circle all influence each other for better or worse. An example of the interaction is described by Adair who says

> *"If a group fails in its task this will intensify the disintegrative tendencies present in the group and raise a diminished satisfaction for individual members. If there is a lack of unity or harmonious relationships in the group this will affect performance on the job and also individual needs. And obviously an individual who feels frustrated and unhappy in a particular work environment will not make his maximum contribution to either the common task or to the life of the group." (1973, p9)*

Adair (1988) admits that the model does have the drawback of looking rather static when leadership is in reality a more dynamic process. However, as a model, it does help to focus the leader's attentions towards three overlapping and interconnecting areas and also provides a clear picture that the leader-follower (dyadic) relationship is as important as the leader-team (group) relationship. Adair's model appears to be an accepted model for teaching leadership theory to supervisors and despite the lack of empirical analysis it is widely adopted in the UK. Its popularity is probably because it is attractive in its simplicity.

3.4 MEASURING LEADERSHIP EFFECTIVENESS

Fiedler (1987) defines leadership effectiveness conceptually as the degree of success with which a group performs the primary assigned task. He says that if an objective measure of group performance is not available, then they will make do with the boss's rating of the leader's or the group's performance, and while job satisfaction or morale indicators are useful they are not in themselves the primary goals of an organisation.

The selection of appropriate criteria of leader effectiveness depends on the objectives and values of the person making the evaluation (Yukl, 1994). A leader's superiors are likely to prefer different criteria to a leader's subordinates. When there are many alternative measures of effectiveness, it is usually an arbitrary decision as to which is most relevant (Hersey & Blanchard, 1993). The different criteria are often uncorrelated and may even be negatively correlated (Yukl, 1994). For example, growth in sales or output is sometimes achieved at the cost of reduced efficiency and lower profits. Tradeoffs can occur even within the same criterion at different points of time. For example, a reduction in certain activities such as maintenance of equipment, research and development, investment in new technology, and development of employee skills can have a direct positive effect on short term profits. However, in the long run the net effect of this strategy is likely to be lower profits. Although there are limitations with using objective performance indices because they are likely to be multi-dimensional and may be relatively insensitive to a leader's behaviour. So how does one measure how effective a leader is? Described below is Table 3.1 outlining the measures of effectiveness used by the studies that were reviewed.

Table 3.1
Measures of Leadership Effectiveness

Leadership Model	Measures of Effectiveness
Ghiselli (1971)	Appraisal Ratings
Luthans (1988)	Ratio of the no. of promotions/length of service.
Lewin, Lippet & White (1939)	Interviews with the individuals within the groups.
Likert (1967)	Criterion measures such as productivity per man hour and soft measures such as job satisfaction.
Fleishman (1953;1957)	Appraisal ratings and hard measures such as absenteeism.
Tannenbaum & Schmidt (1958)	Soft measures such as employee motivation, teamwork and morale.
Hersey & Blanchard (1969)	Both soft and hard measures.
Fiedler (1967; 1987)	Both soft and hard measures depending on which group under investigation.
Vroom & Yetton (1973)	Interviewed managers to describe examples of successful and unsuccessful decisions and then analysed to determine what situation they present.
House (1971)	Soft measures such as employee satisfaction measures.
Bass & Avolio (1990)	Both soft and hard measures. e.g. appraisal and financial measures.
Adair (1973)	Not applicable

There is not one consistent method of measuring leadership effectiveness and as a result this becomes a leadership research issue in itself. As can be seen from Table 3.1, the principal measures used can be subdivided into "hard" measures e.g., productivity and financial ratios or "soft" measures such as employee satisfaction and in practice a combination of the two is frequently employed.

3.5 SUMMARY

These past conceptualisations have all helped to increase our understanding of leadership. The review is illustrative rather than inclusive and explores many of the issues that surround leadership theory in the workplace. The trait research identified many potential predictors of leader effectiveness and provided suggestions on how the research examining correlations between traits and various leadership criteria could be improved. The style approach described the behaviours leaders use and the situational approach described different variables that could potentially affect these behaviours with the contingency models hypothesing about which of these variables a leader must attend to, to be effective.

In particular, trait theory outlines the need to select future leaders against a group of defined qualities such as the need to influence others, need for achievement and strong interpersonal skills. Yukl (1994) takes the view that trait theory has established the need for balance when selecting traits and that this is more important than a high amount of one particular trait. In addition, cognitive skills such as those investigated by Boyatsis (1982) and discussed in Chapter Two are also helping the renewed interest not only in traits but in "observable traits" or leader behaviours. The Boyatsis model of characteristics of effective managers is discussed in more detail in Chapter Nine when these characteristics are compared with those measured in the Decision Making Vignettes (DMVs).

The leadership behaviour Fleishman scales (1953) measuring initiating structure and consideration still remain significant factors in workplace leadership theory. These factors are present in some form in most leadership models. The dimensions are clearly developed in Vroom and Yetton's (1973) and Fiedler's Hi/Lo-LPC (1967) models of situational and contingency leadership, respectively. In fact, the Leadership Opinion Questionnaire (LOQ) manual refers to "consideration" and "initiating structure" as the significant traits measured by the questionnaire. The transformational and transactional model (Bass, 1985) cuts across both dimensions of "consideration" and "initiating structure" given that both can be either transactional or transformational. While there are questions about the effect of consideration and initiation on subordinate performance, they are clearly critical leader behaviours (Misumi, 1985).

The literature above, assesses the present value of key leadership theories that were and in many cases still are very influential in the workplace. Despite the quantity of published leadership, research questions such as: What makes an effective leader? How does one become an effective leader? How is effective leadership measured? remain without definitive answers. Leadership researchers argue that while there are no solutions there is definitely a movement in the right direction (Bass, 1990; Fielder & House, 1988). One of the main criticisms of the leadership literature that remains is by Yukl (1994) who discusses the lack of an integrated conceptual framework. He says that leadership research is characterised by narrowly focused studies with little integration of findings from other approaches. It is with this last statement in mind, in particular, that the method for the thesis was developed. It is hoped that throughout the investigation of the offshore first line supervisor there was a clear intention to critically investigate to what extent traits, leader behaviour, situational/contingent variables, cognitive competencies and transformational leadership might have on determining the effectiveness of this role.

The next chapter presents the results from the pilot study; phase two of the research. The chapter explores some of the potential data collection options described above such as job satisfaction, perceptions of the work environment and Fleishman's leadership scales. The chapter concludes with recommendations for phase three of the research which is described in the method chapter; Chapter Five.

CHAPTER FOUR

METHOD & SURVEY OF OFFSHORE SUPERVISORS

PHASE II

4.1 INTRODUCTON

As described in Chapters One and Two, there is a dearth of empirical research that examines the role of the offshore first line supervisor. This project represents one of the first studies of offshore supervisors on production platforms. While there are other types of installations in the North Sea such as drilling rigs and floating production facilities, and both were visited as part of the research project, the main focus of the research was on those supervisors living and working on production platforms. This chapter describes the method and the results of the Pilot Study (Phase II).

Three UK based operating companies, two service companies and a drilling contractor were invited to participate in the research. Researchers at The Rogaland Research Institute (Stavanger) working in the Norwegian sector of the offshore oil and gas industry agreed to facilitate contact between the researcher and an operator in the Norwegian sector in order to develop a cross cultural component to the research. A project outline was submitted to the senior management of the companies who were immediately responsible for offshore operations. Meetings were arranged with onshore managers to discuss the applicability of the research and the potential project deliverables that they would receive in return for providing access to both their offshore installations and personnel. Confidentiality was a major concern for each company and it was agreed that participation would be on an anonymous basis. For this reason individual companies will not be named but will be referred to as Company A, B, C, etc.

Summary details of the five principal companies and how they were involved in the research are as follows :-

Company A An American owned international operator with one platform on the UKCS that has its UK headquarters in Aberdeen. Company A allowed access to its offshore platform and personnel to undertake preliminary interviews. This was labelled Phase One of the project and is described in more detail in Appendix 1.

Company B A large multinational international operator, it operates several facilities in the North Sea (based in both the UK and the Norwegian sector) and has British headquarters in Aberdeen and London. Company B was involved in both the pilot study (Phase II) and the main study (Phase III).

Company C A UK-owned, large international service company supplying engineering, maintenance and manpower services to the operators of the North Sea oil and gas industry. Company C was involved with Company B within the main study (Chapters Six & Seven).

Company D A large American owned, international drilling contractor operating six drilling units in the UKCS. Company D allowed access to its offshore drilling rig and personnel to undertake preliminary interviews. For Phase I of the project see Appendix Ia. Company D also supplied two "excellent" supervisors that comprised the expert group of nine for the section on supervisory decision making.

Company E A medium sized, American owned, international operator with several facilities in both the UK sector and the Norwegian sector of the North Sea. Company H was involved with Phase III of the project and forms the Norwegian section of the results. (See Chapter Eight).

Five other companies (three operator and two contractor) provided seven "excellent" supervisors that comprised the expert group of nine for the section on supervisory decision making.

4.2 RESEARCH DESIGN

The study was conducted in three phases lasting a total of 24 months which are described in turn below (see Table 4.1 for the project schedule). It was decided to collect the data offshore within the work environment of the subjects rather than during their field break in the UK. While there is no published literature concerning the potential differences between responses gathered offshore and onshore, it seems likely that as a result of the 12 hour shifts, two week work rotation and the isolation and confinement that characterise offshore life, differences may arise in the subjects' responses depending on the site of data collection. An offshore postal questionnaire was also considered, not unlike the one used by Sutherland (1994). Although a higher number of subjects can be targeted through a postal questionnaire and in a shorter time period, there are several additional benefits to be derived by going offshore and conducting the survey on the production platforms. Firstly, the status of the project is enhanced because of the costs involved in securing offshore access (approximately £700 per night for helicopter travel and accommodation) and the safety and fire-fighting qualifications that are required by long term offshore visitors. Secondly, the researcher is able to clarify possible points of misunderstanding and assess any non-verbal clues that the subject may make inadvertently (Chisnall, 1994). Thirdly, by going offshore, the interviewer is able to gain a deeper insight into the offshore lifestyle which allows him or her to understand the atmosphere within the platform and to generally humanise the cold statistics.

Table 4.1
Method Timetable

PROJECT PHASE	DATE	COMPANY	INSTALLATION	SUPERVISORS
I: Interview Programme	March - May 1992	A & D	1 Platform & 1 Drilling Rig	14
II : Pilot Study	July - Aug 1992	B	4 Platforms	29
III : Main Study	Dec 1993 - April 1994	B, C & E	UK1, UK2 & N1 Platforms	100

Phase I : Interview Programme

In Phase I of the research a series of preliminary interviews was conducted with offshore supervisors to identify and explore the supervisory and management issues that were common to the North Sea offshore oil and gas industry in order to design an interview schedule for a larger sample.

Company A provided the offshore personnel for Phase I of this study. Three days were spent on its offshore platform, conducting semi-structured 60 minute interviews with a sample of seven first line supervisors. During the offshore visit there were opportunities to observe the environment in which the supervisors lived and worked. The interview covered such topics as previous employment and training, management skills, and key roles and responsibilities of the offshore supervisor. Other specific themes were also examined such as the supervisors' perceptions of the potential differences between working offshore and an equivalent position onshore. Individuals were also encouraged to recount personal experiences and opinions about previous supervisory tasks and about living and working in the offshore environment.

Company D provided access to a semi-submersible drilling rig and its offshore supervisors for a small survey. Two days were spent on the offshore installation, conducting structured 60 minute interviews with a sample of four first line supervisors. The objective of the trip was to gather data which would contribute to a better understanding of the managerial skills required by offshore first line supervisors working in the exploration industry, and to facilitate the comparison between supervisors on drilling rigs and those from production platforms.

In both cases, all interviewees were guaranteed confidentiality and informed that the interviews were being used to construct an instrument which would be used to conduct a larger survey. The findings were fed back to onshore senior management in a style that contained no identifiable characteristics of the supervisors. A summary report of these two sets of interviews are contained in Appendix I.

Phase II : Pilot Study

Phase II constituted a pilot study to test the interview schedule and the standard questionnaires to be used in the main study (Phase III). Company B was, at the time of the initial approach for collaborative help, beginning to investigate the role of the offshore first line supervisor as part of a quality management initiative. Given the similarity of the two projects and the possibility of project synergy, the researcher was invited to participate in a group examining offshore supervision. This relationship, the method and the results of the study are described below.

This survey was conducted offshore in August 1992 and examined the role of the offshore first line supervisor in terms of the managerial skills required and specifically how the supervisors and others viewed these skills. The 29 supervisors in the sample were drawn from maintenance, production or electrical disciplines and will be referred to as simply "supervisor" throughout the chapter. Where this title overlaps with other roles in the North Sea oil industry or it is relevant to describe the supervisor as discipline specific, full titles will be used. Access to personnel was granted by a large Operating Company (Company B) and in return summary results with no identifying characteristics of the personnel interviewed were shared with the company. A fuller description of this relationship is described later in this chapter.

The aims of this study were:-

a. To investigate the specific managerial skills required by supervisors working in the North Sea offshore oil industry.
b. To record the supervisors' perceptions of the social and environmental aspects of an offshore platform, and what differences there are between this environment and an onshore equivalent.
c. To examine the levels of job satisfaction among the offshore supervisors in comparison to (i) an onshore group and (ii) previous studies of offshore workers' job satisfaction.
d. To determine the supervisors' views of desirable leadership behaviours and to compare these findings with their subordinates' opinions.
e. To gather the opinions of the supervisors' about their continually changing role in a work environment demanding increasing commercial awareness.

4.3 METHODOLOGY

4.3.1 Sample

Company B, a multinational oil company, provided access to their offshore staff for this study. Having initiated a project team in January 1992 whose remit was to investigate the relationship between productivity offshore and the effectiveness of the first line supervisor, the company was prepared to allow the researcher to join their

project team due to the similarity of the respective project objectives. The project team utilised J.M. Juran's Quality Improvement Process (1988), which is a systematic problem solving technique that examines potential theories of reduced productivity and through data gathering, analysis and testing of these selected theories, identifies root causes of reduced productivity.

In depth structured interviews were carried out with 29 supervisors (all male) using the "Offshore Supervisor's Questionnaire 1" (described below). Four of these supervisors who were not due to be offshore during the allotted interviewing time slot were interviewed onshore. The interviews were approximately 180 minutes in duration (ranging from 75 to 210 minutes). A subset of questions from the Offshore Supervisor's Questionnaire 1 were mirrored above the supervisor using individual interviews with four OIM's and five Operations supervisors. These interviews lasted approximately 45 minutes. Selected questions were mirrored below the supervisors' to 82 technicians who were issued with a questionnaire designed for self completion (see section 4.5). It included a standard scale which asked them to comment on their supervisor's leadership style. The technicians completed their questionnaires after shift in a quiet room or during shift when it was operationally viable. The whole data collection exercise took place on four platforms in the North Sea during a two week period in August 1992.

4.3.2 Questionnaire Design

The content of the "Offshore Supervisor's Questionnaire 1" was based on (i) background reading as described above; (ii) information gathered during the pilot stage with Companies A and D (see Appendix I & II); and (iii) the specific requirements of the Juran (1988) problem solving process used by Company B. The questionnaire was designed using several different questionnaire formats, (e.g., attitude scales, open questions, standard scales) (Moser & Kalton, 1974) and was divided into the following themes; people, communication, accountability, commercial awareness, the place, way of living, worksite discipline, handovers, training, motivation, work performance measurement and supervision. Ten statements, covering aspects of formal and informal discipline, were also included as a five point Likert scale. Verbal tags were used with modifying adverbs in an attempt to increase the accuracy of the scale (Chisnall, 1986, p161). The open questions, statements with numerical scales and the standard scales totalled 296 items in all. However, those items that were company specific were not included for analysis in this project and they have been deleted from the final version of the questionnaire. The selected questions that were mirrored to OIM's and Operations Supervisors are indicated in Appendix II by "OIM" and "OS" respectively. The questionnaire was developed in June 1992 prior to the collaborating company reviewing the style and format in early July. The Offshore Supervisor's Questionnaire 1 was piloted and revised on the basis of in-depth interviews conducted with three supervisors from Company B.

Three standard scales, were incorporated into the questionnaire thus providing the opportunity for statistical comparisons with norm data. The standard scales measured perceptions of the work environment (Moos & Insell, 1974), job satisfaction (Warr, Cook & Wall, 1979) and leadership style (Fleishman, 1953).

The Work Environment Scale (Moos & Insell, 1974)

An American instrument, the Work Environment Scale (Moos & Insell, 1974) was used to measure employees' perceptions of their offshore environment (i.e., the social-psychological characteristics of a work setting). According to Moos and Billings (1991) each work setting develops a "style" or a work climate, which influences the decision making process and defines typical patterns of interactions at work. Three sets of dimensions are sub-divided into the ten subscales. The **relationship** dimension is measured by "involvement", "peer cohesion" and "supervisory support" subscales. These subscales measure the extent to which employees are concerned about and committed to their jobs; the extent to which employees are friendly to and supportive of one another; and the extent to which management is supportive and encourages employees to be supportive of one another. The **personal growth**, or **goal orientation** dimension is measured by autonomy, task orientation and work pressure subscales. These subscales rate the level of empowerment among employees, the degree of emphasis on good planning, efficiency and getting the job done on time, and to what extent time and work pressure dominate the work environment. The **system maintenance and system change** dimensions are measured by clarity, control, innovation and physical comfort subscales. These subscales assess the degree to which employees know what to expect in their daily routines and how clearly these rules are communicated; the amount of management rules that are used to keep employees under control; the degree of emphasis on change, and the extent to which the physical surroundings contribute to a pleasant work environment (Moos, 1981). The WES was chosen to provide a standardised measure as well as comparative norm data. To complete the WES scale the respondents were asked to answer 90 statements 'true' or 'false' which were intended to be suitable for all work environments.

Job Satisfaction Scale (Warr, Cook & Wall, 1979)

This section also measured job satisfaction. The 16 item scale by Warr, Cook & Wall (1979) was used to measure both extrinsic and intrinsic factors associated with job satisfaction. Respondents were asked to rate how satisfied or dissatisfied they felt on a seven point Likert type scale, thus the minimum score was 16 and the maximum score 112. Item 15 "Your job security" was inadvertently changed to "Your job history".

This scale was chosen because it is short, robust and was readily accepted by blue collar workers (Warr, Cook & Wall, 1979). The scale has also been previously used in other studies in the offshore industry (Sutherland, V., & Cooper, 1986; Sutherland, K., & Flin, 1991; Flin, Mearns, Fleming & Gordon, 1996).

The Leadership Opinion Questionnaire (Fleishman, 1953)

The Leadership Opinion Questionnaire (LOQ) is a measure of leaders' opinions about desirable leadership behaviour, developed at the Ohio State University, USA, over a ten year period in the 1950's and 1960's. The research attempted to define leadership behaviours that are important for attaining team and organisational

goals, and it identified two dimensions on which the questionnaire was subsequently based: Consideration and Initiating Structure. Further analysis shows that subordinates are more likely to prefer supervisors who are considerate, while superiors want supervisors to be primarily concerned with achieving the goals of the organisation (Likert, 1965). The combination of which makes the supervisor the buffer between both the conflicting aims of management and the workforce, and within the conflicting demands of his own team. (See Chapters Two and Three for a more detailed discussion.) This scale was chosen because it was short, easy to administer and matched the initial perceptions of the project group that "people" versus "task" dimensions were dominant offshore. There are 40 statements in total (20 statements relating to Consideration and 20 addressing Initiating structure). The respondents were asked to rate each statement on a five point scale from always to never indicating the extent to which the leader's behaviour was considerate of his workers' feelings on one dimension and on the other to what extent the leader defined or facilitated group involvement towards goals. The items under Consideration included statements such as "I refuse to give in when people disagree with me" and "I reject suggestions for change" and for Initiating Structure "I talk about how much work should be done" and "I assign people to particular tasks".

Supervisory Behaviour Description Questionnaire SBDQ (Fleishman, 1957)

This scale, also developed at the Ohio State University, was designed to measure individuals' leadership behaviour from the opinions of those whom they supervise. The questionnaire, like the LOQ, measured only the dimensions of leaders' Consideration and Initiating Structure. There were 48 statements in total (28 statements related to Consideration and 20 addressed Initiating structure) and the respondents were asked to rate each statement on a five point scale. Almost identical items were used for the SBDQ as for the LOQ except the statements were altered to reflect a rater scale for subordinates rather than a self completion one for leaders.

Supervisors' Performance Measure

Appraisal data supplied by Company B were used as the criterion measure. The supervisors were placed into one of three categories of performance: high, medium or low by the Human Resource Manager from Company B responsible for the platforms. Eight supervisors were classed as high performers, fourteen as medium performers and seven as low performers.

4.4 RESULTS

This section will briefly describe the main results from the 29 supervisors responses to the Offshore Supervisor's Questionnaire 1. The responses are described here only include the most relevant ones that assisted the development of the final survey; Phase III. The sections are described in the following order; (1) the place and way of living, (2) people, (3) accountability and handovers, (4) motivation and job satisfaction, (5) supervision and worksite discipline, (6) leadership, (7) work performance measurement, (8) commercial awareness, (9) training and (10) communication. Data analyses were carried out using SPSS for Windows (Norusis, 1993). Differences between the data collected and the norm data were investigated using t-tests, and correlational analyses between the standard scales scores and the performance measure were computed. There are obvious statistical weaknesses when running large numbers of correlations (Tabachnick & Fidell, 1989), but all significant results are reported here as this is an exploratory pilot study. Responses from superiors and subordinates are also discussed.

4.4.1 Place and way of living

This section of the Offshore Supervisors' Questionnaire 1 was designed to examine the supervisors' perceptions of their existing role within the offshore environment and to canvass their views on possible differences between supervisory styles offshore and onshore. Also explored were the general themes of the environment and social impact on supervision and finally to what extent stress, and specific stressors such as helicopter travel, affect the role of the offshore supervisor. The results from the Work Environment Scale (Moos & Insell, 1974) are also presented in this section.

The results from the "Place and way of living" section suggest that about half of the Offshore Supervisors perceive that there are different styles of supervision required for the role compared to an equivalent position in an onshore petrochemical plant. Anecdotal evidence suggests that most supervisors have had some work experience onshore, however, no information was collected about previous work experience and as a consequence this limits the interpretation of these results. The environment was frequently described as a key difference between onshore and offshore work. Many respondents felt that the offshore environment changed supervisory style and work discipline, and some said that the general work regime was affected. More than half of the respondents felt that the combination of working, socialising and living with your shift could compromise supervisory decisions. Staff reports, discipline and selection of future supervisors were cited as potential problem areas that could be affected. The sample also perceived that their involvement in company policy decisions was low and felt that their onshore counterparts had a greater input. Despite the fact that there are more senior managers working onshore and subsequently more company policy decisions likely to be formulated there, the responses from the sample raise some interesting issues such as the extent to which their perceptions affect their supervisory behaviour. For example, in reality they may be very involved in corporate decision making but factors such as the remoteness of their work environment make them perceive the contrary.

The Work Environment Scale

The Work Environment Scale (Moos & Insell, 1974) is an instrument for measuring the social-psychological characteristics of a work setting. Each work setting develops a "style" or a work climate, which influences how decisions are made and defines typical patterns of interactions at work. The scale produces scores on ten elements which form three major dimensions, Relationships, Personal Growth, and System Maintenance. These dimensions are described in table 4.2.

Table 4.2
The Moos et al (1974) Work environment scale

Offshore	Supervisors (N=29)			Norm			
Dimension	Description	Mean	St. Dev.	Mean	St. Dev.	t	r
Relationship							
Involvement	The extent to which employees are concerned about and committed to their jobs	4.9	2.1	5.9	1.4	-2.6 *	.16
Peer Cohesion	The extent to which employees are friendly and supportive of one another	6	2.1	5.7	1.2	0.8	.05
Supervisor Support	The extent to which management is supportive of employees and encourages employees to be supportive of one another	5.8	2.1	5.7	1.4	0.3	.03
Personal Growth							
Autonomy	The extent to which employees are encouraged to be self sufficient and to make their own decisions	4.7	2.2	5.5	1.2	-1.9	.08
Task Orientation	The degree of emphasis on good planning, efficiency, and getting the job done	5	1.5	5.9	1.3	-3.2 **	-.06
Work Pressure	The degree to which the pressure of work and time urgency dominate the job milieu	5.2	2.2	4.4	1.4	1.9	.08
System Maintenance and System Change							
Clarity	The extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated	4.6	2	5.6	1.3	-2.7 *	.36
Control	The extent to which management uses rules and pressures to keep employees under control	6.7	1.6	4.9	1.3	6.1 **	.16
Innovation	The degree of emphasis on variety, change, and new approaches	3.2	2.0	4.4	1.5	-3.2 **	.09
Physical Comfort	The extent to which the physical surroundings contribute to a pleasant work environment	3.7	2.2	4.9	1.4	-2.9 **	.27

(**p<.01, * p<.05)

A list of the means and standard deviations on each dimension for 29 supervisors is provided in Table 4.2. The raw scores range is from 1 to 9. The table also shows norm data and t-values which were calculated to test differences between the offshore sample and the onshore norm data means. The r values indicate the degree of correlation between the work environment dimensions and the performance measure.

As a group, the supervisors feel that management use rules and pressure to keep employees under control (*Control*). This dimension was the only dimension rated significantly higher than the norm group. *Involvement, Task Orientation, Clarity, Innovation* and *Physical Comfort* were all rated significantly lower than the norm group. While the two groups are from very different occupational backgrounds and environments, most of these differences logically reflect life on an offshore platform except the score for *Task Orientation* which appears to be in opposition to this view.

The influence of the supervisory perceptions of the work environment on the performance measure was examined. None of the dimensions correlated significantly with the performance measure.

Although direct comparisons with published norm data may have certain weaknesses because of the completely different cultures, work environments, and the obvious difference between working onshore in the West Coast of the USA and offshore in the North Sea, most of the qualitative data from the survey support the results from the WES (Moos & Insell, 1974). For example, supervisors mentioned that during a shutdown there was significant pressure of work to get the plant operational again. Furthermore, it is not that surprising that in an industry where the workforce live and work beside hydrocarbon inventory dangers, management use rules and pressures to keep employees under control and with many employees working in hazardous areas, variety and change are incompatible with the need to follow strict safety procedures. The results from the work environment scale indicate that attitudes towards the work environment do not differentiate between higher and lower job performance.

Stress

A previous investigation of stress levels in the offshore oil industry by Gann, Corpe and Wilson (1990), with personnel from an Operating company argued that there was no evidence to support any appreciable difference in stress levels between offshore employees and their onshore counterparts. Although the Offshore Supervisors Questionnaire 1 did not attempt to measure stress levels directly, the responses to the coded question concerning stress illustrate that 52% of the supervisors rate the position as *considerably* to *extremely stressful.* This finding is compatible with research conducted by Flin and Slaven (1993) who posed an identical question in a survey of 134 OIMs working in the North Sea and found that 47% of these managers rated their job to be *considerably* or *extremely stressful.* Most of the supervisors attributed being away from home as the main stressor. However, these findings are unclear as to whether they are responding specifically as supervisors, or simply as offshore employees or as a mixture of both. The majority of supervisors felt that helicopter travel did not impact on their ability to supervise but many expressed the view that in the event of a "bad" flight, the result would affect everyone on the platform equally. Finally, it is debatable whether legal aspects of the job and staff competencies, quoted as stressors by the supervisors would have been mentioned prior to the Piper Alpha disaster in July 1988. See Flin and Slaven (1996) for an extended discussion of occupational stress on offshore oil installations.

4.4.2 People

This section was designed to canvass the supervisors' opinions about the effects of personnel changes within the key management positions on the platform and senior management changes onshore.

The management of a platform can be described as an interconnected dynamic organisational unit. Each layer of management responded that changes in the sphere of management above can significantly affect their jobs. The majority of supervisors rate management style and personality as significant attributes of their supervisor, although it may be inaccurate to assume that each respondent defined these managerial phrases in a consistent way (Hirsh, 1988). There is arguably less confusion with the term "occupational background" which is also rated as a significant factor by the supervisors. This finding suggests that the production, electrical or maintenance supervisors are very aware of their supervisors' previous supervisory discipline although there no questions attempting to gauge whether this had a negative or positive impact on the working relationship. The supervisors may have to report to more than one Operations supervisor within one offshore trip and about half feel that continually satisfying different priorities has an effect on their job. This issue has been currently examined in a Norwegian study of offshore platform managers (Mykletun, 1993, see also Flin, Slaven & Carnegie, 1996). The responses indicate that the closer the supervisory position is in the organisational hierarchy to onshore senior management, the greater the perceived impact of change on the supervisory position when the senior management position is altered.

4.4.3 Accountability and Handovers

This section was designed to investigate the opinions of supervisors about the complex issue of workplace accountability, addressing both informal and formalised responsibility within the workplace. As a team leader in a potentially hazardous environment, the supervisor has to delegate tasks to his or her team and then manage the consequences should the job be completed in an unsatisfactory manner. The management skills of a supervisor may be further tested where a task overlaps across different shifts, across many days perhaps even weeks, and more importantly supervised by several different supervisors.

The findings from this section confirm the onerous challenge that surrounds supervisor accountability for work done offshore. The majority of the supervisors feel responsible when they have control over their team or through a shift member but do not bear responsibility about the tasks completed by those outside their control with regard to handovers. Although the question about the ownership of tasks completed by the opposite shift seems to indicate the reverse with the majority of supervisors saying that they will contact their "back-to-back" onshore with concerns about their relief's work. Formalised workplace responsibility offshore occurs through the permit to work (PTW) system and although PTW was severely criticised across the North Sea by Cullen (1990), Company B's supervisors describe few problems with their system.

4.4.4 Motivation

This section investigated the opinions of the supervisors, Operations supervisors and OIM's about how effective the "motivators" within the company system were at motivating their shifts at work, and what problems there were for a shift supervisor in motivating his shift. Also examined were the supervisors' views on how effective these same system motivators were at motivating themselves and an open question asking the supervisors about what motivates them for better performance was used. The results from the Job Satisfaction Scale (Warr et al, 1979) are reported in this section. These findings are partially supported by the literature (Robertson & Smith, 1985) which suggest that any attempt to motivate a "dissatisfied" employee will not result directly in improved job performance until the employee first becomes a satisfied one.

Praise was the only system motivator that was perceived as effective for motivating the shift and for motivating the supervisors. Not one clear reason was given as to why there are problems in motivating the shift although this could be related to the difficulty of describing what motivation is. It was perhaps significant that a fifth of the supervisors did say that everyone was motivated differently. These variables are described in table 4.3.

Table 4.3

Job Satisfaction (Warr, Cook & Wall. 1979)

Job Satisfaction Items	Mean		Mean
The physical working conditions	4.38	Industrial Relations	3.46
The freedom to choose own working	4.42	Your chance of promotion	3.89
Your fellow workers	4.81	Way your firm is managed	2.92
Recognition for good work	3.88	Attention paid to suggestions	4.23
Your immediate boss	4.39	Your hours of work	4.61
The amount of responsibility	4.46	Amount of variety in your job	4.81
Your rate of pay	4.31	Your job history	5.00
Opportunity to use abilities	4.23		

Polarity: Higher scores = higher job satisfaction.

Initial examination of the breakdown of items within the job satisfaction scale indicate that the supervisors rate low scores for job satisfaction with respect to the way the company is managed and the industrial relations within the organisation but rate high scores of job satisfaction against items which include job history, fellow workers and the amount of variety within the job. The comparison with the onshore comparison groups is described in table 4.4.

Table 4.4

Job Satisfaction: Onshore comparison

Job Satisfaction Groups	Mean	t
Offshore supervisors	63.7 (St.dev=9.4)	
UK Engineering group	71.9	-4.7 **
Supervisory subgroup	77.6	-7.9 **
White Collar subgroup	74	-5.9 **
Managerial Subgroup	79.1	-8.8 **
Blue Collar Subgroup	69.4	-3.2 **

(**p<.01, * p<.05)

Each of the onshore comparison subgroups (Warr et al, 1979) were found to be significantly more satisfied with their jobs than the offshore supervisors group.

The results from the Job Satisfaction scale show that the supervisors surveyed through the Offshore Supervisors' Questionnaire are more dissatisfied with their jobs than their onshore counterparts. The literature on supervision (See Chapter Two) describes many instances where due to the unique position of the first line supervisor such as role ambiguity and lack of management support within the structure of the organisation, the supervisor frequently perceives that there are inadequate policies developed above him in the management chain. The high score for "your fellow workers" is indicative of the anecdotal evidence found offshore such as "team working" and the relentless banter among the offshore employees. The majority of the other itemised mean scores rate the intrinsic factors that contribute to job satisfaction more highly than the extrinsic ones, indicating higher feelings of satisfaction with one's job, but less satisfaction reference the impact of organisation on the job.

Previous research into the job satisfaction of offshore employees provides very similar results (Sutherland & Flin, 1991; Sutherland, V, & Cooper, 1986) to those obtained by Offshore Supervisor's Questionnaire in 1992. The offshore workers are less satisfied with their jobs than the onshore comparison group and further research is

required to investigate whether the offshore supervisors were rating their internal feelings about job satisfaction as a supervisor working offshore or simply rating working offshore.

There was also a positive correlation ($r=.39$, $p<.05$) between the total score for job satisfaction and the dimension Clarity of the WES. This suggests supervisors who perceive that the rules and routines of the platform are clearly communicated are more highly job satisfied. The association of the job satisfaction items and the performance measure was examined. None of the items correlated significantly with the performance measure.

4.4.5 Supervision and Worksite Discipline

This section of the questionnaire examined the significant theme of worksite discipline and supervision. Bird and Germain (1985) describe "housekeeping" i.e. worksite discipline, as a critical part of the promotion of safety in the workplace and they also stress the importance of the role of the supervisor in supporting worksite discipline. This section also examined more general aspects of "discipline" through the use of a Likert type scale.

There was a mixed response about the overall quality of supervision that the supervisors received, although the Operations supervisors all rated the quality of the OIMs' supervision of themselves highly. The majority of the supervisors felt that their supervisor did not make clear to them the standards that he or she expected for the preparation of the worksite. This result is consistent with the findings concerning the communication gap between superiors and subordinates which formed part of a study undertaken by Likert (1965). However, the reverse was found at the next level down in the management hierarchy. The supervisors rated themselves highly when they were asked about how aware their technicians were concerning worksite preparation and this was reflected by the mirrored responses from the technicians. There was not one dominant method used by the supervisors for outlining worksite preparation.

Many of the respondents felt that discipline problems were best resolved within the shift and that carrying out formal discipline in the workplace was seen as an integral part of their job. Both the OIMs and Operations supervisors disagreed that carrying out formal discipline was "an integral part of their job."

4.4.6 Leadership

This section investigated the leadership behaviours of the supervisors, or in other words what the supervisors do and how they do it, in terms of how they achieve organisational goals. The leadership scales measured two dimensions; to what extent are the leaders' job relationships characterised by trust and two-way communication (Consideration) and how likely the leaders' define and structure their roles and those of their subordinates toward accomplishing the goals of the organisation (Initiating Structure). These dimensions were measured from the supervisor's perception of himself with the LOQ and from the perspective of his subordinates using the SBDQ.

The results from the Leadership Opinion Questionnaire are described in table 4.5. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the onshore norm data means.

Table 4.5

The Leadership Opinion Questionnaire (Fleishman, 1953)

	Offshore Supervisors (n=29)	USA Comparison (n=122)	t
Consideration (mean scores)	51.7	53.9	-2.4 *
Initiating Structure (mean scores)	49.2	53.3	-3.4 **

(**p<.01, * p<.05)

The supervisors' scores are significantly lower than the onshore norm group for both consideration and initiating structure. This result may indicate that there is some other variable having an effect on the leader behaviour of the offshore supervisors, such as the offshore environment, the demands of the role or the types of subordinates. There are, however, clear cultural differences between the two data sets and any findings have to be understood in this context. The supervisors' scores for Consideration and Initiating Structure did not correlate with the performance measure: *Consideration* (r=-.06) and *Initiating Structure* (r=.05).

The results from the Supervisory Behaviour Description Questionnaire (Fleishman, 1957) are described in table 4.6 below. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the onshore norm data means.

Table 4.6

Supervisory Behaviour Description Questionnaire (Fleishman, 1957)

	Offshore Technicians(n=54)	USA Comparison (n=122)	t
Consideration (mean scores)	72.2 St. dev=11.9	82.3	-6.2 **
Initiating Structure (mean scores)	41.7 St. dev=8.1	51.5	-8.9 **

(**p<.01, * p<.05)

The technicians' scores are significantly lower than the onshore norm group for both consideration and initiating structure. The technicians' scores for Consideration and Initiating Structure were correlated with the supervisor's performance measure: *Consideration* (r=.33) and *Initiating Structure* (r=.23) and neither were significant.

When the supervisors' scores on Consideration and Initiating Structure are compared with the technicians' perceptions of Consideration and Initiation Structure of the supervisors as a group, the following results were obtained. (The SBDQ contained extra items on the *Consideration* dimension compared to the LOQ. As a result the comparison was undertaken with the mean score total divided by the number of items on each of the dimensions).

Table 4.7
Comparisons of Leadership Scores

	Supervisors (n=29)	Technicians (n=54)	t
Consideration	2.58	2.46	.49
Initiating Structure	2.54	2.16	3.6**

(**p<.01, * p<.05)

The results in Table 4.7 show that there is no difference between the scores for Consideration, thus Supervisors' perceptions of how effective they are at leading their teams in terms of human relations is very similar to their Technicians' perceptions of this supervisory leadership function. When the Initiating scores are compared the Technicians scores are significantly lower (p<.01) showing that the Supervisors' rate themselves higher on the scale of initiating work for their subordinates than their subordinates give them credit for. This finding from the LOQ compares favourably with the qualitative comments from the supervisors. Comments which reflect this include; "because of the offshore environment it is difficult to push your team" and "your expectations of work to be completed are less than they would be onshore".

The examination of the mean scores for the SBDQ portray a similar result for consideration but a different perspective with reference to the initiating structure of their supervisor. The supervisor's ability to define the tasks of the team towards the goals of the organisation is rated lower by those whom they are supervising. The research carried out at the Ohio State University (Fleishman, 1953; 1957) describes that under certain conditions, such as if a high degree of pressure for output is imposed by someone other that the leader or that the subordinates are psychologically predisposed toward being told what to do and how to do it, then a leader's initiating structure has positive effects on productivity and job satisfaction. Given that these conditions prevail in the offshore oil and gas industry, it is of considerable interest that both questionnaires reveal slightly low scores for initiating structure from the supervisors. It is envisaged that further investigation in this area may reveal to what extent the offshore working environment does permit a positive correlation between initiating leadership behaviour and productivity, and should this correlation not exist, examine possible alternative leadership approaches, i.e. it could be that some other leadership style is more effective.

There was also a negative correlation ($r=-.48$, $p<.01$) between the score for Consideration (LOQ) and the dimension *Autonomy* of the WES. This suggests supervisors who perceive that they are not encouraged to make their own decisions also rate themselves as low in terms of trusting their own subordinates to make decisions.

4.4.7 Work performance measurement

This section was used to canvass the supervisor's view about the function of work performance measures and their applicability offshore. The vast majority of supervisors felt that the role of supervisor could not be measured by hard facts and pointed to the reason that there were too many unidentifiables in the job that contribute to the complexity of measuring it. Only a fifth of the supervisors felt that the role could be measured. A larger number, but still a minority, said that there was a need to measure the whole teams' performance but most of the suggestions concentrated on measuring solely the quantifiables. Perhaps the key to formulating an acceptable work performance measure is to identify the relationship between the inputs such as manpower and materials, and outputs like job cards completed and barrels per day. The need to create a measure cannot be overstated as Bird and Germain (1985) describe measuring performance in quantifiable, objective terms as the heart of management control.

4.4.8 Commercial Awareness

In a mature industry such as in the UKCS petroleum business (Wood Mackenzie, 1992) one of the key factors that will contribute to long term survival will be the ability of all its employees to become more cost conscious. Financial information plays an increasing part in all decisions undertaken offshore and this section was designed to evaluate the extent to which this information is being used, how aware the supervisors are of its existence and how commercially aware the supervisors perceive themselves to be.

Commercial awareness among the supervisors is increasing but it is debatable whether this is helping in cost reduction. The financial tools are available and the majority of the supervisors perceive that more budgetary information will help them, however their responses indicate that they do not use them. This apparent contradiction may result from the previous offshore culture prior to the 1985 oil shock which was dominated by an attitude of "keep the oil flowing going at any financial cost". This was supported by anecdotal evidence such as delivering spare parts from London to Aberdeen in a hackney cab if there was no other transport available. The answer is supported by the fact that no financial training had been provided at any levels, although as discussed in Chapter Three this may change with the introduction of the MCI management standards where one of the key roles is the management of finance.

4.4.9 Training

A report in 1986 by MSC/NEDO said that Britain's future international competitiveness and economic performance will be significantly influenced by the speed with which substantial improvements can be made in

the scale and effectiveness of training by British companies. Due to the commercial significance of training and the increasing view of its importance in the oil industry - recently underlined by the United Kingdom Offshore Operators Association's (UKOOA) first report on training (1992) - this section examined the views of the supervisors in this crucial area and canvassed their opinions on what training they feel that they need to become more effective.

The supervisors and the Operations supervisor perceived job responsibilities as approximately a 50:50 split between technical and management with the Operations supervisor seeing themselves more as managers compared to the supervisors. The majority of supervisors felt that they required more behavioural training, a view that was endorsed by their supervisors. However, just over half of the supervisors felt that their training profiles reflected their needs as supervisors. Notably their advice given to new supervisors relates more to managerial skills than technical aspects of the work.

4.4.10 Communication

This section covered the important issue of supervisory communication. It focused on the communication process between supervisor and shift, and supervisor and his supervisor. A large majority of supervisors choose to communicate orally when passing on a formal message to their shift. However, when communicating to the Operations supervisor again oral was the preferred method but it was backed up by a written message as it was perceived as important to keep a record. One of the problems cited as important when passing on information to the shift was the composition of the shift. The supervisor now has the added responsibility of screening out corporate information which may be unsuitable or irrelevant to non-company B employees but still keeping company B shift members informed. The current change in culture towards an increase in the outsourcing of non-core activities by Operating company's in the offshore oil and gas industry may further add to this communication difficulty.

4.5 CONCLUSION

This survey was designed to collect data that would contribute to a better understanding of the role of supervisors in the offshore oil industry. Also explored were the attitudes and perceptions of the supervisors' subordinates and his superiors about the supervisors' role. The survey results, the research experience gained collecting there on offshore platforms and the identified weaknesses in method used all helped to formulate the final method for the full study which is described in Chapter Five.

To facilitate the understanding of the role of the supervisor, five aims were set out in section 4.1, and these will each be discussed separately below.

(i) To investigate the specific managerial skills required by supervisors working in the North Sea offshore oil industry.

One of the key aims of this thesis is to understand what are the specific managerial skills of an offshore supervisor. This pilot survey produced inconclusive findings as to the identification of the specific managerial skills that are required offshore. For example, the standard instruments did not correlate significantly with the performance measure. Although, there were several anecdotal themes raised such as appreciating the impact of the environment on their role i.e., living and working together, the differences and difficulties between offshore and onshore supervision and professional performance appraisals, but articulating the managerial skills required proved difficult.

However, this pilot survey has captured some of the difficulties of investigation and has generated several challenges in researching this role. For example, many of the supervisors commented that the offshore environment had an impact on their decision making. Therefore, the offshore environment will be examined as both an independent variable and a mediating factor in the full study. The use of the LOQ and SBDQ will also be re-examined as there were weak correlations with the performance measure suggesting that there are other issues affecting supervisory leadership that require examination. However, there were certain themes consistently raised that may have an impact on the managerial skills of an offshore supervisor. They include communication from senior management onshore and the difficulties of motivating staff on an offshore platform.

(ii) To record the supervisors' perceptions of the social and environmental aspects of an offshore platform, and what differences there are between this environment and an onshore equivalent.

Not surprisingly, the offshore work climate was described as the most significant difference between being a supervisor onshore and offshore. The respondents described the perceived differences such as the difficulties in being task focused as particularly visible in staff reports, discipline and the selection of future supervisors. Living, working and socialising with the shift were also cited as significant factors which could compromise supervisory decisions with about half the subjects responding that different styles of supervision are required for the role of an offshore supervisor than an onshore equivalent. The work environment was directly measured through the use of a standard scale questionnaire (the WES). Many of the dimensions showed significant differences between the supervisors' scores and the norm data. For example, *control* was significantly higher than the norm group, whereas, *involvement, task orientation, clarity*, *innovation* and *physical comfort* were all significantly lower. This suggests that the offshore environment was effective at keeping employees under control, but without adequate procedures and processes. They also felt not involved in the decision making that affected their roles while working in an unpleasant environment. There are caveats about using the norm data due to the extreme differences in the two populations but the WES proved useful for identifying key offshore characteristics. Finally, it should be noted that while work environment differences between offshore and

onshore appear interesting this view was not shared by the oil companies. It is likely that first line supervisory comparison between onshore and offshore will not be included in the main study.

(iii) To examine the levels of job satisfaction among the offshore supervisors in comparison to (i) an onshore group and (ii) previous studies of offshore workers' job satisfaction.

The supervisors' feelings about their job were directly measured with a job satisfaction questionnaire. This showed that the supervisors rate *the way the company is managed* and the *industrial relations* within the organisation as low in terms of job satisfaction but rate high scores of job satisfaction against items which include their *fellow workers* and the *amount of variety within the job*. The results also describe a significant difference between onshore and offshore attitudes with onshore studies reporting significantly higher levels of job satisfaction, however, it is not clear whether the supervisors rated their role specifically or their overall feelings about offshore work. But the scale by Warr et al is still a useful instrument because there are previous offshore studies that have used it and it could provide comparisons across several platforms in a larger study. Motivation was a controversial theme in so far as it provided no specific reasons why there are problems in motivating the shift. Since "praise" was the only system motivator that was perceived as effective it does raise the issue that while the other "motivators" were not recognised as having a positive affect, they may in fact be de-motivating the supervisor and their teams. Given that getting the work done through others is such an integral part of the supervision process, these findings under "motivation" generate other possible directions for future investigation such as incorporating a qualitative approach to examine this further.

(iv) To determine the supervisors' views of desirable leadership behaviours and to compare these findings with their subordinates' opinions.

Effective leadership is unquestionably a factor that can directly affect productivity. The findings from the leadership scales were inconclusive as they did not differentiate between effective and less effective leadership. Previous research (Fleishman, 1953; 1957) has indicated that a hierarchical structure of decision making, not unlike the one that exists in the offshore industry, creates a work environment that associates a task accomplishment style and productivity positively, and therefore it is of interest that both the supervisors' scores and their technicians' perceptions for 'task accomplishment' are rated lower than the onshore comparison data. It is envisaged that further investigation will examine to what extent other external factors affect the supervisors leadership style for task accomplishment or perhaps will show that lower supervisor ratings for task accomplishment may in reality have a positive affect on productivity. Initially, it was hoped that the Fleishman scale would be directly applicable in the task oriented environment offshore. The data gathered confirm that the leadership dynamic offshore is more complex than the two-dimensions of Consideration and Initiating Structure, and given their weak link with the performance measure, the Fleishman scale was not used in the main study.

(v) To gather the opinions of the supervisors' about their continually changing role in a work environment demanding increasing commercial awareness.

The overwhelming finding concerning the commercial awareness of the supervisors is that it is very weak. The financial information is available and yet is generally not used. If used, it is not properly understood. Although it should be noted that financial training provided by the company has been very limited. The future requirement for the offshore supervisor will be to appreciate the financial impact of their supervisory decisions. As mentioned earlier, the new management standards may have a role to play in improving the financial skills of supervisors, but devolving real budget responsibility down to the first line supervisor should also help to improve commercial awareness.

Despite the supervision process being intricate, complex and dynamic, this pilot study has shown that there are probably some unique features that surround this role in the offshore oil and gas industry. This study has produced a strong basis on which to refine this questionnaire as a measuring instrument for a larger study. It is envisaged that further investigation will permit a greater understanding of this role and provide evidence that will enable the offshore supervisor to supervise more effectively.

On analysis of the findings from Phase II, a further revision of the questionnaire was constructed. This instrument and the method for the main study (Phase III) are described in the next chapter.

PAGE

NUMBERING

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CHAPTER FIVE

METHOD FOR SURVEY OF OFFSHORE SUPERVISORS

PHASE III

5.1 OBJECTIVES

The main aims of this study were to :-

(i) To record the experiences and perceptions of a sample of offshore supervisors in relation to the working environment, training, job satisfaction, personality and leadership skills.

(ii) To discover which of these factors differentiate a more effective from a less effective offshore supervisor in terms of job performance.

(iii) To investigate the preferred leadership styles of the supervisors and to test where these differentiate the effective from the less effective offshore supervisor by incorporating the views of the supervisors, the supervisors' superiors and the supervisors' subordinates.

(iv) To examine two alternative techniques for measuring supervisory performance.

(v) To assess whether there are any differences between supervisors working on platforms on the United Kingdom Continental Shelf (UKCS) and those on the Norwegian Continental Shelf (NCS); and between supervisors working for contracting companies as opposed to operating companies.

Phase III : Offshore Supervisors' Questionnaire

Phase III was the main survey. After Phase II, the questionnaire was remodelled and this new draft questionnaire was then given a further pilot test with the assistance of the following groups of people: a sample of three supervisors from Company C who were on secondment to their onshore company headquarters; two supervisors from offshore companies not connected with the project, and a Research Fellow within the Offshore Management Centre who had previous oil industry experience. After this review, the final version of the questionnaire was produced entitled the "Offshore Supervisors' Questionnaire". Company B and C granted access to their offshore personnel for this survey.

The Norwegian subsidiary of the US parent, Company E also granted access to its offshore personnel for this survey after a meeting with two onshore management representatives in Aberdeen. The offshore platform was operating in the Norwegian sector and the sample of first line supervisors were Norwegian nationals. Most

Norwegian offshore personnel speak English but to facilitate understanding of the questionnaire, three of the standard scales were translated by Company E into Norwegian. The fourth standard scale questionnaire was not translated because it was a proprietary questionnaire. After the survey, the standard questionnaires were back-translated into English by a Research Fellow from the Offshore Management Centre fluent in Norwegian. The other sections of the questionnaire were in English and the interviews were conducted in English. Differences in method between data collection in the UK and the Norwegian sectors are described in Chapter Eight.

Details of the research design for Phase III are described in the following section.

5.2 PHASE III RESEARCH DESIGN

5.2.1 First Line Supervisors

"Supervisors" were defined as those at the first level within the organisational hierarchy (bottom-up) who are responsible for the work performance of their team. Supervision was defined in this manner to circumvent the need to navigate through the many job titles that exist currently within the offshore industry, and whilst the operational role was not defined, the position was clearly established. The collaborating companies found this definition easy to use in order to identify subjects for interview.

In-depth structured interviews were carried out with 100 supervisors using the "Offshore Supervisors' Questionnaire" (described below). Structured rather than unstructured interviewing was chosen as the data collection technique so that any differences between answers are then assumed to be real ones and are less likely to be due to the interview technique (May, 1993). Interviewing, as discussed earlier, is more time consuming than a postal questionnaire, yet it allows the researcher to clarify points and explore any non-verbal cues that the subject may make inadvertently. Although one drawback is that the researcher may induce a certain response by a subconscious inflection in the voice or facial expression and care must be taken to maintain a standard approach (Watson, 1991). All of the supervisors were sent a letter from the researcher one week in advance which explained the purpose of the interview and guaranteed confidentiality (see Appendix III). This strategy is similar to "pre-framing" discussed by Ries and Trout (1986) which is designed to place a "product" in a positive position in the mind of the buyer before the buyer forms an opinion about the "product". Additionally, the Norwegian platform N1 produced a fortnightly newsletter in English and Norwegian and the project, its purpose and the confidentiality issue were all described in advance of the research visit.

For each of the three platforms, all supervisors who were offshore during the allocated time of the survey were scheduled to be interviewed. Eighty one supervisors were from the UK (51 from platform UK1 and 30 from platform UK2), and nineteen were from one platform in the Norwegian Sector - platform N1. The interviews

were approximately 90 minutes in duration (ranging from 70 minutes to 120 minutes). All the interviews were conducted in English in the researcher's cabin.

5.2.2 Supervisors' offshore superiors

In order to survey the opinions about effective supervisory behaviours from a management perspective, a series of short structured interviews was carried out with each member of each platform management team. They are represented by the Offshore Installation Manager (OIM) and senior supervisors from the operating and service company. Ten senior management personnel were interviewed from Company B, four from Company C and two from Company F. A structured interview technique was selected because it would allow the researcher to probe new dimensions in a systematic way. Each was asked four open questions about what type of style/behaviour/performance they perceived as "best" for an offshore first line supervisor. They were also asked to complete an appraisal form to rate supervisory performance developed specifically for supervisors within the Offshore Management Centre (see Appendix III) and peer nominations (Kane & Lawler, 1978) which are described below in section 5.3.2.

5.2.3 Supervisors' subordinates

In order to measure the degree of correlation between the supervisors' responses and those of their subordinates, groups of technicians were nominated by their respective supervisors to complete a questionnaire designed for self completion. This method reduces the amount of direct contact between the researcher and the respondents which hopefully decreases possible bias. Furthermore, this technique was also chosen so that many raters' scores could be gathered quickly and cost effectively. A total of 131 technicians, 70 UK1, 41 from UK2 and 20 from N1 completed the questionnaire. It included the Multifactor Leadership Questionnaire (5x) that allowed the technicians to rate their supervisor's leadership style (Bass & Avolio, 1993), a measure of job satisfaction (Warr, Cook & Wall, 1979) and a form to complete peer nominations (Kane & Lawler, 1978) see section 5.3.2. In the end, only the job satisfaction data from the subordinates was analysed. The subordinates ratings from the MLQ resulted in only a small number of ratings per supervisor and as a result was withdrawn from the final analysis.

5.2.4 "Offshore Supervisors' Questionnaire"

The development of the "Offshore Supervisors' Questionnaire" was described above. The questionnaire, which was partly used as an interview schedule, shown in Appendix III, was divided into six main sections:

Section One : Biodata and personality

Section Two : Offshore supervision

Section Three : Motivation and job satisfaction

Section Four : Offshore environment

Section Five : Leadership

Section Six : Supervisory decision making vignettes

Four standard scales, described below, were also included in the questionnaire thus providing the opportunity for statistical comparisons with norm data. The standard scales measured perceptions about the social impact of the work environment, perceptions of leadership style, personality and job satisfaction. The development of each of the themes of the questionnaire will be described in turn.

(i) Section One: Biodata and personality

These biographical data was placed first to allow the interviewee to become comfortable and to relax within the interview. It consisted of eight questions relating to age, current job title, length of time in current post, length of time as a supervisor, length of time worked offshore and entry discipline when the subject began working offshore. Educational and technical qualifications of supervisors were also asked as a closed question with a number of options provided.

A standard British personality questionnaire was also administered here. As a result of the current revival of trait theory (Fiedler, 1987) and the increasing use of personality questionnaires for selection purposes at management level (Furnham & Stringfield, 1994) it was felt necessary to examine differences in personality as a potential predictor of job performance. IMAGES is an Occupational Personality Questionnaire (OPQ) developed by Saville & Holdsworth Ltd (SHL, 1993) that reduces personality to six broad, general factors which are similar to the 'Big Five' (Costa & McCrae, 1992). The IMAGES factors are 'imaginative', 'methodical', 'achieving', 'gregarious', 'emotional' and 'sympathetic'. The questionnaire consists of 56 items that describe the six aspects of personality outlined above. The respondents rate how they typically feel about each of the statements in terms of how they behave at work. The scoring is completed by filling in a response on a 5 point Likert type scale ranging from "strongly agree" to "strongly disagree". This questionnaire was used in order to investigate whether any of the 6 personality dimensions accessed by IMAGES has utility in predicting effective supervision, as measured by the performance ratings. Other personality questionnaires were considered such as the OPQ Concept Model (SHL, 1984) and 16-PF (Cattell, 1977) but as they take 30-40 minutes to complete, were viewed as too time consuming given the length of the interview schedule. Therefore, IMAGES was selected because it was easy to use, took ten minutes to complete and its counterpart the OPQ Concept 5.2 (SHL, 1990) which measures 30 dimensions of personality had been used previously in a study of offshore installation managers (Flin & Slaven, 1994).

The IMAGES questionnaire was administered within the first period of the interview for two reasons. Firstly, to incorporate it immediately after the general information section seemed appropriate and secondly the protocol for completion helped to set the format and tone for the standard questionnaires that followed. The respondents received no feedback, principally because of the logistics involved in locating respondents when they were not working on the platform. The researcher carried out IMAGES administration and analysis under

supervision from a chartered psychologist qualified in psychometric testing and registered to use The Occupational Personality Questionnaires. Each of the dimensions is described below.

The dimension of imaginative rates respondents in terms of how abstract they are, to what extent they like to produce new and creative ideas and how theoretical they are. Low scorers in this dimension are more pragmatic and prefer to work with well established methods.

High scorers on methodical describe a respondent who enjoys the fine detail of work and ensures that deadlines are met. These people may be criticised for not seeing the 'big picture' as they are too busy focusing on the problem. Low scorers, however, leave checking to others and become easily bored. Their strengths lie in initiating projects and then leaving the detail and checking to others.

Ambition and enjoying challenges are measured by the achieving scale. Work and career dominate at the expense of other aspects of their lives such as family and social life. The low scorers tend not to rise to career challenges and the main interest in their lives is usually outside work.

The dimension gregarious measures the extent to which people are outgoing and enjoy attention. High scorers will be extrovert and loud. They are not usually described as shy. Low scorers are normally the antithesis of the extrovert. They are reserved, shy and do not especially enjoy meeting new people. Their quietness can cause them to be overlooked for promotion.

High scorers on the dimension emotional may find it difficult to relax. They worry about important events and can get quite nervous. Easy to motivate but are likely to panic in a crisis. Low scorers are relaxed and can easily 'switch off' from problems of work. They accept mistakes without worrying about them and are not sensitive to criticism from others about their mistakes. They tend not to worry about things, and it can be difficult to motivate them.

Warm, supportive and caring describe high scorers on the sympathetic scale. They form close relationships at work and like to involve others in making decisions. They are popular, tolerant and benevolent. Their desire to help others can sometimes mean that they can take on too many of other people's problems. Single-minded and determined with less time for the problems and concerns for others describe low scorers. They believe that personal problems and the workplace should be kept separate (SHL, 1993)

IMAGES also contained a "social desirability" rating. This scale is used to discourage respondents from replying 'because it seems the right thing to say, or it is how you might like to be.' High scorers are responding in a socially desirable way and could be described as over selling themselves. Conversely low scorers are underselling themselves. Given that the objective of the questionnaire was to gather additional information about supervision on an offshore platform and not for recruitment or selection purposes, the social desirability scale was disregarded in the analysis.

(ii) Section Two: Offshore Supervision

The first eight questions in this section were open questions. The respondents were asked to describe strengths that they had as supervisors and also to specify aspects of their job that required further training. "Have you had any commercial or financial training as a supervisor?" was used in direct response to the findings from the pilot study (Phase II) which showed that cost consciousness and financial training in general were weak at the first line supervisor level.

Twenty statements, covering aspects of supervision and safety were also included as a five point Likert scale. Verbal tags were used with modifying adverbs in an attempt to increase the accuracy of the scale (Chisnall, 1994, p.171). The scale was developed from two main sources. Some of the statements were compiled from comments made by the supervisors during the pilot study such as "*The offshore supervisor's main role is that of 'fire-fighter' e.g. making many rapid decisions*" and "*On this platform, the best supervisory style is authoritarian with autocratic overtones*". The second main source was a report by Lee, Macdonald and Coote (1993) who used a 5 point Likert scale to identify employee attitudes towards safety at a British nuclear plant such as "*Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time*". Others were slightly altered to fit with the offshore oil industry such as "*The existence of the Offshore Safety Division of the HSE does not make me feel safe*" with Offshore Safety Division replacing Nuclear Industry Inspectorate from the original statement.

(iii) Section Three: Motivation and job satisfaction

Six "motivators" were identified from the pilot study as existing within the offshore industry. These were 'promotion', 'disciplinary action', 'praise', 'pay', 'job pride' and 'time off'. The supervisors were asked to rate each of them on a seven point scale from not effective (1) to highly effective (7) in terms of how they felt these "motivators" influenced their personal ambition at work. They were also asked to respond as to how they felt that their team were motivated by the "motivators". Two open questions were also included in this section which addressed the difficulties for a supervisor in terms of getting his or her shift inspired and also what they felt increased their own personal motivation. This section also measured job satisfaction. The 16 item scale by Warr, Cook & Wall (1979) was repeated in the main study because of the beneficial results found in the pilot study (See Chapter Four).

(iv) Offshore environment

This section contained five questions that measured the supervisors' attitudes towards the offshore work environment. One question concerning occupational stress was presented in an identical format to that used by Flin and Slaven (1992) in a study that examined the role of the Offshore Installation Manager. This question was used to compare how OIMs and supervisors rated the stress associated with their positions. Projective questioning (Gordon & Langmaid, 1988) was also used in this section. Using "most" within the question "*What is it that worries most offshore supervisors?*" allowed the supervisors to respond overtly without causing discomfort or embarrassment at having to express their own feelings.

An American instrument, the Work Environment Scale (Moos & Billings, 1974) was used to measure employees' perceptions of their offshore environment (i.e., the social-psychological characteristics of a work setting). The WES was chosen to provide a standardised measure as well as comparative norm data. It also provides the opportunity for comparison between the cross cultural part of the project i.e., to measure the

differences between work environment attitudes in British and Norwegian sectors of the North Sea. The WES was used in the pilot study and as a result, it was felt a few of the items were not directly applicable to the respondents view of the offshore oil industry. In consultation with Professor Moos (personal communication, November, 24th, 1993) four items were slightly altered. The changes are described below.

32. "*Employees rarely do things after work*" - 'work' was changed to 'shift'.
60. "*The colours and decorations make the place warm and cheerful to work in*" was extended to 'and live in'.
85. "*There's a tendency for people to come to work late*" was changed to 'There's a tendency for people to start their shift late'.
88. "*If an employee comes in late, he can make it up by staying late.*" was changed to 'If an employee starts late, he can make it up by working late.'

The following statement was also added to the instructions at the beginning of the questionnaire; "*Where some statements apply more to describing the living accommodation area than the worksite, please respond in terms of the platform in general.*"

(v) Section Five: Leadership

This section measured the supervisor's leadership style. Five open questions were used to record the supervisor's perceptions about what leadership style is effective offshore. The "funnelling" technique was also used for this sequence of questions (Chisnall, 1994). In order to direct the respondent away from the issues of the previous section, a projective technique was also used. Projective techniques are a useful strategy for diverting the attention of the respondent with a humorous and unusual question that appears not to call for a considered response (Walker, 1985, p101). For example, in the "Offshore Supervisors' Questionnaire" the question "*If all the effective supervisors in the offshore industry decided to go to a pub in Aberdeen, what type of pub would it be?*" introduced the leadership section to the subject.

The leadership style of the supervisor was measured in this section using a standard scale. The Multifactor Leadership Questionnaire - Form 5X (Bass & Avolio, 1993) is an American instrument developed to measure three main dimensions of leadership behaviour (Transformational Leadership, Transactional Leadership and Non Leadership). (For more information on the design and use of this instrument, please contact the 'Center for Leadership Studies', Binghampton University, State University of New York). The questionnaire also measured four organisational outcomes, (i) Unit, (ii) Job, (iii) Organisational Effectiveness, and (iv) Satisfaction, Extra Effort and Relation to Higher-ups. This questionnaire also compares the supervisor's ratings with feedback from his or her subordinates.

Four factors load onto the dimension of **transformational leadership.** They are "idealised influence", "inspirational motivation", "intellectual stimulation" and "individualised consideration". Idealised influence is defined with respect to follower reactions to the leader as well as to the leader's behaviour (Bass & Avolio, 1991). Followers identify with and emulate these leaders. The leaders are trusted and convey a vision to their followers that the followers can identify with. The leaders also have much referent power and set challenging goals for themselves and their subordinates. *Inspirational motivation* can overlap with charisma depending on how much the subordinates want to identify with the leader. This measures the extent to which the leader uses symbols and short emotional messages to motivate the team towards mutually desired goal. *Intellectual stimulation* assesses the amount of encouragement a leader gives his or her followers to question their old way of doing things. The followers are supported if they change their old ways of thinking and develops creative ways of approaching new problems. *Individualised consideration* is a measure of how a leader treats his or her followers differently but fairly. The leader raises the expectations and needs of their followers through individual coaching.

Two factors load onto the dimension of **transactional leadership.** They are "contingent reward" and "management-by-exception". *Contingent reward* describes the interaction between leader and follower that emphasises exchange especially in terms of what a follower knows to expect from the leader in return for the follower's attainment of agreed objectives. *Management-by-exception* is a measure of what the leaders do when things go wrong. The leader usually intervenes to make corrective action with criticism, discipline and negative feedback.

The **nonleadership** factor indicates an absence of leadership, the avoidance of intervention, or both (Bass & Avolio, 1991). This is demonstrated where there are neither transactions nor agreements with followers. The leader delays decisions, and feedback and involvement are absent. The leader also makes no attempt to motivate his or her followers.

There are three organisational outcomes rated within the MLQ:
Extra effort reflects the extent to which the team exert effort beyond the ordinary as a consequence of the leadership,
Effectiveness reflects a leader's effectiveness in four areas: meeting the job related needs of followers; representing followers' needs to higher management; contributing organisational effectiveness; and performance by the leader's work group.
Satisfaction reflects how content both leader and followers are with the leader's style and methods, and how satisfied the followers are in general with the leader.

The MLQ was chosen to measure leadership because of several considerations. Data collected about leadership from the pilot study using the Leadership Opinion Questionnaire (Fleishman, 1953) did not differentiate between more effective and less effective supervisors (see Chapter Four). Seltzer and Bass (1990) argue that leadership behaviour measured by the scales of initiation and consideration largely examine the accomplishment

of tasks and the maintenance of good relationships between the work group and the leader. This leadership is not reliant on the group's performance as the leader will become more satisfactory to the group if they attempt to display actions that contribute to good relations with the group. While there is evidence that initiation and consideration correspond with performance (Bass, 1991; Misumi, 1985) the transformational leader achieves higher levels of subordinate performance and satisfaction.

There are other situational considerations for choosing this scale. The transformational leader is more likely to emerge in times of growth, change, and crisis (Bass, 1985), (Bass, personal communication, July 27th, 1994) has used it in a range of international work settings both within the oil industry (e.g. Exxon) and in manufacturing (e.g. Kellogg; Fiat). As described in Chapter One, the offshore oil and gas industry is undergoing significant change. The need to reduce costs against falling production levels, ageing platforms and a low oil price has also been described as a crisis. However, the industry life cycle is not generic. Jennings (1994) has described parts of the offshore industry with large potential for growth and therefore it could be argued that in any sector of the industry the transformational leader is likely to exist. Furthermore, the current competitive challenge from the Pacific rim countries dictates that organisations can no longer remain static and that constant change will become the norm. Finally, the MLQ had been endorsed as a useful instrument by other researchers (see Shackleton, 1995).

To complete the Multifactor Leadership Questionnaire (MLQ) the respondents were asked to rate themselves against 90 statements of leadership behaviour in terms of how frequently they displayed that behaviour. The five point scale ('A' (high) = most frequent display of behaviour scores 4, to 'E' (low) least frequent display of behaviour scores 0) consisted of the following verbal tags: "frequently if not always", "fairly often", "sometimes", "once in a while" and "not at all". Questions 88 and 89, '*My position is* _____ *(first-level of supervision or equivalent, second-level, third-level, fourth-level, fifth-level or higher),* and *'Of the alternatives below, which is the highest level existing in your organisation? (first-level, second-level, etc)* respectively were deleted because the terms used did not fit with the offshore industry organisational structure. Question 90, which examined the educational background of the respondent, was asked earlier within the 'Offshore Supervisors Questionnaire' under section (i) and therefore was also deleted to avoid duplication.

(vi) Section Six: Supervisory decision making vignettes.

Five supervisory situations were presented to the supervisors and they were asked to comment on what they would do. This qualitative style of question was intended to supplement the data gathered from the other sections of the questionnaire such as the MLQ which asks how often each behaviour is used rather than when it is used in a skilful manner and at an appropriate time (Yukl, 1994). The vignettes were also used to facilitate a greater understanding of the role of the supervisor by introducing triangulation. This approach can prove to be very useful even if it provides different results from a purely quantitative method as it can lead to a better understanding or to new questions that can be answered by later research (Miles & Huberman, 1984).

This section was based on information collected during the pilot study (see Chapter Four) and a brainstorming session with three first line supervisors, from an operating company, not directly involved in the survey. Four supervisory situational scenarios were developed from this exercise. These were then faxed offshore to a group of supervisors working with another company with no prior awareness of the project, who were asked to comment on the applicability of the wording and the relevance of the situations. They returned all four with some minor changes and provided two new situations. All six scenarios were sent to a human resource manager working within an oil company not connected with this project, and a former offshore supervisor now working onshore with Company B. All their comments were collated and five scenarios were chosen. These were intended to cover as many issues as possible that may confront an offshore supervisor. The scenarios included supervisory problems such as 'compassionate leave', 'threatening behaviour', 'skill deficiency', 'safety versus production' and 'standards of competence'.

These decision making vignettes were designed to satisfy several criteria. Firstly, it was assumed that respondents would be able to describe what they would do even if they had never personally encountered such a situation before. Secondly, the scenarios were written deliberately to obscure a clear cut solution. By creating hypothetical incidents, the respondents were able to suggest effective responses. Flanagan's (1954) critical incident technique has been criticised by Yukl (1994) because the method makes the assumption that the respondents can differentiate between effective and less effective situations and behaviours. By providing a hypothetical yet plausible incident for the respondent, it is irrelevant whether the subject believes that he/she is responding in an effective or less effective manner. The assumption is that the more effective supervisor will approach the problems in a different way than a less effective supervisor. The supervisors' answers were scored against "best practice" responses to test this hypothesis. These "best practice" responses were obtained from an 'expert' group of nine former offshore supervisors who were all identified as "outstanding" offshore supervisors by their respective company personnel departments. To complete this section each respondent and the group of experts were asked to describe what they would do in each of the situations. Their responses were recorded in writing and by the use of an audio cassette recorder to provide an accurate record of the subjects' responses. (This method is used in the competency literature e.g., Boyatsis (1981) for recording critical behaviours). For each scenario, the "expert group" responses were scored for critical behaviours by three research psychologists from the Offshore Management Centre who all had offshore research experience, using a grounded theory

system and thematic analysis outlined by Spencer and Spencer (1993). The supervisors' responses were scored on a five point scale indicating the degree to which they matched the experts. In Chapter Nine, section 9.6, there are some examples of how the scenarios were scored and also how the supervisors' responses measure against the Boyatsis Model for an effective manager (Boyatsis, 1981).

5.3 PERFORMANCE MEASURES

5.3.1 Performance Appraisal

The supervisor's effectiveness was rated using a specially designed appraisal form (see Table 5.1). It was felt that the simple performance measure used in Phase II did not effectively discriminate supervisory performance. Therefore, a more precise scale was used. Their performance was appraised by their immediate superior against the following eight performance indicators on a six-point format ranging from: "A poor performer" (1), to "An outstanding performer" (6). As Cooper and Robertson (1992) argue, this strategy of numerically labelling scale points helps raters focus on each specific dimension when evaluating job performance. This performance rating scale had been used with a number offshore supervisors in a previous study (Sutherland, 1994).

Table 5.1
Offshore Supervisor's Rating Scale

Technical/Specialist ability	Knowledge and skills demonstrated in the job
Communication	Ability to put across ideas and information verbally or in writing
Relationships	Ability to supervise and to work with others as part of a team
Managing resources	Demonstration of ability to make appropriate use of assets and understand the cost implications of their decisions
Influencing others	Skill shown by the employee in handling relationships with superiors, subordinates and peers
Initiative	Effectiveness in making necessary decisions and taking appropriate action to achieve results
Change Oriented	Attitude to flexibility both within the workplace and the organisational environment in order to maintain local and global performance objectives
Overall job performance	Taking everything into consideration

Scores were recorded on each of the eight dimensions and a composite score of the first seven items was used as an indicator of superior ratings of supervisory performance. This score provided a final score out of 42. The eighth item, 'overall performance', was not included in the composite score in order to prevent artificial inflation of the ratings and avoid creating multicollinearity problems. The eighth item is used as a separate measure of overall performance in the subsequent analyses. Unless otherwise stated, the composite score of seven items will be described as the main performance measure.

The supervisors' superiors were also interviewed about what they thought made a good supervisor. The interview was semi-structured with each "superior" being asked four open questions. These were; *What makes a good supervisor?*, *What makes a bad one?*, *What is the difference between an excellent supervisor and a very good one?* and *What skills will the supervisor of the future have?* The onshore experts who formulated the model response for the DMVs (Section Six) were also asked these same questions. Their responses and the offshore superiors responses are grouped together and presented and discussed in Section 6.8.

5.3.2 Job Performance: Peer nominations

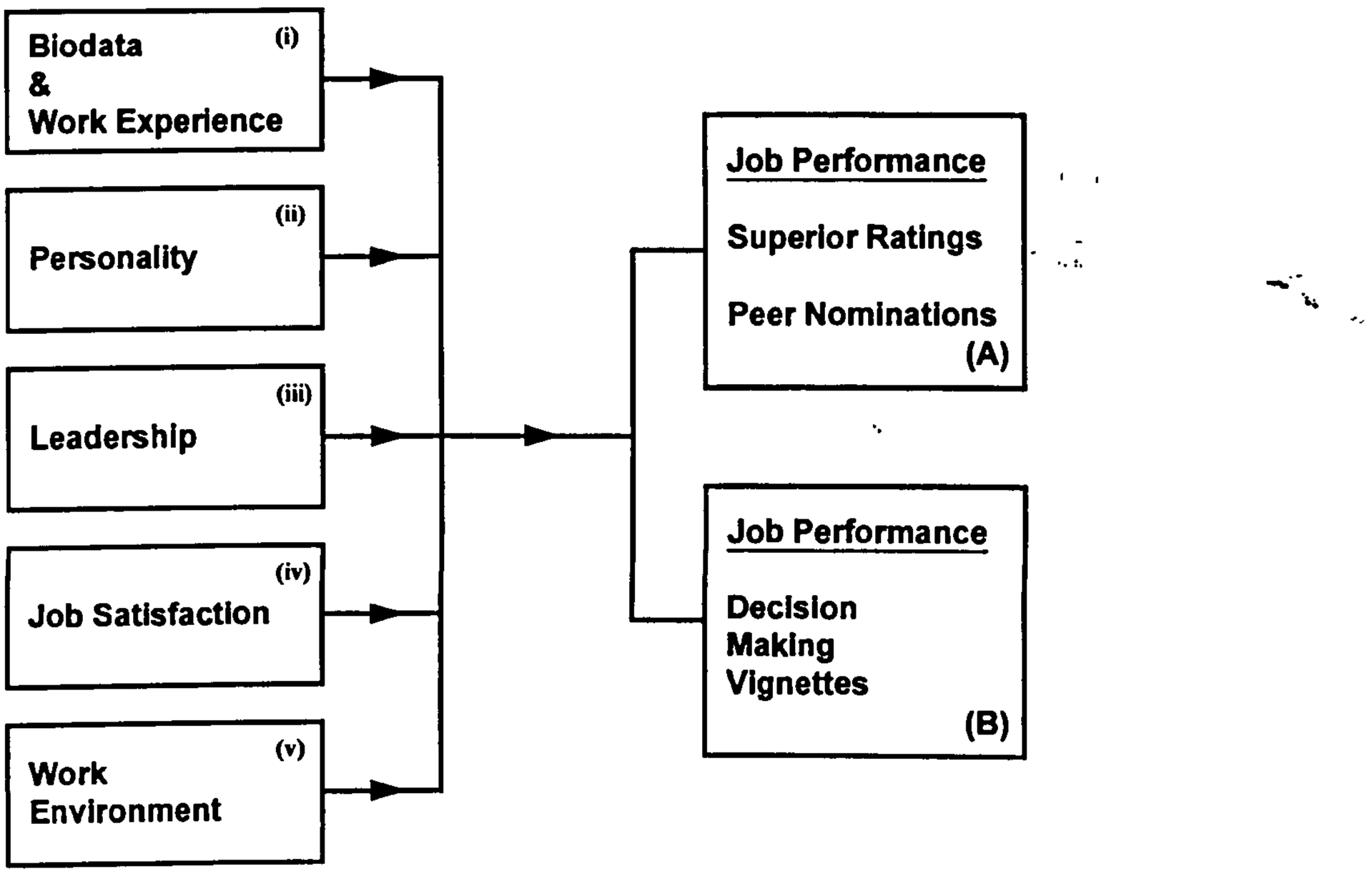
Peer nominations is a method of obtaining a measure of supervisory performance by having each member of the group designate a specified number of group members as being the highest in the group on a particular characteristic or dimension (Kane & Lawler, 1978). The supervisors, superiors and technicians were asked to nominate, in terms of job performance, the top three most effective and least effective supervisors on their shift, in no particular order. The group members were also required to exclude themselves from the nominations. Kane and Lawler (1978) in their study described the raters' feelings about the use of peer nominations as "negative" because they are being asked to name work colleagues as poor as well as good performers.

As a method for discriminating performance, peer nominations have several advantages over other subjective performance measures such as appraisal. The research shows that it effectively discriminates those group members who are extreme on a variable from those who are not with a high degree of validity and reliability (Kane & Lawler, 1978). Given that the aim of the research project was to identify outstanding supervisors from less effective ones, the function of peer nominations to create extreme scores was very suitable. The main limitations with using peer nominations rather than peer ratings or peer rankings as a method of peer assessment are that peer nominations have been used mostly in military situations and that it is not easy to provide feedback to the groups that participated. From the outset giving individual feedback to potential respondents was not intended nor indeed practicable.

5.4 MODEL FOR EFFECTIVE OFFSHORE SUPERVISORY PERFORMANCE

The method outlined above describes the research strategy that was adopted to collect data in the offshore work environment. This is summarised by the "Model for Effective Offshore Supervision" which is shown as Figure 5.1.

Figure 5.1
Model for Effective Offshore Supervision



The model tested the possible factors that would predict effective performance among offshore supervisors by using a traditional social science "input/output" model. There are five main input (independent) variables that were selected to potentially discriminate the performance of a supervisor and three output (dependent) variables to test this performance. Of the three dependent variables two were quantitative measures (box A) and the other was a qualitative measure (box B). Thus it expedites predictions of what makes an effective offshore supervisor. These predictions are described in turn and are based upon a literature review, pilot study, and knowledge of the offshore environment.

5.4.1 Potential predictors

Independent Variables	Performance Predictions
(i) Biodata & Work Experience	
Previous work experience	Potential to discriminate performance.
Education and Training	It was hypothesised that education and training would not predict effective job performance.
(ii) Personality	
Occupational Personality Questionnaire	Literature suggests that personality may have an effect on predicting performance. See work by Hogan et al (1994).
Imaginative	It was expected that high scores should predict effective job performance scores.
Methodical	It was expected that high scores should predict effective job performance.
Achieving	It was expected that high scores should predict effective job performance scores.
Gregarious	It was hypothesised that this personality dimension would not predict effective job performance.
Emotional	It was expected that low scores should predict effective job performance scores.
Sympathetic	It was expected that high scores should predict effective job performance scores.
(iii) Leadership	(Predictions based on Bass, 1990)
Multi-factor Leadership Questionnaire	
Transactional	It was hypothesised that high scores should predict effective job performance.
Transformational	Neutral prediction, but would expect that effective supervisors of the future would require these skills.
Laissez-faire	It was hypothesised that high scores of laissez-faire type leadership would result in lower scores of job performance.

Independent Variables	Performance Predictions
(iv) Job Satisfaction	
Job Satisfaction Questionnaire	
Overall job satisfaction	Higher job satisfaction scores would result in effective job performance
Recognition for doing good work	High scores should predict effective job performance
Satisfaction with boss	High scores should predict effective job performance
Responsibility at work	High scores should predict effective job performance
Suggestions made	High scores should predict effective job performance
Promotion	High scores should predict effective job performance
(v) Work Environment	
Work Environment Scale	
Task Oriented	High scores should predict effective job performance
Involvement	High scores should predict effective job performance
Supervisor Support	High scores should predict effective job performance
Work Pressure	High scores should predict effective job performance

The next section of the thesis describes the results from the full study which are presented and discussed per platform, thus Chapter Six describes the results from UK1, Chapter Seven, UK2, and Chapter Eight, N1. Chapters Six and Seven also describe the differences between being an operator supervisor and a contractor supervisor in order to investigate whether this key variable i.e., company background of supervisor, has an impact on the effectiveness of the supervisor. A comparison of the findings from the combined group of all three platforms and the results from the decision making vignettes are presented and discussed in Chapter Nine. Chapter Ten presents a final discussion and concludes with recommendations for both management action and future research.

CHAPTER SIX

OFFSHORE SUPERVISORS QUESTIONNAIRE

PLATFORM UK1 RESULTS

The results section will be divided into three areas: the results of Phase III which deals with the two platforms on the UKCS, are presented and discussed in Chapters Six and Seven, respectively. The results which deal with the Norwegian sector are presented and discussed in Chapter Eight. A comparison of the findings from the combined group of all three platforms and the results from the decision making vignettes are presented and discussed in Chapter Nine.

6.1 INTRODUCTION

The results will be divided into the following sections:

Section 6.2: Biodata and supervisory job performance measure

Section 6.3: Offshore elements and supervision

Section 6.4: Motivation

Section 6.5: The offshore environment

Section 6.6: Leadership

Section 6.7: Comparison between Operator and Contractor Supervisors

Section 6.8: Multivariate analysis

6.2 GENERAL BACKGROUND INFORMATION

6.2.1 Demographic data

Data were obtained from three groups of employees working on UK1. These were:

- senior supervisors on the platform such as OIM, Operations Supervisor and the Service Superintendent (n=6)
- first line supervisors that worked for both Company B and Company C. The supervisors' job titles included shift supervisor, discipline engineer, foreman and senior charge hand (n=51)
- technicians from each of the disciplines on the platform that reported to the first line supervisors described above (n=70)

This report deals mainly with the group of first line supervisors who will be referred to as "supervisors". One of the supervisors was female.

The modal age of the sample is between 36 and 47 years of age, with 67% of respondents being aged between 36 and 47. (Table 6.1).

Table 6.1
Age of supervisor

Age (years)	24-29	30-35	36-41	42-47	48-53	53 and over
Sample n(51)	4	6	23	11	5	2

Respondents were asked how long they had worked offshore, 37% had between 10 and 13 years of offshore experience (m=12.18, s.d.= 4.59, Table 6.2).

Table 6.2
Length of time working offshore

Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15
n	1	0	2	4	0	0	2	0	1	5	2	5	7	2	4	16

The supervisors were asked how long they had been in their current post of supervisor, 53% had been in post for 2 to 3 years (m=2.77, s.d.=2.54, Table 6.3).

Table 6.3
Time in current post as supervisor

Years	1	2	3	4	5	6	>12
n	11	16	11	5	2	4	2

Respondents were asked how long they had been in supervisory roles, 49% had between 3 and 9 years of supervisory experience (m=6.4, s.d.= 4.9, Table 6.4).

Table 6.4
Overall tenure as supervisor

Years	1	2	3	4	5	6	7	8	9	10	11	12	13	>13
n	7	4	8	5	3	4	1	1	3	2	1	5	2	5

Respondents were asked *What qualifications do you have?* The pre-coded categories and the percentage responses for each were as follows: *School leaver* (9.8%), *Oilfield qualifications only* (2%), *School leaver and oilfield* (13.7%), *City and Guilds* (33.3%), *ONC, HNC or HND* (31.3%), *University Degree* (4%) and *Other eg Masters Certificate* (5.9%).

Respondents were asked *Who did they report to?* The percentage responses for each category are listed in order of highest to lowest: *Services Supervisor* (31.4%), *Mechanical/Instrument/Electrical Engineer* (27.5%), *OIM* (13.7%), *Operations Supervisor* (11.7%), *Services Coordinator* (11.7%) and *Maintenance Supervisor* (4%).

The influence of these demographic variables (age, offshore experience and specific supervisory experience) on the performance measure (see section 6.2.2) was examined. None of the demographic variables correlated significantly with the performance measure. The analysis suggests that biodata such as age (r=-.08) and experience (r=.07) are not predictors of high job performance ratings. However, there are aspects of the data which are of interest. The sample have considerable offshore work (c600 years) and offshore supervisory experience (c320 years), and the majority of supervisors have some form of technical qualification such as City and Guilds, ONC, HNC or HND.

Performance Predictions

The performance predictions made in section 5.4.1 for these variables were only partially accurate. "Previous work experience" was identified as a possible discriminator of performance but it did not, and as predicted "Education and Training" did not predict effective job performance.

6.2.2 Supervisory Job Performance Measure

Job performance ratings were collected for only 45 of the 51 supervisors because six of the supervisors had recently joined platform UK1 and it was felt by their respective immediate superiors that it would be unfair to rate their performance without having a better understanding of their abilities as supervisors. Table 6.5 describes the frequency and range for each of the performance indicators.

Table 6.5
Supervisors' performance ratings

JOB PERFORMANCE INDICATORS	1 Poor	2	3	4	5	6 Outstanding	Mean	St. Dev
Technical/Specialist Ability	0	0	8	17	17	3	4.3	0.8
Communication	0	4	9	17	15	0	3.9	0.9
Relationships	0	1	15	21	7	1	3.8	0.8
Managing Resources	0	2	20	16	7	6	3.6	0.8
Influencing Others	0	3	16	19	7	0	3.7	0.8
Initiative	0	8	12	20	5	0	3.5	0.9
Change Oriented	2	3	13	22	5	0	3.6	0.9
Overall Job Performance	0	2	8	28	7	0	3.9	0.7
Total	2	23	101	160	70	10		

Cronbach's co-efficient alpha was calculated to determine the internal reliability of the appraisal scale. The closer the co-efficient is to 1, the greater the reliability. For the appraisal scale of the first seven items, Cronbach's α =.774. These first seven items were used as the main job performance score and is referred to in the text as the "performance measure".

The job performance scale was used to discriminate different levels of performance among supervisors. Range scores showed that the scales were not employed to full width as ratings of 'poor' or 'outstanding' were rarely given. The ratings indicate that in the majority of cases, supervisors were given ratings around the mid-point of the scale 3-4 i.e., 'Performance is entirely satisfactory' to 'A good performer'. Although the raters were asked to use the full length of the scale, there is a degree of central tendency within the ratings. As a group, the highest ratings were for *Technical/Specialist ability* and the lowest ratings were for *Initiative*. These findings may reflect previous selection strategies for offshore personnel (Tait & Hutton, 1994).

6.2.3 Peer Nomination Scores

The peer nomination scores were collected in an attempt to improve the accuracy of the dependent variable; job performance. However, as a collection instrument, it proved extremely contentious. The offshore population were uncomfortable scoring one another's performance and gossip spread throughout the platform about this

technique. In an attempt to alleviate fears about confidentiality each respondent was assured that their scores were locked in a combination secure briefcase. By the time of the next offshore trip to Platform UK2 (three and a half months later) news had spread between the platforms about the peer nomination instrument and after discussion with the OIM on UK2 it was withdrawn from the survey. Peer nomination was also withdrawn from use on the Norwegian Platform, N1 after discussions with the onshore platform manager. The results of using this technique on UK1 are shown in the frequency table, Table 6.6.

Table 6.6
Peer Nomination Scores

Peer Supervisors	No. of positive times rated	Frequency	Percent
	0	19	37.3
	1	6	11.8
	2	6	11.8
	3	6	11.8
	4	2	3.9
	5	2	3.9
	6	1	2
	7	3	5.9
	8	3	5.9
	9	2	3.9
	13	1	2
Peer Subordinates	0	20	39.2
	1	9	17.6
	2	4	7.8
	3	3	5.9
	4	4	7.8
	5	1	2
	7	1	2
	8	1	2
	10	2	3.9
	12	2	3.9
	13	1	2
	14	1	2
	20	1	2
	25	1	2
Peer Superiors	0	39	76.5
	1	8	15.7
	2	4	7.8

The distribution of each group shows a positive skewing. This is to be expected when undertaking this type of analysis as many of the respondents can receive no nomination at all. It is of interest that the group of 'peers' is spread out with nine supervisors receiving seven or more nominations from their peers and nineteen receiving none. This technique would have proved very useful in identifying the differences between effective and less effective performance as it clearly discriminates job performance amongst the groups of supervisors.

Significant correlations between the independent variables such as job satisfaction and leadership and the peer nomination job performance measure are described in this chapter.

6.2.4 IMAGES Occupational Personality Questionnaire

The IMAGES occupational personality questionnaire (SHL, 1993) produces scores on six personality dimensions and a social desirability scale. The range of possible raw scores is from 8 to 40. A list of the means and standard deviations on each dimension for the 51 supervisors is provided in Table 6.7. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the onshore norm data means. The p. values indicate levels of significance of the t-values. The r values indicate the level of correlation between the personality dimensions and the performance measures. ($_{r7}$ is the composite performance measure correlation coefficient and $_{r8}$ is the overall performance measure correlation coefficient). Unless otherwise stated the correlation coefficient r7 is only discussed in the text. All variables throughout the results chapters were checked for normality using lilliefors test (Norussis, 1993) and are distributed normally unless otherwise stated.

Table 6.7
IMAGES Occupational Personality Questionnaire

Dimension	Description	Mean	St. Dev.	Norm Group Mean	St. Dev.	t	$_{r7}$	$_{r8}$
Imaginative	conceptual, innovative	27.1	5.0	25.1	4.6	-2.8 **	.03	-.1
Methodical	detail conscious, conscientious	30.5	4.2	27.6	4.6	-5.0 **	-.02	-.1
Achieving	ambitious, sets sights high	25.2	3.8	22.4	4.6	-5.3 **	.09	.06
Gregarious	socially confident, outgoing, aspects of affiliative	26.8	4.5	25.2	5.2	-2.5 *	-.13	-.12
Emotional	relaxed, worrying, tough minded	27.3	4.8	27.5	5.4	0.3	-.23	-.25
Sympathetic	caring, warm, supportive	28.9	3.6	28.4	4.1	-1.0	.03	.01

(**p<.01, * p<.05)

Comparisons were examined using the scale means and standard deviations for a general population sample norm group (n=2,951) provided by SHL (1993). There are no current norms for industrial supervisors. Research from specific norm groups for the OPQ vary so slightly from general norms that there is little merit in developing such specific norms (Sik, G., SHL, personal communication, August 19, 1994). For this reason, the general population norms have been used as the comparison group. Sample means for the dimensions *Imaginative*, *Methodical* and *Achieving* were all significantly higher than the norm population at the .01 level of

significance. *Gregarious* was significantly higher at the .05 level of significance. *Emotional* and *Sympathetic* showed no significant differences with the norm data. As a group, the supervisors are more conceptually oriented (*Imaginative*) than the comparison group. This suggests that they have a preference for intellectually demanding tasks and perceive themselves as "ideas people". The supervisors score higher on the *Methodical* dimension than the norm group. The supervisors are ideally suited to jobs that require fine checking and attention to detail which are arguably necessary qualities in a safety conscious offshore work environment. Perhaps, not surprisingly, the supervisors score more highly than the norm group on the *Achieving* dimension. High scorers on this dimension have a tendency to be ambitious, better leaders and have more drive, and as result are more likely to be promoted. The sample also scores more highly on the *Gregarious* dimension. Higher scorers on this dimension are usually found in jobs that require a significant amount of interpersonal skills. There were no other significant differences between the sample and the norm group. *Emotional* (r=-.23) was the highest correlation with the performance measure, suggesting that supervisors who may find it difficult to switch off from the pressures of work were given lower job performance ratings, but it was not significant. None of the other personality dimensions correlated significantly with the performance measure. Finally, there were no significant correlations between the personality dimensions and the peer nomination scores.

Performance Predictions

The broad prediction was that personality styles would have an effect on job performance. Such a prediction would be consistent with recent recruitment and selection literature e.g., Hogan, Curphy & Hogan (1994) but regrettably the correlations were small and not significant.

6.3 OFFSHORE ELEMENTS AND SUPERVISION

This next section consisted of a series of open questions and a 20 item Likert style questionnaire. The open questions concerned the supervisor's current skills and training, and the Likert scale addressed other factors that affect the supervisor's role such as leadership style, offshore safety and commercial concerns. The percentage responses from each of the items from the Likert scale are described in Table 6.8. Higher means represent more "agreement" with the statement indicated by 'P' or more "disagreement" with the statement indicated by 'N' (the scores were reversed for negative statements).

Table 6.8
Offshore elements and supervision

	Supervision and safety variable	% rating Agree strongly	%rating Agree slightly	% rating Neither agree nor disagree	% rating Disagree slightly	% rating Disagree strongly	M	SD
1	The offshore supervisor's main role is that of "fire fighter" e.g making many rapid decisions. (P)	9.8	33.8	2	27.5	27.5	3.3	-1.4
2	The offshore supervisor is pushed from above and below at the same time. (N)	42	42	0	13.7	3.9	4	1.2
3	On this platform, the best supervisory style is authoritarian with autocratic overtones. (P)	3.9	9.8	7.8	23.5	54.9	4.2	1.2
4	The offshore supervisor is not a key figure in reducing loss and increasing profit. (P)	3.9	9.8	5.9	25.5	54.9	4.2	1.2
5	The best supervisory style is to provide firm leadership and direction to employees. (P)	76.5	17.6	0	9	0	4.6	0.8
6	The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers. (N)	37.3	39.2	3.9	13.7	5.9	3.9	1.2
7	The offshore supervisor should not have the status of first line management. (P)	3.9	7.8	15.7	29.4	43.1	4	1.1
8	Staff reports and appraisals do not invite honest and open criticism within the offshore environment. (N)	25.5	39.2	5.9	15.7	13.7	3.5	1.4
9	The offshore supervisor should be a team leader. (N)	72.5	21.6	0	5.9	0	4.6	0.8
10	Man management is less important than technical ability for an effective offshore supervisor. (P)	2	17.6	5.9	25.5	49	4	1.2
11	Offshore supervisors play a key role in the success of "partnering". (N)	58.8	35.3	3.9	2	0	4.5	0.7
12	The future success of the offshore oil industry depends heavily on the man management skills of all offshore supervisory roles. (P)	72.5	19.6	5.9	2	0	4.6	0.7
13	Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time. (N)	3.9	43.1	5.9	17.6	29.4	3.3	1.4
14	The permit to work system ensures safe working. (P)	54.9	25.5	0	15.7	3.9	4.1	1.2
15	The existence of the Offshore Safety Division of the HSE does not make me feel safe. (P)	2	27.5	7.8	31.4	31.4	3.6	1.2
16	If supervisors did not take risks now and again the job wouldn't get done. (P)	2	29.4	0	23.5	45.1	3.8	1.3
17	Most accidents just happen - there's not much you can do about it. (P)	3.9	2	0	29.4	64.7	4.5	0.9
18	The permit to work system is just a way of covering people's backs. (N)	2	11.8	2	13.7	70.6	4.4	1.1
19	There are certainly risks working offshore. (N)	74.5	23.5	2	0	0	4.7	0.5
20	The role of the supervisor is not dominated by paperwork. (P)	5.9	17.6	3.9	39.2	33.3	3.8	1.3

Most of the supervisors agreed, either slightly or strongly, that the best supervisory style is to provide firm leadership and direction to employees (item 5) and over 90% agreed, either slightly or strongly, that the offshore supervisor should be a team leader (item 9). Over 70% disagreed, either slightly or strongly, that the offshore supervisor should not have the status of a first line manager (item 7), and over 70% disagreed, slightly or strongly, that man-management was less important than technical ability for an effective offshore supervisor

(item 10). Over 90% agreed, either slightly or strongly, that offshore supervisors play a key role in the success of "partnering" (item 11). 'Permit to Work', the 'Offshore Safety Division' and other offshore safety issues were rated positively by the sample.

Respondents were asked *What do you consider to be your best asset in your supervisory capacity?* The percentage responses which are listed in order of highest to lowest.

Response	% of total responses
job experience	21.5
Developing relationships with team	19.7
planning and organisation	16
Achieving results	16
ability to listen	7.2
Delegation	5.4
firm but fair with team	5.4
Motivational skills	5.4
attitude to safety	1.7
personal initiative	1.7

Respondents were asked *Have you had any non-technical training for your role as a supervisor?* The percentage responses are shown below.

Response	% of total responses
No	33.9
man management training	18.7
basic supervisory skills	13.6
team leaders course	8.4
NVQ/ECITB	6.8
health & safety	6.8
internal company course	6.8
industrial relations course	3.3
on the job	1.6

Respondents were asked *What skills do you use currently that were taught at the training course (mentioned above)?* The percentage responses are shown below.

Response	% of total responses
not applicable	33.8
dealing with people	16.9
Communication skills	15.3
Safety	9.2
Nothing	9.2
planning skills	6.1
Disciplinary action	4.6
problem solving	3
time management	1.5

Respondents were asked *Which aspects of your job do you feel require more training and why?* The percentage responses are shown below.

Response	% of total responses
Technical skills	38
Supervisory training	20
General management	14
None	14
Managing my supervisors	4
Commercial/budget training	4
Presentations	4
further academic qualifications	2

The respondents were asked *Have you had any commercial or financial training as a supervisor?* The majority of respondents (81.6%) had received no training. The remaining responses included "previous work experience" and "internal company seminars".

The respondents were asked *Do you wish to be promoted and if yes into which position?* The responses were *Yes, next one up* (78.4%) and *No* (21.5%)

The results show that as a group, the supervisors have had little man-management training and the vast majority have had no financial or commercial training. Although the majority of supervisors recognise the new role of supervision through changes such as team leadership, "partnering" and supervisory style, technical skills are still the most requested training need.

6.4 MOTIVATION

This next section examined motivation. It included a standard scale on job satisfaction (Warr et al, 1979), a group of open questions concerning supervision and two closed questions that asked the respondent to rate six "system motivators" on a six point scale.

6.4.1 Job satisfaction

The 16 item self report job satisfaction scale by Warr, Cook & Wall (1979) was used to measure both extrinsic and intrinsic factors associated with job satisfaction for both supervisors and technicians (n=70). A detailed breakdown of the scores is shown in Table 6.9. Each respondent was asked to rate how satisfied or dissatisfied they felt with various aspects of their job on a seven point Likert type scale. Total scores are obtained by summing the ratings. This scale had been previously used offshore (Flin, Mearns, Fleming & Gordon, 1996; Sutherland, K, 1994). Item 15 "your job history" was inadvertently used instead of the original item "your job security". This table also shows norm data and t-values which were calculated to test differences between the offshore supervisors and the technicians. The p. values indicate levels of significance of the t-values. The r

values indicate the level of correlation between the supervisor's job satisfaction items and the performance measures.

Table 6.9
Job Satisfaction (Warr et al, 1979)

Job Satisfaction	Supervisors (n=51)		Technicians (n=70)				
ITEMS	Mean	St. Dev.	Mean	St. Dev.	t	r_7	r_8
The physical work conditions	4.7	1.1	4.1	1.4	-4.0 **	.09	.05
The freedom to choose your own method of working	5.4	1.3	4.6	1.3	-4.4 **	.13	.06
Your fellow workers	5.5	0.7	5.6	1.1	1.0	.17	.1
The recognition you get for good work	4.7	1.4	4.5	1.5	1.1	.45 **	.49 **
Your immediate boss	5.4	1.2	5.4	1.1	0	.23	.13
The amount of responsibility you are given	5.4	1.4	4.8	1.4	-20 **	.08	.12
Your rate of pay	4.8	1.4	3.8	1.5	-33 **	.16	.22
Your opportunity to use your abilities	5.3	1.5	4.3	1.6	-5 **	.37 *	.4 **
Industrial Relations between management and workers in your firm	4.1	1.3	2.8	1.4	-7.1 **	.4 **	.28
Your chance of promotion	4.7	1.1	3.4	1.5	-8.4 **	-.16	-.05
The way your firm is managed	3.9	1.5	3.1	1.3	-4 **	.09	.08
The attention paid to suggestions that you make	4.6	1.3	4.1	1.4	-2.7 **	.26	.27
Your hours of work	4.2	1.6	4.6	1.2	2	-.27	-.12
The amount of variety in your job	5.2	1.4	4.4	1.5	-4.1 **	.17	.23
Your job history	5.3	0.9	4.4	1.3	-7.1 **	.13	.16
Your job as a whole	5.1	1.2	4.5	1.2	-3.5 **	.18	.17
Total score	78.3	20.3	68.4	21.7	-3.5 **		

(**p<.01, * p<.05)

The supervisors are more job satisfied than the technicians. There is a significant difference between the supervisors' and the technicians' total mean scores at the 99% confidence interval. The supervisors rate their satisfaction with almost all the items significantly higher than the technicians. As a group, the offshore supervisors score highest on the item that concerns their satisfaction associated with their fellow workers and score lowest in terms of satisfaction in terms of the way their firm is managed. The mean score of the technicians' group (n=70) was 68.4 which was significantly lower than the supervisors at 78.3 (p<.01). As a group, the technicians score, like the supervisors, highest on the item that concerns their satisfaction associated with their fellow workers and score lowest in terms of the industrial relations between management and workers

in your firm. When job satisfaction and performance were examined item 4 *The recognition you get for good work* (r=.45, p<.01), item 8 *Your opportunity to use your abilities* (r=.38, p<.05) and item 9 *Industrial relations between management and workers in your firm* (r=.38, p<.01) correlated with the performance measure. This suggests that the higher performing supervisors are more satisfied with the flexibility they have to use their skills in the workplace, praise and recognition from superiors increases their job satisfaction and also more satisfied with the industrial relations in the workplace than less effective supervisors.

Job satisfaction and peer nominations scores were also examined only total job satisfaction significantly correlated with the supervisor's peer nominations (r=.27, p<.05). This suggests that the supervisors who rate high levels of job satisfaction also receive higher scores from their peers who perceive them as high performing supervisors.

Performance Predictions

It was predicted that high scores for item 4, *The recognition you get for good work* would result in effective job performance. This prediction was found to be accurate (r=.45, p<.01). The other performance predictions were not substantiated and item 9 *Industrial relations between management and workers in your firm* (r=.38, p<.01) was the only other item to correlate significantly with the performance measure. The alternative performance measure for this platform (peer nominations) endorsed the prediction that high scores for job satisfaction would result in effective job performance, although the correlation was small (r=.27, p<.05).

6.4.2 System Motivators

Each supervisor was asked to rate on a seven point scale from 1 (not effective) to 7 (highly effective) the following items: promotion, disciplinary action, praise, pay, job pride and time off, in terms of how effective each were as a motivating influence on them as supervisors. Their responses are described in table 6.10.

Table 6.10
System motivators for supervisors

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	3.9	11.8	5.9	25.5	27.5	15.7	9.8	4.5	1.6
Disciplinary action	15.7	35.3	7.8	19.6	5.9	13.7	2	3.1	1.7
Praise	2	5.9	5.9	9.8	23.5	25.5	27.5	5.3	1.6
Pay	2	2	3.9	7.8	27.5	23.5	33.3	5.6	1.4
Job Pride	0	0	3.9	0	17.6	35.3	43.1	6.1	1
Time off	9.8	5.9	2	3.9	17.6	37.3	23.5	5.2	1.9

The supervisors perceive that *promotion, praise, pay, job pride* and *time off* were effective as motivators in the offshore environment for the role of a supervisor. *Disciplinary action* was not perceived as an effective motivator.

The supervisors were also asked to rate the same items in terms of how effective they were at motivating their shift or team at work. These responses are described in Table 6.11.

Table 6.11
System motivators for technicians

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	0	19.6	13.7	25.5	23.5	13.7	3.9	4.1	1.4
Disciplinary action	19.6	15.7	19.6	23.5	11.8	5.9	3.9	3.2	1.7
Praise	0	0	5.9	3.9	29.4	35.3	25.5	5.7	1.1
Pay	2	0	3.9	9.8	11.8	23.5	49	6	1.4
Job Pride	0	0	0	27.5	29.4	29.4	13.7	5.3	1
Time off	3.9	3.9	3.9	7.8	17.6	37.3	25.5	5.4	1.6

The supervisors rated the motivators in terms of how they motivated their technicians and the results were broadly similar, *Pay* was seen as the most effective motivator and *Disciplinary action* was seen as the least.

The respondents were asked *What are the main challenges for an offshore supervisor in terms of motivating his shift?* The table below outlines the percentage responses which are listed in order of highest to lowest.

Response	% of total responses
Keeping motivation going	32.1
Team building	19.6
Uncertainty of future/mistrust of management	12.5
Ability to get work done because of so much paperwork/bureaucracy	10.7
Getting team involved in jobs	8.9
the offshore environment	8.9
Putting across commercial and safety message simultaneously	7.1

The respondents were asked *What motivates <u>you</u> to perform better? (Give 3 examples) Feeling of achievement, job satisfaction* and *building a good team* accounted for 63.6% of the total responses. The other 36.4% included comments such as *money, praise, personal development, leadership from above* and *more responsibility.*

Maintaining an environment where motivation and team building are present was rated as the main challenge for a supervisor in trying to motivate his shift. Uncertainty of the future and mistrust of management were also mentioned as contributory factors that affect the ability of a supervisor to motivate. Intrinsic motivators such as

feeling of achievement, team building and job satisfaction were described by the majority of supervisors as factors that would motivate them to perform better. Similar results have been found in a recent offshore study on motivation by Burnett and Tait (1996).

6.5 THE OFFSHORE ENVIRONMENT

6.5.1 The work environment scale

The Work Environment Scale (Moos & Insell, 1974) is an instrument for measuring the social-psychological characteristics of a work setting. Each work setting develops a "style" or a work climate, which influences how decisions are made and defines typical patterns of interactions at work (Moos & Billings, 1991). The scale produces scores on ten elements which form three major categories.

1. *Relationship dimensions* – how employees relate to each other and how managers relate to employees.
2. *Personal growth dimensions* - how the work environment encourages or stifles personal growth.
3. *System maintenance and change dimensions* - the amount of structure and openness to change in the workplace.

A list of the means and standard deviations on each dimension for 51 supervisors is provided in Table 6.12. The range of possible raw scores is from 1 to 9. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the onshore norm data means. The p. values indicate levels of significance of the t-values. The r values indicate the level of correlation between the work environment dimensions and the performance measures.

Table 6.12
The Moos et al (1974) work environment scale

Offshore	Supervisors (N=51)			Norm	Group			
Dimension	**Description**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**	**t**	**r7**	**r8**
Relationship								
Involvement	the extent to which employees are concerned about and committed to their jobs	4.9	2.5	5.9	1.4	2.8 **	.38 *	.39 **
Peer Cohesion	the extent to which employees are friendly and supportive of one another	5.6	2.1	5.7	1.2	0.3	.22	.34 *
Supervisor Support	the extent to which management is supportive of employees and encourages employees to be supportive of one another	5.3	2.4	5.7	1.4	1.2	.1	.15
Personal Growth								
Autonomy	the extent to which employees are encouraged to be self sufficient and to make their own decisions	4.2	1.4	5.5	1.2	6.6 **	.1	.1
Task Orientation	the degree of emphasis on good planning, efficiency, and getting the job done	5.4	1.7	5.9	1.3	2.1 *	.25	.31 *
Work Pressure	the degree to which the pressure of work and time urgency dominate the job milieu	6.7	1.7	4.4	1.4	-10 **	-.24	-.23
System Maintenance and System Change								
Clarity	the extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated	5.2	1.7	5.6	1.3	1.7	.16	.18
Control	the extent to which management uses rules and pressures to keep employees under control	7.6	1.1	4.9	1.3	-17 **	-.11	.05
Innovation	the degree of emphasis on variety, change, and new approaches	3.7	2.4	4.4	1.5	2.1 *	.38 **	.46 **
Physical Comfort	the extent to which the physical surroundings contribute to a pleasant work environment	1.9	1.3	4.9	1.4	16.7 **	.12	.15

(**p<.01, * p<.05)

As a group, the supervisors describe the offshore work environment as having a high degree of pressure and time urgency to get jobs done, they feel that management use rules and pressure to keep employees under control, there is little emphasis on variety and change, and the physical surroundings do not contribute to a pleasant work environment.

The difference between the onshore norm group and the supervisors was also examined. *Involvement*, *Autonomy*, *Task Orientation*, *Innovation* and *Physical Comfort* were all rated significantly lower by the supervisors than the onshore norm group. *Control* and *Work Pressure* were both rated significantly higher by the supervisors than the norm group. These differences are not surprising given the strong safety orientation offshore and the consequent need for strict rules and controls. These findings are also corroborated by the qualitative comments made in section 4.4.1.

The influence of the supervisory perceptions of the work environment on the performance measure was examined. *Involvement* (r=.38, p<.01) and *Innovation* (r=.38, p<.01) showed significant correlations with the performance measure. This may suggest that the better performing supervisors perceive they have subordinates who are very committed to their jobs. Secondly, constant change as a result of commercial pressures is evident offshore and this finding may suggest that the supervisor who understands the changes in the work environment is a higher performing supervisor.

The peer nomination scores and the supervisory perceptions of the work environment were also examined. *Innovation* (r=.32, p<.05) only significantly correlated with the supervisor's peer nominations. This finding suggests, as with the appraisal ratings, that those supervisors who perceive change positively are rated as high performing supervisors.

Respondents were asked *What has been the single biggest change in the offshore oil industry in recent years?* The percentage responses are shown below.

Response	% of total responses
HSE/Cullen Inquiry	62.7
Outsourcing to Service Companies	18.6
Permit to Work (PTW)	6.7
cutbacks in manpower	5
Increasing financial constraints	1.7
new technology	1.7
more listening by management	1.7
Improved work conditions	1.7

Respondents were asked *What two suggestions would you make to improve the life offshore?* The percentage responses are shown below.

Response	% of total responses
better relaxation facilities	32
better cabin accommodation	28
worker involvement	8
work only 12 hours	6.7
increase leave cycle	6.7
more money	5.3
take TVs out of cabins	2.7
more phones to phone home	2.7

Quicker response from onshore, reduce paperwork, technical courses run onshore, improve safety profile were other suggestions.

Performance Predictions

It was anticipated that high scores for *Involvement* would predict effective job performance and this was ratified (r=.39, p<.01). The remaining effective job performance predictions; *Task Oriented, Supervisor Support* and *Work Pressure* did not discriminate supervisory performance.

6.5.1.1 Stress of the job

Stress associated with the role of the supervisor was assessed using a five point scale. The responses are described in Table 6.13.

Table 6.13
Stress of the job as supervisor

Item labels	% Rating each item (m=3.5, s.d.=0.8)
Not at all stressful	2
Rarely stressful	3.9
Mildly stressful	45.1
Considerably stressful	41.2
Extremely stressful	7.8

The majority of the sample rate the role of the supervisor as fairly stressful, in fact 49% judged their job as *considerably* or *extremely stressful.* This is similar to a finding by Flin & Slaven (1993) who surveyed 134 OIMs and found that 47% considered their job to be *considerably or extremely stressful.* In a earlier study of stress levels of Shell Expro Staff by Gann, Corpe and Wilson (1990) they found that there was no difference at JG5 (supervisors level) between onshore and offshore staff. Using a standard mental health questionnaire they found that 15% of this offshore group were scoring at a level suggesting "clinically significant anxiety" and 22% at a level suggesting "clinically significant depression". The stress scores were correlated with the performance measure and analysis suggests that there is not a strong association between the stress rating and performance (r=.-14, p=.35).

The respondents were asked *What is the biggest cause of stress for most offshore supervisors?* The percentage responses are shown below.

Response	% of total responses
to progress work	41
hours of work	19.7
Safety	12.1
the work environment	7.5
meeting budgets	6
being away from home	4.5
man management	4.5
trying to find work when there is none	3
PTW	1.5

The respondents were asked *What is it that worries most offshore supervisors?* The percentage responses are described below.

Response	% of total responses
an accident	31.4
safety	22.2
failing to meet targets	16.6
too many changes	11.1
Unemployment	5.5
motivating workforce	5.5
loss of control as supervisor	3.7
getting a quick enough response from onshore	1.8
the weather	1.8

DISCUSSION

Given the inherent difficulties of the offshore work environment, it is not surprising that the physical surroundings are rated by the supervisors as not contributing to a pleasant work environment. However, the sample do describe some suggestions that they feel would improve the situation. Better relaxation facilities and better cabin accommodation are their two main solutions. The finding from the Work Environment Scale concerning the high degree of urgency to get jobs done is corroborated by the qualitative finding that "to progress work" is the biggest source of stress for most offshore workers. Current management driven empowerment initiatives, across the offshore industry, which are intended to increase the intrinsic value of offshore work may have little success changing the attitudes of the offshore employees who rate the environment as highly structured and having little variety. The supervisors judged that the Cullen Inquiry and resulting legislation as the single biggest change in the offshore environment.

6.6 LEADERSHIP

This section contained a series of open questions and a standard leadership questionnaire. The open questions were designed to allow the supervisor to describe what he or she felt were effective supervisory behaviours, and the structured questionnaire was used to provide a quantitative perspective of the leadership style of the supervisor. In completing the leadership questionnaire the respondent was asked to rate himself or herself on a five point scale as to how frequently they displayed the type of behaviour described in each statement. The higher the mean score, the more of the leadership behaviour is displayed. The leadership questionnaire contained 87 leadership behaviour statements. The results for the Multifactor Leadership Questionnaire are described in Table 6.14 followed by the supervisor's responses from four open questions concerning effective leadership styles.

Table 6.14
The Multifactor Leadership Questionnaire (Bass & Avolio, 1993)

MLQ Factors	Descriptors	No. of items	Mean	St.Dev	r7	r8
Attributed Charisma	Extent of charisma associated to leadership behaviour	8	2.6	0.5	.28	.16
Idealised Influence	Builds confidence and trust; attracts a following; has much referent power	10	2.7	0.7	.27	.05
Inspirational Leadership	Raises expectations and beliefs concerning the mission and vision	10	2.4	0.5	.3 *	.22 *
Intellectual Stimulation	Challenges old assumptions and stimulates new ideas	10	2.7	0.5	.2	.06
Individual Consideration	Determines individual needs and raises them to higher levels	10	2.7	0.5	.21	.03
Contingent Reward	Clarifies objectives and exchanges rewards for performance	9	2.1	0.7	.13	.03
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Active	7	2.2	0.7	.41 **	.37 *
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Passive	7	0.9	0.6	.3 *	.18
Laissez-faire leadership	Is not around when needed	7	0.5	0.4	.15	.19
Extra effort	Extra effort generated by leader	3	2.8	0.8	.18	.06
Effectiveness	Leader's perceived effectiveness	4	2.7	0.5	.05	-.11
Satisfaction	Satisfaction with one's leadership	2	3.2	0.5	-.12	-.31 *

(**p<.01, * p<.05)

As a group, the supervisors scored highest on three transformational items: *idealised influence, intellectual stimulation* and *individual consideration*, and lowest on the *laissez-faire* item. The scores obtained for each dimension from the Multifactor Leadership Questionnaire were correlated with the job performance measure. *Inspirational Leadership* (r=.3, p<.05) and *Management by Exception (Active)* (r=.42, p<.01), both positively correlated with job performance.

The leadership style that appears most effective is where the supervisor takes an active role in the reinforcement of standards and uses discipline and negative criticism to encourage compliance (management by exception, 'active'). However, a transformational approach to leadership can co-exist with such attributes. High scores on the *Inspirational leadership* dimension also reflect a higher performing supervisor. This leadership factor describes a supervisor who uses emotional appeals and visionary language to encourage the team to work towards mutually desirable goals. For example, a supervisor who encourages each individual technician to recognise the need for the bureaucracy of the offshore environment such as permit to work (PTW) and company

codes of practice, but aims to go beyond these requirements and makes it a goal of completing a task as safely as possible so that the whole platform is safe even if it means working unpaid after shift.

The peer nomination scores and the leadership scores were also examined. Management by exception 'active' ($r=.28$, $p<.05$), idealised influence ($r=.35$, $p<.01$), individual consideration ($r=.31$, $p<.05$) and inspirational leadership ($r=.37$, $p<.01$) all significantly correlated with the supervisor's peer nominations. This indicates more strongly than the appraisal scores that supervisors who are rated by their peers as high performing supervisors are similarly exhibiting the key leadership behaviours from Bass' Transformational model i.e., transactional leadership augmented by three of the four 'Is' of transformational leadership.

The respondents were asked *What three characteristics would define a large group of effective supervisors?* The percentage responses are shown below.

Response	% of total responses
Assertive	13.5
Talkative	12.1
good man management skills	12.1
Committed to job	9.4
self motivated	8.1
good debating skills	8.1
job experience	8.1
decision makers	6.7
similar personality	6.7
good listeners	5.4
Interested in material possessions	4
honest/reliable	2.7
ability to get work done	2.7

The respondents were asked *From your own experience what was it that an effective supervisor does which others do not?* The percentage responses are shown below.

Response	% of total responses
Motivates his team	15.8
listening skills	14.5
gets to know team individually	13.1
plans and organises	11.9
Discusses job with team	10.5
accepts responsibility	9.2
mutual respect "no stripes in swamp"	7.8
makes decisions	3.9
good coach	3.9
gets results	2.6
gets overall picture	2.6
gives his all	2.6
stays calm	1.3

The respondents were asked *If you could do whatever you liked without penalty, what leadership style would you choose and how would you describe it?* The percentage responses are shown below.

Response	% of total responses
be more personal, create better relationships	14
be firm but fair	14
create incentives for team	12.2
group leadership style	10.5
Supervise by example	10.5
would not change	10.5
Democratic style	8.7
be more forceful, direct and autocratic	7
create interest in job	5.2

Build long term goals, concentrate on results, open forum with team every 3 months, and *have flexitime structure offshore* were the other responses.

The respondents were asked *What is it that is most critical to being an excellent first line supervisor?* The percentage responses are shown below.

Response	% of total responses
man management skills	20.7
know the capabilities of workforce	17.2
helps the workforce to alleviate problems	8.7
Supervisor's self motivation	8.7
broad technical knowledge	8.7
Response under pressure	6.9
Motivates team	6.9
Organisation	6.9
rapid decision and action	5.1
sense of humour	3.4
safety awareness	3.4
working across teams	1.7
attention to detail	1.7

The results of these four questions show that man-management was perceived as the most critical skill of an excellent supervisor. Knowing the capabilities of the workforce, helping the workforce to alleviate problems, self motivation and broad technical knowledge were factors that the sample felt would be relevant to being an excellent supervisor. 'Motivation', 'listening' and 'getting to know team' were the top three attributes that the sample of supervisors felt were exhibited by effective supervisors when they themselves were being supervised.

Performance Predictions

There were mixed results for these leadership predictions. *Inspirational leadership,* a variable of transformational leadership was not anticipated to be a predictor of effective leadership but it did discriminate. The other transformational items did not discriminate supervisory performance with the appraisal measure, but

three out of four items were effective when measured against the peer nomination scores (*intellectual stimulation* did not discriminate). *Management by Exception 'Active'*, a variable of transactional leadership was correctly predicted to be an effective discriminator of supervisory performance. It was predicted that high scores of laissez-faire type leadership would result in lower scores of job performance, but none of the correlations was significant and therefore the predictions were inconclusive.

6.7 COMPARISON BETWEEN OPERATOR AND CONTRACTOR SUPERVISORS

The data set was also split between operator and contractor supervisors and differences between these groups are also examined. This is consistent with the approach adopted by Sutherland (1994) who studied the differences in occupational stress between these two groups. Results for the platform UK1 split by operator and contractor are described below. (The correlations with the performance measure are calculated using a data set of 14 for the operators and 37 for the contractors).

There were no differences between the operator and contractor groups on any of the biodata dimensions. This indicates that any differences between the two groups are not simply due to differences in the groups' biodata. There was, however, a significant correlation between the length of service of a contractor supervisor in their current role and the performance measure ($r=.46$, $p<.05$). This may suggest, for example, that contractor superiors are rating their longest serving supervisors as higher job performers and may reveal more about a long serving offshore supervisor/subordinate relationship than actual job performance.

Table 6.15
Operator and Contractor differences for appraisal data

Group	n	mean	sd	t
Operator	14	29.45	5.3	
Contractor	37	30.62	4.4	-.72

(**p<.01, * p<.05)

The table indicates that there was no difference between superiors of the groups in using the appraisal instrument of their supervisors.

Table 6.16
Operator and Contractor differences for stress

Group	n	mean	sd	t	r7
Operator	14	4.0	0.68		-.71*
Contractor	37	3.3	0.74	3.09*	-.54*

(**p<.01, * p<.05)

The results of this t-test indicate that there is a significant difference in stress between the two groups on platform UK1. The contractor supervisors rate their role as less stressful than the operator supervisors. This result is directly opposite to previous findings in the offshore industry using this short stress question (Sutherland, 1994), and may indicate how the offshore working environment has changed in recent years. Both groups correlate significantly with the performance measure. These results suggest that regardless of employer, the higher performing supervisors rate their role as less stressful than poorer performing supervisors.

Comparisons of job satisfaction scores showed no significant differences between operator and contractors with the exception of physical work conditions. The contractor supervisors were more satisfied than the operator supervisors with the physical work conditions. This finding, as with the stress score, may indicate the changing offshore culture between operators and contractors. There was also a strong correlation between the operator supervisors satisfaction with the industrial relations between management and workers and the performance measure and this suggests that higher performing operator supervisors are more satisfied with the industrial relations within their company than poorer performing supervisors. While this is a logical finding, the data set for this analysis is small and this result should be treated with some caution.

The comparison of the WES scores between operator and contractor supervisors describe some interesting differences. *Work Pressure* is significantly different with the operator supervisors perceiving that there is more pressure on them from management to get work done (7.7 vs 6.3, $t=3.1$, $p<.01$). *Control* and *Physical Comfort* are both rated significantly higher by the contractor supervisors than the operator supervisors (7.8 vs 6.8, $t=-3.1$, $p<.01$, and 2.3 vs 1.1, $t=-3.2$, $p<.01$, respectively). The finding for Physical Comfort is corroborated by the similar finding obtained with the job satisfaction questionnaire. Not surprisingly, *Control* is rated more highly by the contractor supervisors which validates the traditional perception of "partnership" that can be found offshore i.e., the operator may use the language of "partnering" but in reality aims to dictate to the contracting companies. Only *Work Pressure* (contractor supervisors) correlated significantly with the performance measure ($r=-.61$, $p<.01$) indicating that higher performing supervisors perceived the need to get work done was not dominating their role as a supervisor.

There were no differences between the groups or significant correlations between personality style or the system motivators and the performance measure.

There were no differences between the groups for each of the leadership dimensions. However, there were some significant correlations with the performance measure. *Contingent Reward* correlated significantly with job performance for the operator supervisors scores ($r=.73$, $p<.05$) indicating that high performing operator supervisors have a transactional leadership style i.e., work objectives are reached by the follower because of mutually agreed rewards from the leader. *Management by Exception (Active)* correlated significantly with the performance scores ($r=.48$, $p<.01$) for the contractor supervisors and the performance measure. This finding suggests that high performing contractor supervisors take corrective action and intervene when there are issues

at the workplace. *Management by Exception (Passive)* also correlated significantly with the contractor performance measure ($r=.39$, $p<.05$) suggesting that high performing contractor supervisors do not take corrective action until problems become really critical. This finding is contrary to the previous one and as such may require further investigation to understand these inconsistent results.

There were no significant correlations with the performance measure and each of the attitude scale dimensions. Significant differences, however, were found on three of the items between the mean scores for contractor and operator supervisors. Item 4 (*The offshore supervisor is not a key figure in reducing loss and increasing profit*) was "disagreed more strongly" by the operator supervisors than the contractor supervisors suggesting that operator supervisors perceived themselves as more critical to business performance than the contractor supervisors. Item 15 (*The existence of the Offshore Safety Division of the HSE does not make me feel safe*) was "disagreed more strongly" by the contractor supervisors. This could indicate that the Offshore Safety Division has made the contractor supervisors feel safer about their roles. Item 16 (*If supervisors did not take risks now and again the job would not get done*) was "disagreed more strongly" by the contractor supervisors. This finding suggests that operator supervisors more than contractor supervisors believe that there is an element of taking risks in order to progress work.

DISCUSSION

The differences between the operator supervisors and the contractor supervisors were examined above. Although the sample sizes were small, there were some interesting findings between the groups. As there were no biodata differences between the groups, the differences are likely to be related to the influence of the employer. The leadership results are slightly contradictory. While further investigation is required, the small sample sizes may be exaggerating this finding. The supervisors' ratings of stress highlighted one of the key differences between a contractor and an operator. As stated earlier, this finding is diametrically opposed to the findings of Sutherland (1994) and may reveal the impact that 'partnering' and outsourcing has had on the changing role of an operator supervisor. Both the job satisfaction questionnaire and the WES explained the finding that the physical work environment was rated more positively by the contractor than the operator supervisors. This may indicate that there has been an improvement in the working conditions of the contractor supervisors and again may be attributable to the changing work culture offshore. Furthermore, the attitudinal scales appear to highlight more differences between the groups. These findings may have been influenced by the changing offshore culture i.e., the impact of raising the status of the outsourcing companies.

6.8 MULTIVARIATE ANALYSIS

6.8.1 Regression Analysis

A regression analysis is a statistical technique that allows an assessment of the relationship between a dependent variable and several independent variables and allows a prediction of the dependent variable to be calculated on the knowledge of one or several independent variables.

Using stepwise multiple regression (Norussis, 1994), the appraisal score (as the dependent variable) and several job satisfaction items (as the independent variables) were classified in Table 6.17.

Table 6.17
Stepwise Multiple Regression of the Performance Measure on 4 Job Satisfaction Items

Independent Variable	B	Beta	t	Significance
Your chance of promotion (item 10)	-1.61	-.44	-3.4	.001
The recognition for good work (item 4)	1.23	.45	3.16	.003
Your opportunity to use your abilities (item 8)	.85	.32	2.19	.03
Your hours of work (item 13)	-.63	-.25	-2.1	.03
constant	26.44		10.6	.000
R Square = .461	Adj R square = .407	Overall F = 8.56	p<.000	

The regression analysis presented in Table 6.17 indicates that the job satisfaction items 10, 4, 8, and 13 explain 46% of the variation in the dependent variable. Item 10, 'Your chance of promotion' contributes most to this model. The multiple regression equation of performance upon job satisfaction items 10, 4, 8, and 13 is *Performance = - 1.61x (item 10) + 1.23 x (item 4) + .85 x (item 8) - .63 x (item 13) + 26.44.*

Therefore, higher performing supervisors will rate their satisfaction with 'the recognition of good work' and 'the opportunity to use their abilities' **high** and rate their satisfaction with 'chances of promotion' and 'hours of work' **low**. There is, however, some intercorrelation between these job satisfaction items (item 4 and item 10, r .352 p<.01; item 8 and item 10, r=.478, p<.01; item 4 and item 8, r=.478, p<.01) suggesting the items are measuring similar constructs.

Adding the variable Management by Exception 'Active' (MBEA) to the stepwise multiple regression analysis has the following effect. This is shown in Table 6.18.

Table 6.18
Stepwise Multiple Regression of the Performance Measure on 4 Job Satisfaction Items and MBEA.

Independent Variable	B	Beta	t	Significance
Your chance of promotion (item 10)	-1.6	-.45	-3.9	.000
The recognition for good work (item 4)	1.12	.41	3.1	.003
MBEA	.26	.31	2.9	.006
Your opportunity to use your abilities (item 8)	.77	.29	2.1	.038
Your hours of work (item 13)	-.55	-.22	-2.1	.046
Constant	23.11		9.03	.000
R Square = .56	Adj R square = .50	Overall F = 9.82	p<.000	

The regression analysis presented in Table 6.18 indicates that the job satisfaction items 4, 8, 10 and 13 and MBEA explain 56% of the variation in the dependent variable. Item 10 'Your chance of promotion' contributes most to this model. The multiple regression equation of performance upon job satisfaction items 4, 8, 10 and 13 and MBEA is

$$Performance = .26 \times (MBEA) + 1.12 \times (item\ 4) + .77 \times (item\ 8) - 1.63 \times (item\ 10) - .55 \times (item\ 13) + 23.11.$$

Based upon this equation, higher performing supervisors will rate their levels of job satisfaction in the same manner as outlined above but additionally will score high levels of Management By Exception 'active'.

6.8.2 Intercorrelations among independent variables

While the correlational results outlined throughout the chapter focus on the level of association between the performance measures i.e., appraisal measures and to a lesser extent peer nominations (dependent variables), there were some interesting intercorrelations among the independent variables. These correlations indicate the degree of overlap between the variables suggesting that they were measuring similar constructs. Some examples are described below.

Innovation correlated significantly with the transactional item *management by exception* 'active' ($r=.29$, $p<.05$) indicating that supervisors who perceived the workplace as one where there is an emphasis on change are also supervisors who are active at the workplace and make decisions. *Innovation* also correlated significantly with the transformational leadership variables; *idealised influence* ($r=.4$, $p<.01$), *inspirational leadership* ($r=.6$,

p<.01), *intellectual stimulation* (r=.56, p<.01) and *individual consideration* (r=.43, p<.01). These findings indicate that supervisors who perceive themselves as transformational in their approach to supervision perceive that the workplace is a changing environment. This is also consistent with the dimensions of the MLQ. *Autonomy* correlated significantly with *individual consideration* (r=.33, p<.05). This finding suggests that those supervisors who felt empowered to make their own decisions also perceived themselves as workplace leaders that motivated their employees through focussing on individual needs. *Work pressure* and *stress* correlated significantly (r=.51, p<.01) demonstrating that those who felt that the pressure of work dominates the workplace also perceived their role to be stressful.

6.9 CONCLUSION

These results obtained from the Offshore Supervisor Survey confirmed many, although not all, of the performance predictions. This sample had the benefit of two job performance variables and therefore certain findings were more robust. For example, the WES item, *innovation,* identified that supervisors who perceive change positively were rated as high performing supervisors by both peers and superiors. Also the two leadership items, *inspirational leadership* and *management by exception* '*active*' were found to discriminate high performing supervisors by both performances measures, thus consolidating these findings. However, most of the findings for the other independent variables such as job satisfaction, biodata, work environment and leadership produced weak correlations and from correlational analysis only it was difficult to describe the definitive qualities of an effective supervisor. When the regression equations were calculated for these variables a selection of job satisfaction items and *management by exception* '*active*' explained 56% of the variation in the dependent variable. This equation, therefore, indicates more accurately the factors that may describe an effective supervisor on this platform. In general, the quantitative analysis produced results that by default describe the difficulties of undertaking this type of investigation. In particular, collecting the outcome measure of supervisory performance using peer nominations was extremely contentious in this environment and weak correlations between the dependent and independent variables also demonstrate the problems with this type of field research. However, the qualitative responses may reveal clearer insights into what makes an effective supervisor. For example, "getting to know team", "listening skills" and a general upgrading of man-management skills indicate the areas where supervisors feel would improve their effectiveness. Finally, the comparison between the operator and contractor supervisors divulged aspects about the changing offshore environment. The significant differences between the two groups such as the mean scores for *work pressure* and *physical comfort* indicate a significant departure from previous findings offshore suggesting that there has been a deterioration in the working conditions of operator supervisors, and consequently an improvement in the contractors perception of the environment. These issues, in particular, show that while there are many aspects of the offshore environment that remain static, there has been an evolution in the offshore culture.

The next chapter describes the findings for the second offshore platform in the main survey; UK2. The layout is similar in order to allow easy comparisons between the two UK platforms.

CHAPTER SEVEN

OFFSHORE SUPERVISORS QUESTIONNAIRE

PLATFORM UK2 RESULTS

7.1 INTRODUCTION

This chapter presents the results from Platform UK2 and follows the same structure as the previous chapter. The sample is small with only 30 subjects and therefore some of the statistical results should be treated with caution.

The results will be divided into the following sections:

Section 7.2: Biodata and supervisory job performance measure

Section 7.3: Offshore elements and supervision

Section 7.4: Motivation

Section 7.5: The offshore environment

Section 7.6: Leadership

Section 7.7: Comparison between Operator and Contractor Supervisors

Section 7.8: Multi-variate analysis

7.2 GENERAL BACKGROUND INFORMATION

7.2.1 Demographic data

Data were obtained from three groups of employees working on UK2. These were:

- senior supervisors on the platform such as OIM, Operations Supervisor and the Services Company Superintendent (n=6)
- first line supervisors that worked for the operating company (n=9) and the service company (n=21). The supervisors' job titles included shift supervisor, discipline engineer, foreman and senior charge hand (n=30)
- technicians from each of the disciplines on the platform that reported to the various first line supervisors described above (n=41)

For the purposes of this discussion the group of first line supervisors will normally be referred to as simply "supervisors". None of the supervisors was female.

The modal age of the sample is between 36 and 47 years of age, with 73% of respondents being aged between 36 and 47 years of age. (See Table 7.1)

Table 7.1
Age supervisor

Age (years)	24-29	30-35	36-41	42-47	48-53	53 and over
Sample n(30)	0	2	12	10	5	1

Respondents were asked how long they had worked offshore. Of the 30 responses, 77% had over 10 years of offshore experience (m=13.13, s.d.=4.8, see Table 7.2).

Table 7.2
Length of time working offshore

Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15
n	0	0	0	0	2	1	2	0	2	4	1	2	1	2	3	10

The supervisors were asked how long they had been in their current post of supervisor. Of the 30 responses, 37% had been in post for 2 to 4 years (m=2.78, s.d.= 2.88, see Table 7.3).

Table 7.3
Time in current post as supervisor

Years	1	2	3	4	5	6	>7
N	12	5	4	4	1	1	3

Respondents were asked how long they had been in supervisory roles. Of the 30 responses, 40% had between 3 and 6 years of supervisory experience (m=8.4, s.d.= 6.7, see Table 7.4).

Table 7.4
Overall tenure as supervisor

Years	1	2	3	4	5	6	7	8	9	10	11	12	13	>13
n	3	1	3	4	4	2	0	0	0	2	1	2	0	8

Respondents were asked *What qualifications do you have?* The pre-coded categories and the percentage responses for each were as follows: *School leaver* (6.7), *Oilfield qualifications only* (26.7), *School leaver and oilfield* (10), *City and Guilds* (40), *ONC, HNC or HND* (16.6), *University Degree* (0) and *Other e.g., Masters Certificate* (0).

Respondents were asked *Who did they report to?* The percentage responses are listed in order of highest to lowest: Mechanical/Instrument/Electrical Engineer (33.3), Maintenance Supervisor (23.3), OIM (16.7), Senior Contractor Supervisor (13.3) and Operations Supervisor (13.3).

The influence of various demographic variables (age, offshore experience and specific supervisory experience) on the performance measure (see section 7.2.2) was examined. Only length of time within current post as a supervisor correlated significantly with the performance measure ($r=.56$, $p<.01$). None of the other demographic variables correlated significantly with the performance measure.

The analysis suggests that the more experienced supervisor, in terms of years, the better the supervisor's performance rating. Finally, there are other aspects of the data which are of interest. The sample have considerable offshore work (c360 years) and offshore supervisory experience (c220 years), and the majority of supervisors have some form of technical qualification such as City and Guilds, ONC, HNC or HND.

Performance Predictions

The performance predictions made in section 5.4.1 for these variables were only partially accurate. "Length of time within current post as a supervisor", as predicted, discriminates supervisory performance but the other variables such as "education and training" were not found to be useful predictors of performance.

7.2.2 SUPERVISORY Job Performance Measure

Job performance ratings were collected for only 27 of the 30 supervisors. Three of the supervisors had recently joined Platform UK2 and it was felt by their respective immediate superiors that it would be unfair to rate their performance without having a better understanding of their abilities as supervisors. Table 7.5 describes the frequency and range for each of the performance indicators.

Table 7.5
Supervisors performance ratings

JOB PERFORMANCE INDICATORS	1 Poor	2	3	4	5	6 Outstanding	Mean	St. Dev
Technical/Specialist ability	0	1	2	18	4	2	4.1	0.8
Communication	0	0	11	13	2	1	3.7	0.7
Relationships	0	0	9	13	4	1	3.9	0.8
Managing Resources	0	0	14	9	4	0	3.6	0.7
Influencing others	0	1	15	7	4	0	3.5	0.8
Initiative	0	1	12	10	3	1	3.7	0.9
Change Oriented	0	1	13	6	6	1	3.7	0.9
Overall job performance	0	0	7	15	4	1	4.0	0.8
Total	0	4	83	91	31	7		

Cronbach's co-efficient alpha was calculated to determine the internal reliability of the appraisal scale. The closer the co-efficient is to 1, the greater the reliability. For the appraisal scale, Cronbach's α =.926.

The job performance scale was used to discriminate different levels of performance among supervisors. The ratings indicate that in the majority of cases, supervisors were given ratings around the mid-point of the scale 3-4 i.e., 'Performance is entirely satisfactory' to 'A good performer'. Although the raters were asked to use the full length of the scale, there is a degree of central tendency within the ratings. As a group, the highest ratings were for *Technical/Specialist ability* and the lowest ratings were for *Influencing Others*.

7.2.3 IMAGES Occupational Personality Questionnaire

The IMAGES occupational personality questionnaire (SHL, 1993) produces scores on six personality dimensions and a social desirability scale. The range of possible raw scores is from 8 to 40. A list of the means and standard deviations on each dimension for the 30 supervisors is provided in Table 7.6. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the norm data means. The p. values indicate levels of significance of the t-values. The r values indicate the level of correlation between the personality dimensions and the performance measures.

Table 7.6
IMAGES Occupational Personality Questionnaire

Dimension	Description	Mean	St. Dev.	Norm Group Mean	St. Dev.	t	r_7	r_8
Imaginative	conceptual, innovative	27.8	4.4	25.1	4.6	-3.4 **	-.22	-.02
Methodical	detail conscious, conscientious	30.2	3.8	27.6	4.6	-3.8 **	-.37*	-.47*
Achieving	ambitious, sets sights high	25.9	4.3	22.4	4.6	-3.5 **	-.06	.04
Gregarious	socially confident, outgoing, aspects of affiliative	25.2	5.1	25.2	5.2	0	-.05	.01
Emotional	relaxed, worrying, tough minded	28.4	4.3	27.5	5.4	-1.1	-.11	-.03
Sympathetic	caring, warm, supportive	29.3	4.1	28.4	4.1	-1.2	.03	-.04

(**p<.01, * p<.05)

As a group, the offshore supervisors scored highest on *Methodical* and lowest on the *Gregarious* dimensions. Comparisons were examined statistically using the scale means and standard deviations for a general population

sample norm group (n=2,951) provided by SHL (1993). Sample means for the dimensions *Imaginative*, *Methodical* and *Achieving* were all significantly higher than the norm population at the .01 level of significance. *Gregarious, Emotional* and *Sympathetic* showed no significant differences with the norm data.

The UK2 supervisor's can be broadly described in the same manner as the UK1 supervisors as their scores are very similar. As a group the supervisors are more conceptually oriented (*Imaginative*) than the comparison group. This suggests that they have a preference for intellectually demanding tasks and perceive themselves as "ideas people". The supervisors score higher on the *Methodical* dimension than the norm group. The supervisors are ideally suited to jobs that require fine checking and attention to detail which are arguably necessary qualities in a safety conscious offshore work environment. Perhaps, not surprisingly, the supervisors score more highly than the onshore norm group on the *Achieving* dimension. High scorers on this dimension have a tendency to be ambitious, better leaders and have more drive, and as result are more likely to be promoted. The sample also score more highly on the *Gregarious* dimension. Higher scorers on this dimension are usually found in jobs that require a significant amount of interpersonal skills.

Methodical ($r=-.37$, $p<.05$) was the only one of the personality dimensions that correlated significantly with the performance measure. This suggests supervisors on UK2 who are less detail conscious receive higher performance ratings. While this may not seem an immediate strength such a pattern does have benefits. For example, it has been argued that low methodical scorers have a better sense of proportion, "helicopter vision" as opposed to "not being able to see the wood for the trees" than high methodical scorers (SHL, 1993).

Performance Predictions

It was anticipated that the supervisor's scores for the personality dimensions would predict effective job performance. In reality, many of the predictions were inconclusive as the correlations were small and not significant. However, the prediction for *methodical* (high scores should predict effective job performance) is of interest because a low score on this dimension appears to result in effective job performance.

7.3 OFFSHORE ELEMENTS AND SUPERVISION

This next section comprised of a series of open questions and a 20 item Likert style questionnaire. The open questions concerned the supervisor's current skills and training, and the Likert scale addressed other factors that affect the supervisor's role such as leadership style, offshore safety and commercial concerns. The percentage responses from each of the items from the Likert scale are described in Table 7.7. Higher means represent more "agreement" with the statement indicated by 'P' or more "disagreement" with the statement indicated by 'N' (the scores were reversed for negative statements).

Table 7.7
Offshore elements and supervision

	Supervision and safety variable	% rating Agree strongly	% rating Agree slightly	% rating Neither agree nor disagree	% rating Disagree slightly	% rating Disagree strongly	M	S.D
1	The offshore supervisor's main role is that of "fire fighter" e.g., making many rapid decisions. (P)	23.3	16.7	3.3	23.3	33.3	2.7	1.6
2	The offshore supervisor is pushed from above and below at the same time. (N)	40	33.3	6.7	16.7	3.3	3.9	1.2
3	On this platform, the best supervisory style is authoritarian with autocratic overtones. (P)	43.3	33.3	6.7	13.3	3.3	4	1.2
4	The offshore supervisor is not a key figure in reducing loss and increasing profit. (P)	3.3	6.7	0	16.7	73.3	4.5	1
5	The best supervisory style is to provide firm leadership and direction to employees. (P)	80	20	0	0	0	4.8	0.4
6	The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers. (N)	36.7	46.7	3.3	10	3.3	4	1.1
7	The offshore supervisor should not have the status of first line management. (P)	6.7	3.3	3.3	36.7	50	4.2	1.1
8	Staff reports and appraisals do not invite honest and open criticism within the offshore environment. (N)	6.7	20	0	50	23.3	3.6	1.2
9	The offshore supervisor should be a team leader. (N)	53.3	40	0	6.7	0	4.4	0.8
10	Man management is less important than technical ability for an effective offshore supervisor. (P)	43.3	33.3	0	23.3	0	4	1.2
11	Offshore supervisors play a key role in the success of "partnering". (N)	56.7	36.7	6.7	0	0	4.5	0.6
12	The future success of the offshore oil industry depends heavily on the man management skills of all offshore supervisory roles. (P)	50	33.3	6.7	3.3	6.7	4.2	1.1
13	Most supervisors sometimes tum a blind eye to the strict safety rules to get the job done on time. (N)	0	23.3	6.7	33.3	36.7	3.8	1.2
14	The permit to work system ensures safe working. (N)	23.3	40	3.3	33.3	0	3.5	1.2
15	The existence of the Offshore Safety Division of the HSE does not make me feel safe. (P)	0	36.7	10	33.3	20	3.4	1.2
16	If supervisors did not take risks now and again the job wouldn't get done. (P)	0	23.3	0	26.7	50	4	1.2
17	Most accidents just happen – there's not much you can do about it. (P)	70	16.7	3.3	6.7	3.3	4.4	1.1
18	The permit to work system is just a way of covering people's backs. (N)	0	16.7	3.3	26.7	53.3	4.2	1.1
19	There are certainly risks working offshore. (N)	66.7	23.3	3.3	6.7	0	4.5	0.9
20	The role of the supervisor is not dominated by paperwork. (P)	10	6.7	0	43.3	40	2	1.3

All of the supervisors agreed, either slightly or strongly, that the best supervisory style is to provide firm leadership and direction to employees (item 5) and over ninety percent agreed, either slightly or strongly, that the offshore supervisor should be a team leader (item 9). Almost ninety percent disagreed, either slightly or strongly, that the offshore supervisor should not have the status of a first line manager (item 7). Over ninety percent agreed, either slightly or strongly, that offshore supervisors play a key role in the success of

"partnering"

(item 11). 'Permit to Work', the 'Offshore Safety Division' and other offshore safety issues were rated positively by the sample.

Respondents were asked *What do you consider to be your best asset in your supervisory capacity?* The percentage responses are described below.

Response	% of total responses
Developing relationships with team	22.5
job experience	22.5
planning and organisation	19.4
Achieving results	9.6
Communication	6.5
Motivational skills	6.5
team leader	3.2
Delegation	3.2
attitude to safety	3.2
personal initiative	3.2

Respondents were asked *Have you had non-technical training for your role as a supervisor?* The percentage responses are listed below.

Response	% of total responses
No	30.5
basic supervisory skills	22.2
NVQ/ECITB	16.7
health & safety	11.1
team leaders course	8.3
intemal company course	5.5
man management training	5.5

Respondents were asked *What skills do you use currently that were taught at the training course (mentioned above)?* The percentage responses are described below.

Response	% of total responses
not applicable	42.5
dealing with people	22.5
Safety	10
Communication skills	7.5
report writing	5
try not to be emotional	5
problem solving	2.5
time management	2.5
legal courses	2.5

Respondents were asked *Which aspects of your job do you feel require more training and why?* The percentage responses are described below.

Response	% of total responses
Supervisory training	34.2
Technical skills	31.6
Commercial/budget training	10.5
Legislation	10.5
None	7.8
Planning	5.2

The respondents were asked *Have you had any commercial or financial training as a supervisor?* The majority of supervisors had no previous training (82.9%) with the remainder responding that they had attended an internal company course. The respondents were asked *Do you wish to be promoted and if yes into which position?* The responses were *Yes, next one up (77.8%)* and *No (22.2%)*

As a group, a large majority of UK2 supervisors have had no commercial or financial training. Over 60% of the supervisors described "developing relationships with team", "job experience" and "planning and organisation" as the three most important assets in their supervisory capacity, and yet only about a third of supervisors had any training that reflected these needs. "Supervisory training" was the most requested training need with "technical skills" the next highest response.

7.4 MOTIVATION

This next section examined motivation. It included a standard scale on job satisfaction (Warr et al, 1979), a group of open questions concerning supervision and two closed questions that asked the respondent to rate six "system motivators" on a six point scale.

7.4.1 Job Satisfaction

The 16 item self report job satisfaction scale by Warr, Cook & Wall (1979) was used to measure both extrinsic and intrinsic factors associated with job satisfaction for both supervisors and technicians (n=41). A detailed breakdown is shown in Table 7.8. Each respondent was asked to rate how satisfied or dissatisfied they felt on a seven point Likert type scale. Total scores are obtained by summing the ratings. This table also shows norm data and t-values which were calculated to test differences between the offshore supervisors and the technicians.

Table 7.8

Job Satisfaction (Warr et al, 1979)

Job Satisfaction	Supervisors (n=30)		Technicians (n=41)				
ITEMS	Mean	St. Dev.	Mean	St. Dev.	t	r_7	r_8
The physical work conditions	3.8	1.4	4.6	1.1	3.1 **	.13	.17
The freedom to choose your own method of working	4.4	1.3	4.9	1.4	2.1 *	.13	.09
Your fellow workers	5.1	1.1	5.9	0.8	4 **	-.22	-.14
The recognition you get for good work	4.4	1.6	4.4	1.4	0	-.19	-.14
Your immediate boss	5.4	1.5	5.5	1.2	0.4	-.21	-.05
The amount of responsibility you are given	5.1	1.5	4.7	1.3	-1.5	-.16	-.03
Your rate of pay	4.8	1.3	2.9	1.6	-8.1 **	-.35	-.24
Your opportunity to use your abilities	4.7	1.5	4.4	1.5	-1.1	-.12	-.05
Industrial Relations between management and workers in your firm	3.2	1.7	2.5	1.4	-2.3 **	-.01	-.07
Your chance of promotion	4.0	1.7	3.4	1.3	-2	-.24	-.12
The way your firm is managed	3.5	1.1	3.5	1.2	0	.06	-.02
The attention paid to suggestions that you make	4.4	1.3	4.1	1.5	-1.3	-.06	.02
Your hours of work	4.4	1.4	4.6	1.2	0.3	.18	.09
The amount of variety in your job	4.9	1.1	4.1	1.5	-0.8	.03	.14
Your job history	4.8	1.3	4.4	1.2	-1.7	.22	.21
Your job as a whole	4.8	1.2	4.7	1.2	-0.5	.06	-.05
Total score	71.7	22	68.6	20.8	-0.3		

(**p<.01, * p<.05)

As a group, the offshore supervisors score highest on the item that concerns their satisfaction associated with their immediate boss and score lowest on the item that concerns their satisfaction with the industrial relations between management and workers in your firm. As a group, the technicians score highest on the item that concerns their satisfaction associated with their fellow workers and score lowest in terms of satisfaction of the industrial relations between management and workers in your firm. There were some significant differences between the supervisors and the technicians scores. Item 1 (physical work conditions), item 2 (freedom to choose own method of working) and item 3 (your fellow workers) were rated with higher levels of satisfaction by the technicians than the supervisors. Item 7 (rate of pay) and item 9 (industrial relations) were both rated

with lower levels of satisfaction by the technicians than the supervisors. None of the job satisfaction items correlated significantly with the performance measure.

Performance Predictions

It was predicted that high scores on certain job satisfaction items would predict effective job performance. However, none of the correlations was significant and therefore the predictions were inaccurate.

7.4.2 System Motivators

Each supervisor was asked to rate on a seven point scale from 1 (not effective) to 7 (highly effective) the following items: promotion, disciplinary action, praise, pay, job pride and time off in terms of how effective each were as a motivating influence on them as supervisors. Their responses are described in Table 7.9

Table 7.9
System motivators

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	10	10	10	10	23.3	23.3	13.3	4.5	1.9
Disciplinary action	20	33.3	16.7	10	6.7	10	3.3	2.9	1.7
Praise	3.3	3.3	3.3	10	26.7	46.7	6.7	5.2	1.3
Pay	0	3.3	0	13.3	30	26.7	26.7	5.6	1.2
Job Pride	0	0	0	0	16.7	53.3	30	6.1	0.7
Time off	0	10	3.3	6.7	36.7	23.3	20	5.2	1.5

The supervisors perceive that *promotion, praise, pay, job pride* and *time off* were effective as motivators for in the offshore environment for the role of a supervisor. *Disciplinary action* was not perceived as a an effective motivator.

The supervisors were also asked to rate the same items in terms of how effective they were at motivating their shift or team at work. These responses are described in Table 7.10.

Table 7.10
System motivators

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	13.3	3.3	13.3	26.7	33.3	6.7	3.3	4.0	1.6
Disciplinary action	13.3	30	13.3	10	16.7	16.7	0	3.4	1.7
Praise	0	3.3	10	13.3	20	40	13.3	5.2	1.3
Pay	0	3.3	3.3	10	20	30	33.3	5.7	1.3
Job Pride	0	0	3.3	20	36.7	33.3	6.7	5.2	1
Time off	0	6.7	0	3.3	23.3	53.3	13.3	5.6	1.2

The supervisors rated the motivators in terms of how they motivated their technicians and the results were broadly similar, *Pay* was seen as the most effective motivator and *Disciplinary action* was seen as the least.

The respondents were asked *What are the main challenges for an offshore supervisor in terms of motivating his shift?* The percentage responses are described below.

Response	% of total responses
uncertainty of future/mistrust of management	31.6
getting team involved in jobs	26.3
routine of the place	21
job security	13.1
team building	7.8

The respondents were asked *What motivates you to perform better? (Give 3 examples) Job satisfaction, praise* and *promotion* accounted for 57.9% of the total responses. The other 42.1% included comments such as *money, meeting targets, more responsibility, building a good team, time off* and *being self motivated.* Intrinsic motivators such as job satisfaction, praise and promotion were described by the majority of supervisors as factors that would motivate them to perform better. These findings, like those of UK1, concur with another recent offshore study on motivation by Burnett and Tait (1996).

7.5 THE OFFSHORE ENVIRONMENT

7.5.1 The work environment scale

The Work Environment Scale is an instrument for measuring the social -psychological characteristics of a work setting (Moos & Billings, 1991). A list of the means and standard deviations on each dimension for 30 supervisors is provided in Table 7.11. The range of possible raw scores is from 1 to 9. This table also shows norm data and t-values which were calculated to test differences between the offshore sample and the norm data means, and correlations between work environment and performance.

Table 7.11
The Moos et al (1974) work environment scale

Offshore	Supervisors (N=30)			Norm	Group			
Dimension	Description	Mean	St. Dev.	Mean	St. Dev.	t	r_7	r_8
Relationship								
Involvement	the extent to which employees are concerned about and committed to their jobs	4.7	2.4	5.9	1.4	2.7 *	-.27	-.28
Peer Cohesion	the extent to which employees are friendly and supportive of one another	6.1	1.6	5.7	1.2	-1.4	-.37	-.31
Supervisor Support	the extent to which management is supportive of employees and encourages employees to be supportive of one another	5.9	1.9	5.7	1.4	-0.6	-.09	-.13
Personal Growth								
Autonomy	the extent to which employees are encouraged to be self sufficient and to make their own decisions	4.0	1.3	5.5	1.2	6.3 **	-.01	-.04
Task Orientation	the degree of emphasis on good planning, efficiency, and getting the job done	5.1	2.0	5.9	1.3	2.2 *	.14	-.03
Work Pressure	the degree to which the pressure of work and time urgency dominate the job milieu	5.9	1.9	4.4	1.4	-4.3 **	-.35	-.39*
System Maintenance and System Change								
Clarity	the extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated	5.0	1.7	5.6	1.3	2	.04	.03
Control	the extent to which management uses rules and pressures to keep employees under control	7.6	1.2	4.9	1.3	-12 **	.04	-.06
Innovation	the degree of emphasis on variety, change, and new approaches	4.1	2.0	4.4	1.5	0.8	-.57 **	-.46*
Physical Comfort	the extent to which the physical surroundings contribute to a pleasant work environment	2.6	1.3	4.9	1.4	9.7 **	.15	.29

(**p<.01, * p<.05)

As a group, *control* and *peer cohesion* are the highest scoring dimensions. The supervisors describe the offshore work environment as having a high degree of pressure and time urgency to get jobs done, they feel that management use rules and pressure to keep employees under control, there is little emphasis on variety and change, and the physical surroundings do not contribute to a pleasant work environment but there is a strong cooperative culture between the employees.

The difference between the onshore norm group and the supervisors was also examined. *Involvement*, *Autonomy*, *Task Orientation* and *Physical Comfort* were all rated significantly lower by the supervisors than the norm group. These particular items provide quantitative evidence to support many of the qualitative comments about the offshore work environment such as "difficult to push staff offshore" and the need for "better cabin accommodation". *Control* and *Work Pressure* were both rated significantly higher by the supervisors than the norm group. These findings again re-iterate the differences between an onshore and an offshore work environment particularly because of the work cycle and the safety demands required offshore.

The influence of the supervisory perceptions of the work environment on the performance measure was examined. Only *Innovation* ($r=-.56$, $p<.01$) showed a significant correlation with the performance measure. This may suggest that the higher performing supervisor perceives that the work environment is not changing and is remaining stagnant. Alternatively, lower performers may be particularly sensitive to ongoing changes.

Respondents were asked *What has been the single biggest change in the offshore oil industry in recent years?*

The percentage responses are reported below.

Response	Frequency
HSE/Cullen Inquiry	55.3
increasing financial constraints	21
Outsourcing	15.8
PTW	2.7
safety is getting worse	2.7
leave cycle has got worse	2.7

Respondents were asked *What two suggestions would you make to improve the life offshore?* The table percentage responses are described below.

Response	% of total responses
better relaxation facilities	25
work only 12 hours	20
better cabin accommodation	17.5
worker involvement	17.5
quicker response from onshore	5
reduce paperwork	5

More money, take TVs out of cabins, too much change and *more phones to phone home* were other suggestions.

Performance Predictions

It was anticipated that high scores for *Task Oriented, Involvement, Supervisor Support,* and *Work Pressure* would predict effective job performance, but due to small and non significant correlations these predictions were not fulfilled.

7.5.2 Stress of the job

Stress associated with the role of the supervisor was asked using a five point scale. The responses are described in Table 7.12.

Table 7.12
Stress of the job as supervisor

Item labels	% Rating each item (m=3.3, s.d.=0.7)
Not at all stressful	3.3
Rarely stressful	3.3
Mildly stressful	56.7
Considerably stressful	36.7
Extremely stressful	0

The majority of the sample rate the role of the supervisor as fairly stressful, in fact 36.7% judged their job as *considerably stressful.* The stress scores were correlated with the performance measure and analysis shows that there was not a significant association between the stress rating and performance.

The respondents were asked *What is the biggest cause of stress for most offshore supervisors?* The percentage responses are described below.

Response	% of total responses
to progress work	28.6
the work environment	14.3
Changing priorities	14.3
amount of paperwork	14.3
hours of work	11.4
man management	8.6
nothing really	2.8
team not being competent	2.8
office accommodation	2.8

The respondents were asked *What is it that worries most offshore supervisors?* The percentage responses are described below.

Response	% of total responses
safety	60.7
Helicopter travel	9
Unemployment	9
Legislation and paperwork	9
being away from home	3
the unknown	3
failing to meet targets	3
the weather	3

The supervisors rated the Cullen Inquiry and resulting legislation as the single biggest change in the offshore environment. Given the inherent difficulties of the offshore work environment, it is not surprising that the physical surroundings are rated by the supervisors as not contributing to a pleasant work environment. The supervisors main suggestions for improving life offshore are to improve relaxation facilities, work only 12 hours at a time, have better cabin accommodation and increase worker involvement. As with UK1, "progressing work" was mentioned as the biggest source of stress for most offshore workers.

7.6 LEADERSHIP

This section contained a series of open questions and a standard leadership questionnaire. The open questions were designed to allow the supervisor to describe what he or she felt were effective supervisory behaviours, and the structured questionnaire was used to provide a quantitative perspective of the leadership style of the supervisor. In completing the leadership questionnaire the respondent was asked to rate himself or herself on a five point scale as to how frequently they displayed the type of behaviour described in each statement. The higher the mean score, the more of the leadership behaviour is displayed. The leadership questionnaire contained 87 leadership behaviour statements. The results for the Multifactor Leadership Questionnaire are described in Table 7.13 followed by the supervisor's responses from four open questions concerning effective leadership styles.

Table 7.13
The Multifactor Leadership Questionnaire (Bass & Avolio, 1993)

MLQ Factors	Descriptors	No. of items	Mean	St.Dev	r_7	r_8
Attributed Charisma	Extent of charisma associated to leadership behaviour	8	2.7	0.5	-.08	-.07
Idealised Influence	Builds confidence and trust; attracts a following; has much referent power	10	2.8	0.5	-.18	-.22
Inspirational Leadership	Raises expectations and beliefs concerning the mission and vision	10	3.0	0.5	-.21	-.15
Intellectual Stimulation	Challenges old assumptions and stimulates new ideas	10	2.8	0.4	-.27	-.19
Individual Consideration	Determines individual needs and raises them to higher levels	10	2.7	0.5	-.41*	-.48*
Contingent Reward	Clarifies objectives and exchanges rewards for performance	9	2.4	0.6	-.07	-.24
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Active	7	2.3	0.6	-.54 **	-.52 **
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Passive	7	0.7	0.5	.25	.28
Laissez-faire leadership	Is not around when needed	7	0.5	0.5	-.06	-.06
Extra effort	Extra effort generated by leader	3	2.8	0.7	.16	.15
Effectiveness	Leader's perceived effectiveness	4	2.7	0.5	-.34	-.35
Satisfaction	Satisfaction with one's leadership	2	3.1	0.9	.11	.06

(**p<.01, * p<.05)

As a group, the supervisors scored highest on the transformational item, *inspirational leadership*, and lowest on the *laissez-faire* item. The scores obtained for each dimension from the Multifactor Leadership Questionnaire were correlated with the job performance measure. *Individual Consideration* (r=-.41, p<.05) and *Management*

by Exception 'Active' (r=.-54, p<.01) both negatively correlated with performance. Supervisors that obtain higher job performance ratings are scoring both lower on the transactional dimension, *management by exception 'active'* and the transformational dimension, *individual consideration.* The leadership style that appears most effective on this platform is where the supervisor allows the status quo to exist and when mistakes occur takes no action until the problem is really serious. This leadership style is combined with a leader who simultaneously takes little interest in the individual needs of his team. In other words, this leader is so detached from the workplace that it is arguable whether they have a leadership style that has any impact.

The respondents were asked *What three similar characteristics would define a large group of effective supervisors?* The percentage responses are described below.

Response	% of total responses
good communicators	23.5
technical knowledge	23.5
self assured	14.7
Extroverts	11.7
easy going	8.8
good company men	8.8
Ambitious	5.8
cynical about senior management	2.9

The respondents were asked *From your own experience what was it that an effective supervisor does which others do not?* The percentage responses are listed below.

Response	% of total responses
discusses job with team	32.3
plans and organises	14.7
accepts responsibility	11.8
motivates his team	11.8
mutual respect "no stripes in swamp"	8.8
uses experience	5.9
makes decisions	5.9
gets results	2.9
good delegators	2.9

The respondents were asked *If you could do whatever you liked without penalty, what leadership style would you choose and how would you describe it?* The percentage responses are listed below.

Response	% of total responses
be more personal, create better relationships	16.7
be firm but fair	16.7
open style no secrets	16.7
create incentives for team	11.1
group leadership style	8.3
supervise by example	8.3
create interest in job	8.3
Paternalistic	8.3
be more forceful, direct and autocratic	5.6

The respondents were asked *What is it that is **most** critical to being an excellent first line supervisor?* The percentage responses are listed below.

Response	% of total responses
know the capabilities of workforce	28.6
good leadership	14.3
response under pressure	10.7
broad technical knowledge	10.7
Organisation	10.7
rapid decision and action	7
safety awareness	3.6
helps the workforce to alleviate problems	3.6
Charisma	3.6
helicopter vision	3.6
attention to detail	3.6

The results of these four questions show that knowing the capabilities of the workforce is the most critical skill of an excellent supervisor. 'Good leadership', 'response under pressure', 'broad technical knowledge' and 'organisation' were the other main factors that the sample felt would be relevant to being an excellent first line supervisor. 'Discusses job with team', 'plans and organises', 'accepts responsibility' and 'motivates team' were the top four attributes that the sample of supervisors felt were exhibited by effective supervisors when they themselves were being supervised.

Performance Predictions

As with Chapter Six, there were mixed results for these leadership predictions. *Individual Consideration,* a variable of transformational leadership was not anticipated to be a predictor of effective leadership but low scores for this variable did discriminate supervisory performance. The other transformational items did not discriminate supervisory performance with the appraisal measure. *Management by Exception 'Active',* a variable of transactional leadership, was incorrectly found to be a discriminator of effective supervisory performance. In fact, low scores for this variable resulted in higher appraisal ratings on this platform. It was predicted that high scores of laissez-faire type leadership would result in lower scores of job performance, but none of the correlations was significant and therefore the predictions were inconclusive.

7.7 COMPARISON BETWEEN OPERATOR AND CONTRACTOR SUPERVISORS

The data set was also split between operator (n=9) and contractor (n=21) supervisors and differences between these groups are also examined. Results for the platform UK2 split by operator and contractor are described below. (The correlations with the performance measure are calculated using a data set of 7 for the operators and 21 for the contractors).

Table 7.14
Operator and Contractor differences for appraisal data

Group	n	mean	sd	t
Operator	7	30.6	6.8	
Contractor	21	30.2	5.2	0.15

(**p<.01, * p<.05)

The table indicates that there was no difference between the superiors of the groups in using the appraisal instrument of their supervisors.

There was not a significant difference between the groups in rating their roles as stressful. There was also no significant association between their scores for stress and the performance measure.

There are no differences between the groups on any of the biodata dimensions. There are, however, significant correlations between the length of service of a supervisor (Operator and Contractor) in their current role and the performance measure. This suggests that their superiors associate length of service as a supervisor with higher job performance which may indicate a cultural preference about the offshore industry i.e., that it is comfortable with familiarity and length of service has no direct relationship to job performance.

The operator supervisors were found to be more satisfied with the amount of variety in their jobs than contractor supervisors (5.8 vs 4.6, t=2.9, p<.01). This finding reflects the levels of job responsibility between the two groups as some of the operator supervisors will be in charge of the work undertaken by the contractor supervisors. There was also a significant negative correlation between the operator supervisor's satisfaction scores for *Your fellow workers* and the performance measure (r=-.78, p<.05). This suggests that the higher performing operator supervisors are less satisfied with their fellow workers, and while motivated, ambitious high performing supervisors may rate their fellow workers in this way. The data set is small and this result should be treated tentatively.

The comparison of the WES scores between operator and contractor supervisors describe some interesting differences. *Control* is significantly different (6.7 vs 7.9, t=-3.2, p<.01) with the contractor supervisors perceiving that upper management use more rules to keep employees under control than do operator supervisors. This finding is similar to the one described earlier with regard to the differences in job satisfaction. *Involvement* (contractor supervisors) positively correlated significantly with the performance measure (r=.59, p<.05) indicating that higher performing supervisors are more committed to their roles than poorer performing supervisors. *Innovation* ratings correlated significantly with both operator and contractor scores for performance. Higher performing operator supervisors perceived the working environment to be static and displayed little change (r=-.77, p<.05). On the contrary, higher performing contractor supervisors perceived that there was an emphasis on change and new approaches were encouraged (r=.59, p<.05). This finding may suggest distinct differences in management style between the two companies, although the data set is small and this finding should be regarded as illustrative rather than conclusive.

There were no significant differences between the groups for personality style. The operator supervisors scores for *Methodical* correlated negatively with the performance measure (r=-.75, p<.05) indicating that the less detailed conscious supervisor is a higher performing one. While addressing the small data set caveat, this finding is indicative of the culture on this platform where the operator supervisor is tasked more with "big picture" work issues than the contractor supervisors.

The contractor supervisors rated *Time Off* significantly higher (5.6 vs 4.2, t= -2.6, p<.05) as a *motivator* than the operator supervisors. Given that the offshore work cycles of operator personnel are generally more favourable than contractor personnel this is hardly a surprising finding. There were no significant correlations between these dimensions and the performance measure.

The contractor supervisors rated *Disciplinary Action* (3.8 vs 2.2, t=-2.5, p<.05) as a significantly more effective way of motivating their teams than the operator supervisors. This finding again highlights aspects of the offshore work culture as well as differences between the two groups. The contractor supervisors also rated *Time Off* (5.8 vs 4.9, t=-2.2, p<.05) as an effective *motivator* when motivating their teams. The reasons for this are probably similar to the one outlined above.

There were no differences between the groups for each of the leadership dimensions. However, there were some significant correlations between the operator supervisors and the performance measure. (None of the contractor supervisor scores significantly correlated with the performance measure). As mentioned earlier these findings have to be treated with some caution because of the small numbers involved in the analysis. *Idealised Influence (r=-.75, p<.05)*, *Inspirational Leadership (r=-.83, p<.05)*, *Individual Consideration (r=-.81, p<.05)* (Transformational) and *Management by Exception 'Active' (r=-.93, p<.01)* (Transactional) all correlated negatively with the performance measure. This suggests that this most effective leadership style on this platform for operator supervisors is contrary to the current trends in the leadership literature i.e., that a dictatorial, non-listening, aggressive task oriented leadership style receives higher performance ratings. These findings may illustrate more about the current work culture on this platform or even the management style of the superiors than the actual leadership style of the operator supervisors.

There was only one significant difference between the mean scores for the contractor and operator supervisors for the attitudinal scale. This was for item 6 (*The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers*) (4.3 vs 3.4, t=-2.1, p<.05) and indicates that the contractor supervisors perceive that the role of supervisor is becoming more and more man-management oriented. There were also some significant correlations between three of the item scores for the contractor supervisors and the performance measure. There were no significant correlations between the operator supervisors and the performance measure. Item 6 (*The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers*) negatively correlated with the performance measure (r=-.48, p<.05) suggesting that supervisors who perceived their role as retaining a hands-on technical component were rated as higher performers. Item 7 (*The offshore supervisor should not have the status of first-line management*) negatively correlated with the performance measure (r=-.51, p<.05) signifying as above that higher performing supervisors feel that the supervisor should remain supervising and not move up the management chain. Item 14 (*The permit to work system ensures safe working*) negatively correlated with the performance measure (r=-.57, p<.05) suggesting that those supervisors who disagreed with the statement received higher performance ratings. Perhaps their responses are implying that it is the application of the system that is important and not the system itself or even that high performing supervisors were not happy with the system.

7.8 MULTI-VARIATE ANALYSIS

7.8.1 Regression Analysis

Using stepwise multiple regression (Norussis, 1993), the appraisal score as the dependent variable and two independent variables, MBEA and WES "Innovation" were classified in Table 7.15.

Table 7.15
Stepwise Multiple Regression of the Performance Measure on MBEA and WES "Innovation"

Independent Variable	B	Beta	t	Significance
Innovation	-1.03	-.44	-2.6	.013
Management by Exception 'Active'	-.41	-.38	-2.3	.029
constant	37.18		13.16	.000
R Square = .46	Adj R square = .413	Overall F = 9.8		p<.000

The regression analysis presented in Table 7.15 indicates that the independent variables 'MBEA' and 'Innovation' explain 46% of the variation in the dependent variable. 'Innovation' contributes most to this model. The multiple regression equation of performance upon 'MBEA' and 'Innovation' is

Performance = -1.03 x (Innovation) -.41 x (MBEA) + 37.18.

Therefore, higher performing supervisors on UK2 will score both **low** for 'MBEA' and for 'Innovation'.

7.8.2 Intercorrelations among independent variables

As discussed in section 6.8.2, there were some interesting intercorrelations among the independent variables. These correlations indicate the degree of overlap between the variables suggesting that they were measuring similar constructs. Some examples found on UK2 are described below.

Work pressure correlated significantly with *intellectual stimulation* (r=.37, p<.05) indicating that supervisors who perceived the workplace as dominated by pressure to get things done were also supervisors who liked to challenge old methods and suggest new ones. *Task orientation* correlated significantly with *idealised influence* (r=.33, p<.05) suggesting that supervisors who perceived themselves as building trust among their employees with their 'charisma' also liked to emphasise good planning and getting the job done.

7.9 CONCLUSION

This results obtained from the Offshore Supervisor Survey were similar to the previous chapter, but there were some distinct differences. The findings for this sample were calculated using the traditional measure of performance i.e., superior appraisal ratings, and also given the small sample size, the findings should be treated with care. The performance predictions also had mixed results, and in particular, the leadership findings were contrary to the predictions.

On UK2, the results show that the effective supervisors display leadership behaviours that are counter intuitive. The workplace leaders are remote from the workplace and surprisingly for this environment show minor concern for the individuals in their teams. Furthermore, the finding for the WES item, *Innovation,* indicated that the higher performing supervisor perceives a work environment that is 'standing still' and combined with the leadership behaviours may indicate a more old fashioned style of supervision than exists on UK1. However, the qualitative responses from the supervisors reveal insights that are at odds with these quantitative findings. For example, "discussing job with team" and "accepts responsibility" describe behaviours more in tune with the leadership literature than with the findings from this platform.

"Length of time within current post as a supervisor", as predicted, discriminates supervisory performance but the other biodata variables were not found to be useful predictors of performance. It was anticipated that the supervisor's scores for the personality dimensions would predict effective job performance, but only the prediction for *methodical* (high scores should predict effective job performance) is of interest because a low score on this dimension appears to result in effective job performance. The predictions for the other key independent variables; job satisfaction, and the other WES items were not significant and therefore the predictions were inaccurate. When the regression equations were calculated for these variables 'MBEA' and 'Innovation' explained 46% of the variation in the dependent variable. This equation, therefore, indicates more accurately the factors that may describe an effective supervisor on this platform, and in this example, the higher performing supervisors on UK2 will score both low for 'MBEA' and for 'Innovation'. Finally, the comparison between the operator and contractor supervisors divulged aspects about the changing offshore environment. One finding in particular outlines potential differences in the management style of the two companies. The WES item, *Innovation,* significantly correlated with the performance measure for both groups but in opposite directions suggesting distinct differences in the management style of the two companies.

The next chapter describes the findings for the third offshore platform in the main survey; N1. The layout is similar in order to allow easy comparisons between the three platforms.

CHAPTER EIGHT

OFFSHORE SUPERVISORS QUESTIONNAIRE

PLATFORM N1 RESULTS

8.1 INTRODUCTION

This chapter presents the results from the Norwegian Platform, N1, and follows a similar structure as the previous two chapters. A comparison between the UK sample and the Norwegian sample will be discussed in Chapter Nine. The sample is small with 19 subjects and therefore some of the statistical results should be treated with caution. All of the standard scales were translated into Norwegian, including the appraisal scale, except for the personality questionnaire.

8.2 GENERAL BACKGROUND INFORMATION

8.2.1 Demographic data

Data were obtained from the groups of employees working on platform N1 operated by Company E. Three separate groups made up the data set. These were:

- the offshore installation manager on the platform (n=1)
- first line supervisors that worked for the operating company (n=19)
- technicians from each of the disciplines on the platform that reported to the first line supervisors described above (n=20)

For the purposes of this discussion the group of first line supervisors will normally be referred to as simply "supervisors". All the supervisors were employed by the operator, Company E.

All the supervisors interviewed were male. The majority were aged between 42-53 years. (See Table 8.1)

Table 8.1
Age of supervisor

Age (years)	30-35	36-41	42-47	48-53	53 and over
Sample n(19)	2	6	3	7	1

Respondents were asked how long they had worked offshore, 53% had between 10 and 13 years of offshore experience (m=12.12, s.d.= 4.01, see Table 8.2).

Table 8.2
Length of time working offshore

Years	5	6	7	8	9	10	11	12	13	14	15	>15
n	1	0	0	3	1	1	1	5	3	0	1	3

The supervisors were asked how long they had been in their current post of supervisor. Of the 19 responses, 42% had been in post for five to more than eight years (m=7.66, s.d.=5.1, see Table 8.3).

Table 8.3
Time in current post as supervisor

Years	1	2	3	4	5	6	7	>8
N	1	3	0	1	2	1	3	8

Respondents were asked how long they had been in supervisory roles, 42% had between 9 and 14 years of supervisory experience (m=11.3, s.d.=7.04, see Table 8.4).

Table 8.4
Overall tenure as supervisor

Years	1	2	3	4	5	6	7	8	9	10	11	12	>13
n	1	1	0	1	2	0	1	0	2	2	2	0	7

Respondents were asked *What qualifications do you have?* The pre-coded categories and the percentage responses for each were as follows: *School leaver* (15.8), *Oilfield qualifications only* (21.1), *School leaver and oilfield* (26.3), *ONC, HNC or HND, (Norwegian equivalent)* (15.8), *University Degree* (10.5) and *Other eg Masters Certificate* (10.5). Respondents were asked *Who did they report to?* The percentage responses for each category are listed in order of highest to lowest: *OIM* (90), *Operations Supervisor* (5) and *Electrical Supervisor* (5).

The influence of various demographics variables (age, offshore experience and specific supervisory experience) on the performance measure (see section 8.2.2) was examined. None of the demographic variables correlated significantly with the performance measure. The analysis suggests that biodata such as age (r=.02) and experience (r=.-13) are not predictors of high job performance ratings.

Performance Predictions

As stated above, the findings showed that "Previous work experience" and "Education and training" were not predictors of effective job performance.

8.2.2 Supervisory job performance measure

Job performance ratings were collected for all 19 supervisors. Table 8.5 describes the frequency and range for each of the performance indicators.

Table 8.5
Supervisors' performance ratings

JOB PERFORMANCE INDICATORS	1 Poor	2	3	4	5	6 Outstanding	Mean	St. Dev
Technical/Specialist ability	0	0	1	2	10	6	5.1	0.8
Communication	1	4	5	6	3	0	3.3	1.2
Relationships	0	5	2	5	5	2	3.8	1.4
Managing Resources	0	0	3	11	4	1	4.2	0.8
Influencing others	1	3	9	2	4	0	3.3	1.1
Initiative	0	3	4	8	4	0	3.7	1.0
Change Oriented	2	6	5	4	2	0	2.9	1.2
Overall job performance	0	3	4	4	8	0	3.9	1.1
Total	4	24	33	42	40	9		

Cronbach's co-efficient alpha was calculated to determine the internal reliability of the appraisal scale. The closer the co-efficient is to 1, the greater the reliability. For the appraisal scale, Cronbach's α =.847. The job performance scale was used to discriminate different levels of performance among supervisors. The spread of data appears to indicate the scale served its purpose. As a group, the highest ratings were for *Technical/Specialist ability* and the lowest ratings were for *Change Oriented.* Both UK1 and UK2 scored similarly for the highest ratings but each platform recorded different indicators for low ratings; UK1 - Initiative, UK2 - Influencing Others.

8.2.3 IMAGES Occupational Personality Questionnaire

The IMAGES occupational personality questionnaire (SHL, 1993) produces scores on six personality dimensions and a social desirability scale. The range of possible raw scores is from 8 to 40. A list of the means and standard deviations on each dimension for the 19 supervisors is provided in Table 8.6. This table also shows norm data and *t*-values which were calculated to test differences between the offshore sample and the norm data means. The *p*. values indicate levels of significance of the *t*-values. The *r* values indicate the level of correlation between the personality dimensions and the performance measures. (r_7 is the composite performance measure and r_8 is the overall performance measure.) Unless otherwise stated the composite performance measure (r_7) is only discussed in the text.

Table 8.6
IMAGES Occupational Personality Questionnaire

Dimension	Description	Mean	St. Dev.	Norm Group Mean	St. Dev.	t	r_7	r_8
Imaginative	conceptual, innovative	25.5	3.9	25.1	4.6	-0.4	.03	-.07
Methodical	detail conscious, conscientious	29.4	3.5	27.6	4.6	-2.2 *	.08	.01
Achieving	ambitious, sets sights high	23.8	3.8	22.4	4.6	-1.6	.06	.18
Gregarious	socially confident, outgoing, aspects of affiliative	24.9	3.9	25.2	5.2	0.3	.01	-.14
Emotional	relaxed, worrying, tough minded	24.9	3.8	27.5	5.4	2.9 **	.14	.25
Sympathetic	caring, warm, supportive	29.3	4.1	28.4	4.1	-0.9	.27	.15

(**p<.01, * p<.05)

As a group, the offshore supervisors scored highest on *Methodical* and lowest on the *Achieving* dimensions. As with the UK sample, comparisons were examined statistically using the scale means and standard deviations for a general UK population sample norm group (n=2,951) provided by SHL (1993). *Methodical* was significantly higher than the norm population at the .05 level of significance. This finding suggests that they are ideally suited to jobs that require fine checking and attention to detail, which are arguably necessary qualities in a safety conscious offshore work environment. *Emotional* was significantly lower than the norm population at the .01 level of significance. The supervisors scored lower on the *Emotional* dimension than the norm group. "Low scorers" are relaxed and untroubled. It is argued that they are difficult to motivate because they do not worry about things, but simultaneously they are unlikely to 'crack' under tense conditions. *Imaginative*, *Achieving*, *Gregarious* and *Sympathetic* showed no differences with the UK norm data. It should be noted that these are British norm data and not Norwegian.

None of the personality ratings correlated significantly with the performance measure. The analysis suggests that personality as measured by IMAGES is not predicting high job performance ratings. *Sympathetic* (r=.27) was the highest correlation with the performance measure but it was not significant.

Performance Predictions

As stated above, the findings showed that the personality dimensions of IMAGES were not predictors of effective job performance.

8.3 OFFSHORE ELEMENTS AND SUPERVISION

This next section comprised of a series of open questions and a 20 item Likert style questionnaire. The open questions concerned the supervisor's current skills and training, and the Likert scale addressed other factors that affect the supervisor's role such as leadership style, offshore safety and commercial concerns. The percentage responses from each of the items from the Likert scale are described in Table 8.7. Higher means represent more "agreement" with the statement indicated by 'P' or more "disagreement" with the statement indicated by 'N' (the scores were reversed for negative statements).

Table 8.7
Offshore elements and supervision

	Supervision and safety variable	% rating Agree strongly	% rating Agree slightly	% rating Neither agree nor disagree	% rating Disagree slightly	% rating Disagree strongly	M	SD
1	The offshore supervisor's main role is that of "fire fighter" e.g making many rapid decisions. (P)	15.8	21.1	0	42.1	21.1	2.7	1.5
2	The offshore supervisor is pushed from above and below at the same time. (N)	42.1	31.6	0	26.3	0	3.9	1.2
3	On this platform, the best supervisory style is authoritarian with autocratic overtones. (P)	57.9	26.3	5.3	10.5	0	4.3	1.0
4	The offshore supervisor is not a key figure in reducing loss and increasing profit. (P)	0	21.1	0	31.6	47.4	4.1	1.2
5	The best supervisory style is to provide firm leadership and direction to employees. (P)	31.6	47.4	5.3	15.8	0	3.9	1.0
6	The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers. (N)	21.1	42.1	15.8	15.8	5.3	3.6	1.2
7	The offshore supervisor should not have the status of first line management. (P)	10.5	15.8	10.5	31.6	31.6	3.6	1.4
8	Staff reports and appraisals do not invite honest and open criticism within the offshore environment. (N)	10.5	31.6	5.3	52.6	0	3	1.2
9	The offshore supervisor should be a team leader. (N)	73.7	26.3	0	0	0	4.7	0.5
10	Man management is less important than technical ability for an effective offshore supervisor. (P)	0	15.8	31.6	36.8	15.8	3.5	1.0
11	Offshore supervisors play a key role in the success of "partnering". (N)	42.1	42.1	5.3	5.3	5.3	4.1	1.1
12	The future success of the offshore oil industry depends heavily on the man management skills of all offshore supervisory roles. (P)	26.3	52.6	5.3	15.8	0	3.9	1.0
13	Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time. (N)	0	5.3	0	36.8	57.9	4.5	0.8
14	The permit to work system ensures safe working. (P)	47.4	47.4	0	5.3	0	4.4	0.8
15	The existence of the Offshore Safety Division of the HSE does not make me feel safe. (Norwegian equivalent) (P)	5.3	10.5	5.3	57.9	21.1	3.8	1.1
16	If supervisors did not take risks now and again the job wouldn't get done. (P)	15.8	31.6	15.8	31.6	5.3	2.8	1.2
17	Most accidents just happen – there's not much you can do about it. (P)	73.7	21.1	0	5.3	0	4.7	0.8
18	The permit to work system is just a way of covering people's backs. (N)	0	0	0	10.5	89.5	4.9	0.3
19	There are certainly risks working offshore. (N)	15.8	5.3	5.3	68.4	5.3	3.4	1.2
20	The role of the supervisor is not dominated by paperwork. (P)	5.3	15.8	10.5	47.4	21.1	2.4	1.2

Most of the supervisors felt that the best supervisory style is to provide firm leadership and direction to employees (item 5) and all of the supervisors agreed, either slightly or strongly that the offshore supervisor should be a team leader (item 9). A significant majority (84.2%) agreed, either slightly or strongly that on their

platform (item 3) *the best supervisory style is authoritarian with autocratic overtones.* 'Permit to work', the 'Offshore Safety Division' and other safety issues were rated positively by the sample.

Respondents were asked *What do you consider to be your best asset in your supervisory capacity?* The percentage responses are listed below.

Response	% of total responses
Job experience	55
Honesty	15
Planning and organisation	10
Listening	10
loyalty to team & company	5
safety practices	5

Respondents were asked *Have you had any non-technical training for your role as a supervisor?* The percentage responses are described below.

Response	% of total responses
Consultants supervisor course	50
Supervisory courses	22.2
None	22.2
Leadership training from airforce	5.6

Respondents were asked *What skills do you use currently that were taught at the training course (mentioned above)?* The percentage responses are listed below.

Response	% of total responses
None	26
Negotiation & discussion	17
Employee involvement	16
Motivation	10.5
being open and honest	10.5
decision making	5
time management	5
Confidence	5
Planning	5

Respondents were asked *Which aspects of your job do you feel require more training and why?* The percentage responses are described below.

Response	% of total responses
Nothing	43
new equipment	19
Coaching skills	19
Leadership	10
computer training	4
industrial relations	4

The respondents were asked *Have you had any commercial or financial training as a supervisor?* The responses were yes (53%) and no (47%).

The respondents were asked *Do you wish to be promoted and if yes into which position?* The responses were *No* (50%), *Depends on location* (28%) and *No, if it meant moving to Stavanger* (22%).

As a group, the supervisors have had some sort of man-management training and the majority have had some commercial training. Almost half of the supervisors were satisfied with their current skill profile and although some were ambitious, the majority did not want promotion as it may mean relocation to Stavanger.

8.4 MOTIVATION

This next section examined motivation. It included a standard scale on job satisfaction (Warr et al, 1979), a group of open questions concerning supervision and two closed questions that asked the respondent to rate six "system motivators" on a six point scale.

8.4.1 Job satisfaction

The 16 item self report job satisfaction scale by Warr, Cook & Wall (1979) was used to measure both extrinsic and intrinsic factors associated with job satisfaction for both supervisors and technicians (n=20). A detailed breakdown of the scores for both is shown in Table 8.8. Each respondent was asked to rate how satisfied or dissatisfied they felt with various aspects of their job on a seven point Likert type scale. Total scores are obtained by summing the ratings. This table also shows norm data and *t*-values which were calculated to test differences between the offshore supervisors and the technicians. The *p*. values indicate levels of significance of the *t*-values. The *r* values indicate the level of correlation between the supervisor's job satisfaction items and the performance measures.

Table 8.8
Job Satisfaction (Warr et al, 1979)

Job Satisfaction	Supervisors (n=19)		Technicians (n=20)				
ITEMS	Mean	St. Dev.	Mean	St. Dev.	t	r7	r8
The physical work conditions	5.4	0.9	4.6	1.1	-3.9 **	.09	.09
The freedom to choose your own method of working	5.7	0.4	4.9	1.4	-8.7 **	-.13	.05
Your fellow workers	5.8	1.0	5.9	0.8	0.4	.38	.22
The recognition you get for good work	4.8	1.2	4.4	1.4	-1.4	.06	.06
Your immediate boss	5.3	0.8	5.5	1.2	1.1	.07	.27
The amount of responsibility you are given	5.8	0.5	4.7	1.3	-9.6 **	-.34	-.22
Your rate of pay	5.6	1.0	2.9	1.6	-11.8 **	-.11	.01
Your opportunity to use your abilities	5.3	1.2	4.4	1.5	-3.3 **	-.11	-.22
Industrial Relations between management and workers in your firm	4.5	1.3	2.5	1.4	-6.7 **	.21	.22
Your chance of promotion	4.8	1.3	3.4	1.3	-4.7 **	-.11	-.09
The way your firm is managed	4.4	1.2	3.5	1.2	-0.9	.14	.15
The attention paid to suggestions that you make	5.3	0.8	4.1	1.5	-6.5 **	-.01	.11
Your hours of work	5.6	1.2	4.6	1.2	-3.6 **	-.25	-.25
The amount of variety in your job	5.1	0.9	4.1	1.5	-4.8 **	.16	.02
Your job history	5.5	0.8	4.4	1.2	-6 **	.07	-.06
Your job as a whole	5.5	0.5	4.7	1.2	-6.9 **	-.07	.01
Total score	84.4	15	68.6	20.8	-4.6 **		

(**p<.01, * p<.05)

The supervisors are more job satisfied than the technicians. There is a significant difference between the supervisors' and the technicians' total mean scores at the 99% confidence interval. The supervisors rate their satisfaction with almost all the items significantly higher than the technicians. As a group, the offshore supervisors score highest on the items that concern the satisfaction associated with their fellow workers and the amount of responsibility they are given. They score lowest in terms of satisfaction in terms of the way that their firm is managed. The mean score of the technicians' group (n=20) was 68.6 which was significantly lower than the supervisors at 84.4 ($p<.01$). As a group, the technicians score, like the supervisors, highest on the item that concerns their satisfaction associated with their fellow workers and score lowest in terms of the industrial relations between management and workers in your firm. When job satisfaction and performance were correlated none of the items were significant.

Performance Predictions

As stated above, the findings showed that none of the job satisfaction items was a predictor of effective job performance.

8.4.2 System Motivators

Each supervisor was asked to rate on a seven point scale from 1 (not effective) to 7 (highly effective) the following items: promotion, disciplinary action, praise, pay, job pride and time off in terms of how effective each were as a motivating influence on them as supervisors. Their responses are described in Table 8.9

Table 8.9
System motivators for supervisors

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	5.3	10.5	5.3	26.3	31.6	15.8	5.3	4.4	1.5
Disciplinary action	0	15.8	31.6	21.1	15.8	15.8	0	3.8	1.3
Praise	0	5.3	0	26.3	47.4	15.8	5.3	4.8	1.1
Pay	0	0	26.3	5.3	42.1	26.3	0	4.7	1.1
Job Pride	0	0	0	5.3	21.1	68.4	5.3	5.7	0.7
Time off	0	0	5.3	15.8	31.6	47.4	0	5.2	0.9

The supervisors perceive that *promotion, praise, pay, job pride* and *time off* were effective as motivators in the offshore environment for the role of a supervisor. *Disciplinary action* was not perceived as an effective motivator.

The supervisors were also asked to rate the same items in terms of how effective they were at motivating their shift or team at work. These responses are described in Table 8.10.

Table 8.10
System motivators for technicians

System motivator	% rating 1	% rating 2	% rating 3	% rating 4	% rating 5	% rating 6	% rating 7	M	SD
Promotion	0	5.3	10.5	36.8	36.8	5.3	5.3	4.4	1.1
Disciplinary action	0	26.3	21.1	36.8	5.3	10.5	0	3.5	1.3
Praise	0	5.3	0	21.1	42.1	31.6	0	4.9	1.0
Pay	0	0	5.3	5.3	52.6	36.8	0	5.2	0.8
Job Pride	0	0	0	5.3	36.8	42.1	15.8	5.7	0.8
Time off	0	0	10.5	15.8	10.5	52.6	10.5	5.4	1.2

The supervisors rated the motivators in terms of how they motivated their technicians and the results were broadly similar, *Job Pride* was seen as the most effective motivator and *Disciplinary action* was seen as the least.

The respondents were asked *What are the main challenges for an offshore supervisor in terms of motivating his shift?* The table below outlines the percentage responses which are listed in order of highest to lowest.

Response	% of total responses
well motivated as it is	27
inconsistent higher management	16
time from idea to action is too long	11
no feedback	11

Making the team understand company philosophy, external environment, planning and organisation, bypass rigid system to give overtime, everything, paperwork and *budgets* were the other responses.

The respondents were asked *What motivates you to perform better? (Give 3 examples) Feedback, job pride, feelings of success* and *pay* accounted for 61% of the total responses. The other 39% included comments such as *spare time, showing results, teamwork, improving safety, trust, taking your own decisions* and *praise.*

While many of the supervisors are well motivated, higher management were criticised for being a factor that prevents a supervisor from motivating his shift. The *time it takes to implement ideas takes too long* and *no feedback* were other challenges that prevented the supervisor from motivating his shift. Intrinsic motivators such as feedback, job pride and feelings of success were described by the majority of supervisors as factors that would motivate them to perform better.

8.5 THE OFFSHORE ENVIRONMENT

8.5.1 The work environment scale

The Work Environment Scale is an instrument for measuring the social-psychological characteristics of a work setting (Moos & Billings, 1991).

A list of the means and standard deviations on each dimension for the 19 supervisors is provided in Table 8.11. The range of possible raw scores is from 1 to 9. This table also shows norm data and *t*-values which were calculated to test differences between the offshore sample and the norm data means. The *p*. values indicate levels of significance of the *t*-values. The *r* values indicate the level of correlation between the work environment dimensions and the performance measures.

Table 8.11
The Moos et al (1974) work environment scale

Offshore	Supervisors (N=19)			Norm	Group			
Dimension	Description	Mean	St. Dev.	Mean	St. Dev.	t	r_7	r_8
Relationship								
Involvement	the extent to which employees are concerned about and committed to their jobs	7.9	0.7	5.9	1.4	-12.4 **	-.38	-.35
Peer Cohesion	the extent to which employees are friendly and supportive of one another	7.7	1.2	5.7	1.2	-7.3 **	.38	.31
Supervisor Support	the extent to which management is supportive of employees and encourages employees to be supportive of one another	7.5	0.9	5.7	1.4	-8.7 **	.09	-.01
Personal Growth								
Autonomy	the extent to which employees are encouraged to be self sufficient and to make their own decisions	5.6	1.1	5.5	1.2	-0.4	-.05	-.12
Task Orientation	the degree of emphasis on good planning, efficiency, and getting the job done	7.3	0.9	5.9	1.3	-6.8 **	-.19	-.07
Work Pressure	the degree to which the pressure of work and time urgency dominate the job milieu	5.5	2.5	4.4	1.4	-1.9	-.01	-.26
System Maintenance and System Change								
Clarity	the extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated	5.2	1.5	5.6	1.3	1.2	-.03	.01
Control	the extent to which management uses rules and pressures to keep employees under control	6.3	0.9	4.9	1.3	-6.8 **	-.28	-.31
Innovation	the degree of emphasis on variety, change, and new approaches	7.0	1.4	4.4	1.5	-8.1 **	-.05	.17
Physical Comfort	the extent to which the physical surroundings contribute to a pleasant work environment	5.1	2.1	4.9	1.4	-.41	-.04	.12

(**p<.01, * p<.05)

As a group, the supervisors describe the offshore work environment as employing staff who are committed to their roles, there are generally strong feelings of friendship and support among these staff, and while there is a strong emphasis on tasks, management control and getting work done there is also a high degree of innovation in the workplace. All these variables were significantly different from the norm group. The influence of the supervisory perceptions of the work environment on the performance measure was also examined. None of the dimensions correlated significantly with the performance measure. This suggests that supervisory perceptions of the work environment do not discriminate between higher and lower job performance.

Respondents were asked *What has been the single biggest change in the offshore oil industry in recent years?* The percentage responses are listed below.

Response	Frequency
budgets/commercial input	61
technical innovation	11.1
pollution	11.1
safety rules	5.6
company becoming more Norwegian and less American	5.6
more planning needed	5.6

Respondents were asked *What two suggestions would you make to improve the life offshore?* The percentage responses are listed below.

Response	% of total responses
Improve platform maintenance	16.5
stable work cycle	16.5
more recognition	11.1
transfer some tasks onshore	11.1

Move supervisors to Stavanger, I'm satisfied, better leadership training for everyone, improve planning, rotate onshore and offshore people, produce oil not paper, lower retirement age and *single cabins* were other suggestions.

Performance Predictions

As stated above, the findings showed that none of the Work Environment Scale dimensions was a predictor of effective job performance.

8.5.2 Stress of the job

Stress associated with the role of the supervisor was asked with a short closed question. The respondent rated how stressful the role of the supervisor was on a five point scale. The responses are described in Table 8.12.

Table 8.12
Stress of the job as supervisor

Item labels	% Rating each item (m=3.6, s.d.=0.7)
Not at all stressful	0
Rarely stressful	5.3
Mildly stressful	36.8
Considerably stressful	52.6
Extremely stressful	5.3

The majority of the sample rate the role of the supervisor as fairly stressful, in fact almost 58% judged their job as *considerably* or *extremely stressful.* The stress scores did not correlate significantly with the performance measure.

The respondents were asked *What is the biggest cause of stress for most offshore supervisors?* The percentage responses are described below.

Response	% of total responses
commercial pressure	38.8
onshore giving offshore work	22.2
short term nature of work	16.7
lack of planning	11.1
making big mistake	5.6
quantity of work	5.6

The respondents were asked *What is it that worries most offshore supervisors?* The percentage responses are listed below.

Response	% of total responses
accidents for anyone (safety)	52.3
changes in current situation	33.3
polluting the environment	4.8
goals of management being unrealistic	4.8
nothing, this is a good place to work	4.8

The supervisors judged that budgets/commercial considerations was the biggest single change in the offshore environment. *Improve maintenance* and *having a stable work cycle* were the two main suggestions that the supervisors' made to improve life offshore.

DISCUSSION

The biggest cause of stress for supervisors on N1 was the need to meet the commercial demands on the platform whereas both UK platforms rated the need to "progress work" as the most important. However, all three groups of supervisors agreed that safety and preventing accidents worried them most. Of particular interest though was the distinct difference between the UK and Norway for the response about the biggest recent change within the industry. In the UK, it was the impact of the Cullen Inquiry and in Norway it was the increasing influence of commercialism within their roles such as working with budgets. This may reflect a maturity difference between the two sectors in that a new safety regime developed in the Norwegian sector after the Alexander Kielland disaster (1982) and the same change did not happen in the UK until after Piper Alpha in 1988.

8.6 LEADERSHIP

This section contained a series of open questions and a standard leadership questionnaire. The open questions were designed to allow the supervisor to describe what he or she felt were effective supervisory behaviours, and the structured questionnaire was used to provide a quantitative perspective of the leadership style of the supervisor. In completing the leadership questionnaire the respondent was asked to rate himself or herself on a five point scale as to how frequently they displayed the type of behaviour described in each statement. The higher the mean score, the more of the leadership behaviour is displayed. The leadership questionnaire contained 87 leadership behaviour statements. The results for the Multifactor Leadership Questionnaire are described in Table 8.13 followed by the supervisor's responses from four open questions concerning effective leadership styles.

Table 8.13
The Multifactor Leadership Questionnaire (Bass & Avolio, 1993)

MLQ Factors	Descriptors	No. of items	Mean	St.Dev	r_7	r_8
Attributed Charisma	Extent of charisma associated to leadership behaviour	8	2.4	0.4	-.16	-.17
Idealised Influence	Builds confidence and trust; attracts a following; has much referent power	10	2.9	0.4	.01	.03
Inspirational Leadership	Raises expectations and beliefs concerning the mission and vision	10	2.6	0.5	-.13	-.02
Intellectual Stimulation	Challenges old assumptions and stimulates new ideas	10	2.8	0.5	.12	.22
Individual Consideration	Determines individual needs and raises them to higher levels	10	2.4	0.5	.05	.07
Contingent Reward	Clarifies objectives and exchanges rewards for performance	9	2.2	0.6	-.17	-.13
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Active	7	1.7	0.5	-.17	-.29
Management by Exception	Takes corrective action when mistakes occur; disciplines when necessary. Passive	7	1.1	0.4	-.17	-.13
Laissez-faire leadership	Is not around when needed	7	0.7	0.4	.26	.27
Extra effort	Extra effort generated by leader	3	2.2	0.4	-.01	.02
Effectiveness	Leader's perceived effectiveness	4	2.2	0.4	.19	.11
Satisfaction	Satisfaction with one's leadership	2	2.7	1.1	-.03	.12

(**p<.01, * p<.05)

As a group, the supervisor's scored highest on the transformational item, *idealised influence*, and lowest on the *laissez-faire* item. The scores for each dimension from the Multifactor Leadership Questionnaire were correlated with the job performance measure. None of the performance measures correlated significantly with job performance. The MLQ did not discriminate between effective and less effective performance.

The respondents were asked *What three similar characteristics would define a large group of effective supervisors?* The percentage responses are listed below.

Response	% of total responses
involving employees	18.8
listens to his team	15.6
motivates his team	15.6
good technical ability	12.5
get results within budget	12.5
open and direct	9.5
people worrying for their jobs	3.1
Age	3.1
making decisions	3.1
not members of onshore clubs	3.1
working for some goal	3.1

The respondents were asked *From your own experience what is it that an effective supervisor does which others do not?* The percentage responses are described below.

Response	% of total responses
good communication	18.6
Trust	14.8
clear priorities	14.8
involves employees	14.8
knows why we are here	11.1
Planning	11.1
has solution to everything	7.4
he is one of them	3.7
takes decisions	3.7

The respondents were asked *If you could do whatever you liked without penalty, what leadership style would you choose and how would you describe it?* The percentage responses are described below.

Response	% of total responses
involve employees	22.1
empowerment/delegating	16.7
a little less democratic	16.7
create job satisfaction	11.1
team style	11.1
be democratic	11.1
taking decisions	5.6
more authoritarian	5.6

The respondents were asked *What is it that is **most** critical to being an excellent first line supervisor?* The percentage responses are listed below.

Response	% of total responses
set clear priorities	27.3
takes decisions	13.6
understands the environment	13.6
develops team confidence in himself	13.6
good communication skills	13.6
Honesty	9.1
involves team	4.6
he helps with problems	4.6

The results of these four questions show that *setting clear priorities* was perceived as the most critical skill of an excellent supervisor. Communication, confidence, taking decisions and understanding the environment were factors that the sample felt would be relevant to being an excellent supervisor. 'Communication', 'trust' and 'involving employees' were the top three attributes that the sample of supervisors felt were exhibited by effective supervisors when they themselves were being supervised.

Performance Predictions

As stated above, the findings showed that none of the Multi-factor Leadership Questionnaire variables was a predictor of effective job performance.

8.7 MULTI-VARIATE ANALYSIS

There were no significant regression equations that could be calculated.

8.8 CONCLUSION

The results obtained from the Offshore Supervisor Survey for N1 were largely exploratory. The performance predictions were inconclusive as none of them was significant. It should be noted that the relationships between the variables were calculated using only one outcome performance measure (appraisal ratings) and the sample size was small (n=19). There were, however, some interesting qualitative comments. For example, this sample had received more supervisory training and more commercial training than the supervisors on the UK platforms, and were consequently more satisfied with their skill profiles as supervisors.

The next chapter describes the findings for the total sample as one group. The findings from the Supervisory Decision Making Vignettes and the qualitative responses from the Offshore Managers are also described.

CHAPTER NINE

OFFSHORE SUPERVISORS QUESTIONNAIRE

INTEGRATED RESULTS FROM

UK1, UK2 & N1

9.1 INTRODUCTION

This final results chapter will be divided into two sections: Multi-variate statistics will be presented and discussed as a combined group of all three platforms from the main study in order to demonstrate common characteristics of "supervisors" across the North Sea and secondly to show potential differences between both Norway and the UK, and also any other platform differences. The results from the decision making vignettes and the qualitative responses from the OIMs, Operations Supervisors and the "onshore experts" are also presented and discussed in this chapter as a combined qualitative dataset as this would have more substance compared to splitting them across the three platform chapters.

The results will be divided into the following sections:

Section 9.2: Biodata, Job Satisfaction, WES, MLQ and the Performance Measure

Section 9.3: Open questions on supervision

Section 9.4: Platform Comparison

Section 9.5: Multi-variate analysis

Section 9.6: Decision Making Vignettes UK1, UK2 & N1

Section 9.7: Supervisory Effectiveness Model

9.2 BIODATA AND SUPERVISORY JOB PERFORMANCE MEASURE

Job performance ratings were collected for only 91 of the 100 supervisors. Six of the supervisors had recently joined platform UK1 and three had recently joined UK2, and it was felt by their respective immediate superiors that it would be unfair to rate their performance without having a better understanding of their capabilities as supervisors. Table 9.1 describes the frequency and range for each of the performance indicators.

Table 9.1
Supervisors' performance ratings

JOB PERFORMANCE INDICATORS	1 Poor	2	3	4	5	6 Outstanding	Mean	St. Dev
Technical/Specialist Ability	0	1	11	37	31	11	4.4	.9
Communication	1	8	25	36	20	1	3.8	.9
Relationships	0	6	26	39	16	4	3.8	.9
Managing Resources	0	2	37	36	15	1	3.7	.8
Influencing Others	1	7	40	28	15	0	3.5	.9
Initiative	0	12	28	38	12	1	3.5	.9
Change Oriented	4	10	31	32	13	1	3.5	1.1
Overall Job Performance	0	5	19	47	19	1	3.9	.8
Total	6	61	217	293	131	20		

Cronbach's co-efficient alpha was calculated to determine the internal reliability of the appraisal scale. The closer the co-efficient is to 1, the greater the reliability. For the first seven items of the appraisal scale Cronbach's α =.82.

The job performance scale, as mentioned in the earlier results chapters, was used to discriminate different levels of performance among supervisors. Range scores showed that the scales were employed to almost full width. The ratings indicate that in the majority of cases, supervisors were given ratings around the mid-point of the scale 3-4 i.e., 'Performance is entirely satisfactory' to 'A good performer'. Although the raters were asked to use the full length of the scale, there is a degree of central tendency within the ratings. As a group, the highest ratings were for Technical/Specialist ability and the lowest ratings were for Change Oriented.

Table 9.2
Correlations between biodata and performance measure

	Dimension	Group	n	mean	sd	r_7
1	Age of Supervisor [t]	UK1, UK2 & N1	100	4.45	1.13	-.08
2	Length of service in current role of supervisor (years)	UK1, UK2 & N1	100	3.71	3.76	.17
3	Length of service as a supervisor (years)	UK1, UK2 & N1	100	7.97	6.16	.04
4	Length of service offshore (years)	UK1, UK2 & N1	100	12.5	4.5	.08
5	Span of control (e.g. no. of subordinates)	UK1, UK2 & N1	100	9.56	7.39	.03

(**p<.01, * p<.05)

([t] 65% of supervisors were aged between 36 and 47 years old. Scoring scale in age groups:

'18-23' = 1, '24-29' = 2, '30-35'=3, '36-41'=4, '42-47'=5, '48-53'=6, '53 and over'=7.)

The combined group of supervisors' job performance scores (n=91) were correlated with each of the biodata responses (see Table 9.2), the job satisfaction scores, WES scores, the MLQ scores but none of the correlations was significant.

Regression equations were calculated, but none were found to be significant. The absence of any effects could be caused by pooling the total sample which may mask potential findings between the groups. This is supported by both the specific platform findings described in earlier chapters and the finding described in section 9.5.2.

9.3 OPEN QUESTIONS ON SUPERVISION

The senior management on each of the platforms (UK1, UK2, & N1) visited during the main study were each asked four open questions. Their responses and those of the onshore experts who were nominated by their company's senior management as previously being excellent offshore supervisors, although now working onshore, are described below. The offshore group comprised of fourteen OIMs and Operations Supervisors, and nine onshore experts and the total group (n=23, 2 were Norwegian) shall be referred to as 'managers'. Some managers provided more than one response.

The managers were asked *What makes a good supervisor*? The responses are listed below.

In descending frequency:		**Other responses include:**
Good technically	(14)	Keeps big picture
Good communicator	(10)	Inquisitive mind
Inspiring loyalty and respect	(8)	Outgoing personality
Knows his team	(6)	Displays common sense
Makes quick decisions	(5)	Creates trust
Good team builder	(5)	Sets high standards
Good listener	(4)	Takes in lots of information
Does not get flustered	(3)	Supports team.

The managers' responses indicate that communication skills, inspiring loyalty and respect from team are key to being a good supervisor. Strong technical ability probably provides an essential foundation to these skills which was the most frequently mentioned response.

The managers were asked *What makes a bad supervisor*? The responses are listed below.

In descending frequency:		**Other responses include:**
Poor communication	(12)	Poor organisation
Lacks commitment	(6)	Reacts without thinking
Sees only one problem	(5)	Has got favourites in team
Poor job knowledge	(5)	Gets only short term results
Uses the big stick	(5)	Gives unclear feedback
No respect from men	(3)	
Lacks man-management skills	(2)	
No team work	(2)	

Not surprisingly, the converse of what makes a good supervisor are described above. Lacking commitment in the role provides a different perspective on gaining respect from subordinates as clearly loyalty and respect are difficult to generate from the team if the leader is not fully committed.

The managers were asked *What is the difference between an excellent supervisor and a very good one*? The responses are listed below.

In descending frequency:		Other responses include:
Self work standards are high	(7)	Accepts responsibilities
Keeps many "balls" in the air	(5)	Team builder
Has initiative	(5)	Flexibility
More managerial	(3)	Experience
Can empower team	(3)	
Organisational skills	(3)	
Strong working relationships	(3)	
Good job knowledge	(2)	

The main difference to this question compared to the responses collected at question one is the increased emphasis on the excellent supervisor possessing genuine management skills. Technical skills, while still being mentioned, are probably perceived as a given for an excellent supervisor.

The managers were asked *What skills will the supervisor of the future have*? Their responses are described below.

In descending frequency:		Other responses include:
Able to manage change	(9)	More IT skills
More commercially aware	(6)	More team work
The safety environment	(6)	Performs in spite of legislation
More managerial less technical	(5)	
Can manage multi-skilled team	(4)	
Looks for improvements	(4)	
High performer	(3)	
High self motivation	(2)	

The same themes are repeated as above except that change management, commercial skills and safety management are highlighted by the managers as key skills for the future.

The responses from the majority of managers indicate a certain consistency and are also cross border in agreement. Descriptions of good supervisory behaviour are in generic terms similar to good man-management practice, but there are some insights from the experts about what they perceive as both excellent and future supervisory skills; managerial, commercial and change management skills.

9.4 PLATFORM COMPARISON

The correlations or levels of association between the performance measure (the dependent variable) and each of the other variables (the independent variables) have been examined above and in the previous results chapters. It is, however, the intention of this section to further explore the difference scores on the independent variables in order to investigate whether there are any differences between the platforms. For example, it is predicted there are likely to be differences between the UK platforms and the Norwegian platform, although it should be noted that these could be company rather than cultural differences.

The next few tables describe the significant results from an analysis of variance of the key instruments used in the survey. Table 9.3 describes the results from an analysis of variance of the attitude scale. Higher means represent more "agreement" with the statement indicated by 'P' or more "disagreement" with the statement indicated by 'N' (the scores were reversed for negative statements).

Table 9.3
Analysis of variance of Supervision and safety attitudes

	Supervision and safety variable	Platform	F ratio	F Prob.	Mean	Levene Statistic
5	The best supervisory style is to provide firm leadership and direction to employees. (P) (chi-square = 16.3, p=.0003)	UK1	8.4	.0004	4.65*	3.62*
		UK2			4.8*	
		N1			3.95	
12	The future success of the offshore oil industry depends heavily on the man management skills of all offshore supervisory roles. (P)	UK1	5.39	.006	4.63*	2.28
		UK2			4.17	
		N1			3.89	
13	Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time. (N) (chi-square =11.18, p=.0037)	UK1	7.23	.0012	3.25	12.3**
		UK2			3.8	
		N1			4.47*	
14	The permit to work system ensures safe working. (P) (chi-square = 7.99, p=.0184)	UK1	3.68	.028	4.11	3.14*
		UK2			3.5	
		N1			4.37*	
16	If supervisors did not take risks now and again the job wouldn't get done. (P)	UK1	5.9	.0037	3.8*	.959
		UK2			4.03*	
		N1			2.79	
18	The permit to work system is just a way of covering people's backs. (N) (chi-square = 7.15, p=.0280)	UK1	3.03	.05	4.39	9.09**
		UK2			4.17	
		N1			4.89*	
19	There are certainly risks working offshore. (N) (chi-square = 30.12, p=.0000)	UK1	19.23	.0000	4.7*	10.23**
		UK2			4.5*	
		N1			3.4	
20	The role of the supervisor is not dominated by paperwork. (P)	UK1	21.06	.0000	3.7**	.355
		UK2			2.03	
		N1			2.37	

(**p<.01, * p<.05)

There were twenty attitude statements used in the survey, but only the significant results are described here. Where the Levene statistic is not significant, the variances of the three groups are assumed to be equal. (The non-significant Levene statistic is a key assumption of the analysis of variance procedure). Where this assumption was violated a non-parametric analysis of variance (Kruskal Wallis test) was used. These chi-squared values and significance levels are shown in brackets. In order to test differences between the groups the

Tukey's honestly significant difference was calculated and these results are shown in the 'mean' column. This test displays one asterisk to indicate significantly different group means at the 0.05 level and two show differences at the 0.01 level. Items 5, 13, 14, 16, 18 and 19 all displayed significant differences between the UK platforms and the Norwegian platform. These appear to be mainly relating to risk and safety attitudes. For example, Item 13, *Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time,* underlines a clear cultural difference between the UK and Norway as N1's supervisors significantly disagree with this statement compared to the two UK platforms.

Surprisingly, there were some non-cultural differences. Items 12 and 20 displayed significant differences between UK1 and platforms UK2 and N1. The platform difference for Item 12 is of particular interest since the supervisors on UK1 view the future success of the offshore oil industry more biased towards man-management skills than the other two platforms' supervisors.

The next table (Table 9.4) describes the only significant difference in the mean personality scores between platform UK2 and platform's UK1 and N1 with regard to the personality dimension "emotional". The small differences between the groups should be treated with caution.

Table 9.4
Analysis of Variance of IMAGES

IMAGES	Platform	F ratio	F Prob.	mean	Levene Statistic
Emotional	UK1	3.65	.029	27.33	.586
	UK2			28.43*	
	N1			24.89	

(**p<.01, * p<.05)

This finding implies that supervisors on UK2 may find 'switching off' from their roles difficult. As a group, they worry about important events more than their counterparts on the other two platforms, but are easier to motivate. Although not significant, the low score for N1 is a logical one. The Norwegian supervisors on N1 appeared very laid back in their approach to their roles. There remains, however, a strong note of caution with regard to this result as IMAGES throughout the survey has been a poor discriminator.

Table 9.5 describes some of the key work environment differences between the platforms using the results from the WES mean scores.

Table 9.5
Analysis of Variance of the Work Environment Scale

Work Environment Scale	Platform	F ratio - F Prob.		mean	Levene Statistic
Autonomy	UK1	9.35	.0002	4.17	.79
	UK2			4.03	
	N1			5.56**	
Control	UK1	11.39	.0000	7.57*	1.87
	UK2			7.57*	
	N1			6.26	
Innovation	UK1	17.63	.0000	3.67	4.78*
(chi-square = 25.5, p=.0000)	UK2			4.1	
	N1			7.0**	
Involvement	UK1	15.21	.0000	4.86	12.49**
(chi-square = 26.63, p=.0000)	UK2			4.76	
	N1			7.95**	
Peer Cohesion	UK1	9.2	.0002	5.62	9.11**
(chi-square = 18.08, p=.0001)	UK2			6.13	
	N1			7.73**	
Physical Comfort	UK1	32.54	.0000	1.94	4.44*
(chi-square = 28.85, p=.0000)	UK2			2.6	
	N1			5.1**	
Supervisory Support	UK1	7.6	.0008	5.29	8.09**
(chi-square = 14.84, p=.0006)	UK2			5.93	
	N1			7.47**	
Task Orientation	UK1	11.43	.0000	5.37	3.56*
(chi-square = 20.84, p=.0000)	UK2			5.1	
	N1			7.32**	

(**p<.01, * p<.05)

The WES results above have provided several key insights into the differences between the Norwegian Sector and the UKCS. The significant differences were all between the UK platforms and N1. This indicates that the perception of the work environment was broadly the same amongst the UK supervisors. Apart from the mean scores for "Control" (where the UK1 & UK2 were significantly higher than N1) all other dimensions were rated by N1 supervisor's scores significantly higher than the UK supervisors. Of particular interest were the results for "Innovation", "Involvement" combined with "Task Orientation". These findings describe an offshore culture of variety, change and empowerment while recognising the need to plan, be efficient and get tasks completed. Attributes that senior onshore UK managers would probably like to see demonstrated on their platforms.

The next table (Table 9.6) describes the findings from undertaking an analysis of variance for the mean scores for job satisfaction. (Higher scores indicate more satisfaction).

Table 9.6
Analysis of Variance of Job Satisfaction

	Job Satisfaction	Platform	F ratio	F Prob.	mean	Levene Statistic
1	The physical work conditions	UK1	11.39	.0000	4.72*	4.9**
	(chi-square = 20.94, p=.0000)	UK2			3.83	
		N1			5.42*	
2	The freedom to choose your own method of working	UK1	9.62	.0002	5.35*	8.3**
	(chi-square = 16.11, p=.0003)	UK2			4.37	
		N1			5.73*	
3	Your fellow workers	UK1	4.32	.015	5.5	.806
		UK2			5.1	
		N1			5.8*	
9	Your chance of promotion	UK1	7.32	.0011	4.09*	.427
		UK2			3.26	
		N1			4.47*	
12	Your hours of work	UK1	3.37	.038	4.56	4.01*
	(chi-square = 6.14, p=.046)	UK2			4.43	
		N1			5.31*	
13	The amount of variety in your job	UK1	6.27	.0027	4.2	3.33*
	(chi-square = 13.14, p=.0014)	UK2			4.4	
		N1			5.6**	
	Job Satisfaction Total	UK1	6.62	.002	83.5	2.46
		UK2			77.03	
		N1			89.9*	

(**p<.01, * p<.05)

The analysis of variance of the job satisfaction scores between the three platforms has identified a broadly consistent finding: the supervisors of N1 have rated most items significantly higher than the two UK platforms. This may be caused by the work rotation in Norway which results in employees working, in effect, four weeks out of every eleven compared to the UKCS where they typically work an even onshore/offshore cycle. UK1 supervisors appear significantly more satisfied than UK2 supervisors with respect to their "physical work conditions", "freedom to choose own working" and "chances of promotion".

Table 9.7 describes the findings from comparing the mean scores for the biodata variables across the three platforms.

Table 9.7
Analysis of Variance of Bio-data

Bio-data	Platform	F ratio	F Prob.	mean	Levene Statistic
Length of time in current post (months)	UK1	17.12	.0000	33.35	7.89**
(chi-square = 17.5, p=.0002)	UK2			33.4	
	N1			91.89**	
Overall time as a supervisor (months)	UK1	4.87	.0097	77.16	2.49
	UK2			101.33	
	N1			136.05*	

(**p<.01, * p<.05)

The findings in Table 9.7 show that the N1 supervisors have significantly more experience as offshore supervisors compared to the UK sample. Although, as with the results in Table 9.6, there may be a cultural distinction underlying these findings. It should be noted that the biodata variables did not discriminate supervisory job performance.

Table 9.8 describes the results of comparing the mean scores of two transactional leadership variable scores across UK1, UK2 and N1.

Table 9.8
Analysis of Variance of Leadership

Leadership Variable	Platform	F ratio	F Prob.	Tukey-HSD test	Levene Statistic
Management by Exception 'Active'	UK1	5.12	.007	15.5*	.82
	UK2			16.1*	
	N1			12.2	
Management by Exception 'Passive'	UK1	3.15	.047	6.1	3.39*
(chi-square = 9.1, p=.0105)	UK2			4.8	
	N1			7.6*	

(**p<.01, * p<.05)

UK2 supervisors are significantly quicker to take corrective action when something goes wrong compared to both UK1 and N1. With UK1 supervisors more proactive to correct mistakes than N1. And equally N1 supervisor's rate themselves significantly higher as reactive workplace leaders (MBEP) compared to the two UK platforms. These findings, although surprising from a leadership theory perspective, are in tune with the perceptions of the work environment described in Table 9.6. i.e., employee involvement and empowerment are

more apparent on N1 compared to both UK1 and UK2 and consequently the interference of the leader at the workplace would be reduced.

9.5 MULTIVARIATE ANALYSIS

9.5.1 Discriminant analysis of supervisory performance

The aim of discriminant analysis is to classify cases into one of several mutually exclusive groups on the basis of an observed set of characteristics. Therefore, the total sample of supervisors was split into three groups; "effective", "average" and "less effective". These groups were calculated on the scores collected by the job performance variable. In effect, the top 30% were classed as "effective" and the bottom 30% as "less effective". Using discriminant analysis with six variables (physical conditions, control, work pressure, management by exception 'passive', management by exception 'active' and length of time overall as a supervisor) group membership correctly classified was 70.59%. See Table 9.9 below. These variables were selected because they correlated significantly with the performance measure in the previous results chapters.

Table 9.9
Discriminant analysis of supervisory performance

Classification results -

Actual Group	No. of Cases	Predicted Group Membership 1	2
Group 1 effective	26	17 65.4%	9 34.6%
Group 2 less effective	25	6 24.0%	19 76.0%
Ungrouped cases	49	22 44.9%	27 55.1%

Percent of "grouped" cases correctly classified: 70.59%

The sample was randomly split into two groups in order to test whether the variables could repeat this high level of prediction and the discriminant analysis was run again. Group 'A' (n=55) predicted 78.13% of the cases correctly. The remaining cases, Group 'B' (n=36) were individually substituted into the discriminant function equation within Microsoft Excel using the unstandardised discriminant function co-efficients:

D = (*.202*work pressure*) + (*.394*control*) + (*.188*physical conditions*) + (*-.002*length of service supervisor*) + (*.054*mbea*) + (*-.093*mbep*) + *constant (-3.95)*

The following table (Table 9.10) describes the results.

Table 9.10
Discriminant analysis of supervisory performance

Classification Results -

Actual Group 'B'	No. of Cases	Predicted Group Membership		
		1	2	3
Group 1 Effective	10	6 60%	3 33.3%	1 10%
Group 2 Less effective	11	2 18.1%	7 63.6%	3 27.2%
Ungrouped cases	15	3 20%	4 26.7%	8 53.3%
Percent of "group"	Cases correctly classified:			58.3%

This technique of classification demonstrates that the six variables (physical conditions, control, work pressure, management by exception 'passive', management by exception 'active' and length of time overall as a supervisor and) are discriminating supervisory performance against the dichotomous variable; "effective" and "less effective" (although only 58.3% correctly classified). In short, supervisory experience, transactional leadership behaviour (especially monitoring for mistakes and negative reinforcement when mistakes become serious), and perceptions about the work climate (especially working conditions, management rules and general work pressure) discriminate performance within this sample of supervisors. Therefore, as a model for predicting effective supervisory performance, the selection of future supervisors or the selection of poor performing supervisors, these variables ('control' the most influential predictor) are a useful, although not definitive tool.

9.5.2 Predicting Platform Membership using Discriminant Analysis

The total sample of supervisors was split into three groups; "UK1", "UK2" and "N1". Using discriminant analysis with five variables (innovation, length in current role as a supervisor, management by exception 'active', management by exception 'passive' and the attitude statement 'the role of the supervisor is not dominated by paperwork' - the highest F ratio value of all the attitude statements) group membership correctly classified was 77%. See Table 9.11 below.

Table 9.11
Discriminant Analysis of Platform Membership

Classification results -

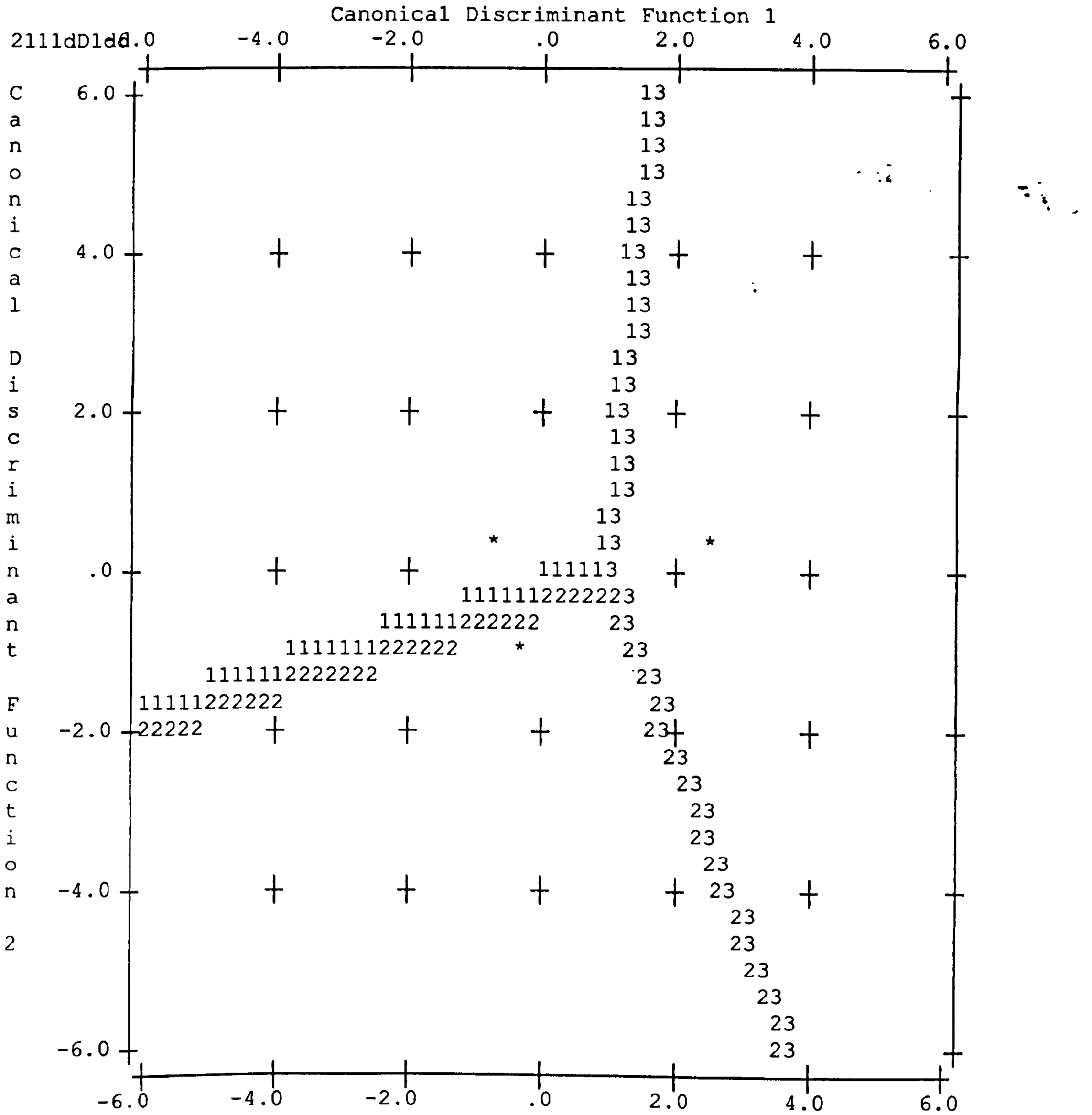
Actual Group	No. of Cases	Predicted Group Membership 1	2	3
Group 1 UK1	51	35 68.6%	13 25.5%	3 5.9%
Group 2 UK2	30	5 16.7%	23 76.7%	2 6.7%
Group 3 N1	19	0 .0%	0 .0%	19 100.0%

Percent of "grouped" cases correctly classified: 77.00%

Table 9.12
Territorial Map of Platform Membership

Please see over.

This analysis is also shown below as a pictorial representation (territorial map)in order to show the separation of the discriminant scores.



Symbols used in territorial map

Symbol	Group	Label
1	1	UK1
2	2	UK2
3	3	N 3
*		Group centroids

The sample further randomly split into two in order to test whether the variables could repeat this high level of prediction and the discriminant analysis was run again. Group 'A' (n=55) predicted 81.48% of the cases correctly. The remaining cases, Group 'B' (n=45) were individually substituted into the two discriminant function equations within Microsoft Excel using the unstandardised discriminant function co-efficients:

D_1 = (-.032**mbea*) + (.081**mbep*) + (.021**length in role*) + (-.495**dominated by paperwork*) + (.211*innovation) + c*onstant (-.089)*

D_2 = (-.048**mbea*) + (.113**mbep*) + (.0102**length in role*) + (-.798**dominated by paperwork*) + (.226**innovation*) + constant (-3.86)

and these discriminant co-efficients were each plotted against the axis of the territorial map in order to determine the platform groups.

The following table describes the results.

Table 9.13
Discriminant Analysis of Platform Membership

Actual Group 'B'	No. of Cases	Predicted Group Membership		
		1	2	3
Group 1 UK1	21	11 52.4%	8 38.1%	2 9.5%
Group 2 UK2	11	1 1%	10 90.9%	0 0%
Group 3 N1	13	2 15.4%	5 38.4%	6 46.2%
percent of "group"	Cases correctly classified:			60%

This technique of classification demonstrates that the five variables (innovation, length in current role as a supervisor, management by exception 'active', management by exception 'passive' and the attitude statement 'the role of the supervisor is not dominated by paperwork') are correctly discriminating this sample of supervisors against the three way membership of each platform. In summary, supervisory experience, transactional leadership behaviour, and perceptions about the level of both innovation and bureaucracy in the workplace discriminate which platform the supervisors belong to. It would not be too surprising that these variables could predict the supervisor's platform if the grouping variable was dichotomous such as UK versus Norway, but to correctly classify between three groups indicates key differences between the two UK platforms. Furthermore, the UK platforms share several common characteristics such as same age, same operator, same service company and same offshore field, and yet these findings suggest very different management styles between the platforms.

9.6 DECISION MAKING VIGNETTES UK1. UK2 & N1

9.6.1 Background

One of the critical questions at the outset of the research project was whether a quantitative or qualitative method would be more appropriate as a tool for conducting management research in the offshore environment. As discussed in Chapters Four and Five, the absence of evidence in the literature that research offshore was suited either to one style of data collection or the other, it was decided to use a mixture of both. There were several reasons for adopting this approach. Firstly, Jankowicz (1991), among others, argues that different methods are not better merely because they are quantitative or qualitative as it is the research problem and purpose that are the important issues. Secondly, the research environment was relatively new and a significant part of the research purpose was exploratory and qualitative research is particularly suited to this situation (Ghauri, Gronhaug & Kristianslund, 1995) as it places more emphasis on understanding and hypothesis building. Finally, given the unique nature of the research problem, a multi-method or a 'triangulation' approach seemed appropriate to attempt to capture an holistic view of an offshore supervisor's role.

While quantitative and qualitative procedures are not mutually exclusive, they do provide distinct procedural differences for collecting and analysing data. During the data collection a number of quantitative measures were used, as described previously. However, the design of the Supervisory Decision Making Vignettes (DMV) was intended as a discrete qualitative method and there would be no attempt to overlap them with statistical analysis as was achieved by Boyatsis (1982). The Boyatsis Model is described, however, to demonstrate a possible route for further analysis of the offshore data. It should be stated that it was never the objective to design scenarios that would provide data covering each of the behaviours described by the Boyatsis model (see Boyatsis, 1982, p.60-190, for a full description of his model). The scenarios were designed to cover a broad range of "typical" situations that the offshore supervisor may have to address and ideally the qualitative process would generate useful data for further analysis. (For further information on the development of these five scenarios see Chapter Five, section 5.2.4, section 6).

This section will describe the results from the Supervisory Decision Making Vignettes. Firstly, there is a description of how the grounded theory and thematic analysis was undertaken. This is followed by a section outlining per platform results describing how the offshore supervisors responses matched the "expert supervisors" group, thus giving them a performance score. Then, there is a discussion of how the Offshore Supervisory Effectiveness cluster measures against the Boyatsis cluster of effective management behaviours. And, finally this section will outline an offshore supervisory competence model.

9.6.2 DMV Analysis

This final section of the questionnaire was designed to discriminate between effective and less effective supervisors by eliciting qualitative responses relating to what each supervisor would do if faced by five problem situations. In order to determine a standard of performance, nine "expert" supervisors (who had previously dealt with similar situations during their time as supervisors offshore) were asked to respond as if they were currently in an offshore supervisory role. The data supplied by each of the experts for every scenario were marked using a process of thematic analysis (Spencer & Spencer, 1993) by three research psychologists from the Offshore Management Centre who all had offshore research experience. These psychologists were asked to search for critical supervisory behaviours, i.e., what the supervisor said that they would do as a result of the problem. These identified critical behaviours were grouped into "ideal" responses and were scored against the ideal response, see Section 9.6.3.

The scoring was completed using the following scale:

Congruent match	4	This is an exact match. The supervisor said that he or she would use all the same critical skills that were elicited from the expert group in order to achieve a solution.
Substantial match	3	Most of the same skills were mentioned. However, the response was not an exact match.
Moderate match	2	The supervisor's response contained about half of the required skills.
Limited match	1	The supervisor's response contained very few skills of the "ideal response".
Incongruent match	0	The supervisor's response did not concur with the ideal response on any items.

A high scoring and low scoring "real" example for each vignette is shown below to demonstrate both how the thematic analysis approach and scoring was achieved. The "key behaviours" are identified by underlined text. Each of the examples are preceded by both the relevant supervisory scenario and the ideal response.

Vignette 1

You are supervising many men on the platform. The flight programme has been cancelled for the last four days and there is a large backlog to clear. 14 men turn up at your door all claiming compassionate leave ranging from "the wife is not well" to "my house has been broken into." You are convinced that at least half of them are trying it on...

Ideal response

Listen, speak and show sympathy with each claim. Seek more information by questioning. Assess validity of each claim. Prioritise claims with the use of onshore help and if possible allow each team to decide who has the most deserving case. Explain decision to team.

High Score Example	Low Score Example
I would get them in one at a time to explain the situation. I'd listen carefully to the excuses they came up with to identify what we're working with. I'd do an assessment job on it. You can see by an individual's reaction if they are trying it on. I would explain to them how a reduction of the workforce is going to impact on the rest of their mates and how it is going to affect the operation as everyone is in the same boat. Look for their reaction. If there are any genuine cases, organise some method of communication with the parties involved at home even if it is at the company's expense. If there are genuine cases you have to make arrangements to get them off and tell the rest of them that they will be on the earliest scheduled flight.	On the case of the "wife's not well", I would arrange for him to ring the hospital or the wife and test whether they are in hospital or not. Arrange for them to have access to a phone to call insurance companies/police to make sure and again monitor if they do ring the police and make a decision from that. Your immediate reaction is to get the guy to the phone and get him to ring home and discuss what it is and you might be able to persuade him that he does not have to go home, once he fully knows what the problem is. If they are genuine and they do have to go home there is nothing I can do to stop them. I just have to try and arrange cover for them.

Vignette 2

You have a technician who has worked for you a few months. His position has changed due to reorganisation and he is not coping due to the additional demands. His previous supervisor did not tell you that the technician was unlikely to cope with any changes. The technician was an average performer in his previous position and now cannot accept that within the new role he is not producing what is required of him...

Ideal response

Gather information about problem. Discuss with technician during an interview. Set mutually agreed goals and provide training if necessary. Monitor and re-assess. Set out possible dismissal terms to technician if there is no improvement after agreed period.

High Score Example	Low Score Example
I would first have to discuss with the technician and try to get to the bottom of why he isn't performing. I would explain first off, that in my view he is not reaching the required standards. I would want to know why. If he was an average performer, then it could be basic familiarity built up over the years. It could be personal reasons which have affected the job. It could be outside influences which are causing him distraction. His mind may not be on his new role. If he has got problems at home or with the company, I would try and assist him and sort it out if I could. If his basic ability is that he can't cope with the new job, then I would try and guide him and ask him where he thinks he is falling down. He would probably recognise that he is not performing himself. I would discuss possible training needs to get him up to scratch. We would put a time limit on this. I would tell him that you expect to see improvement. If after 12 months, the required improvement hadn't been achieved, I think I would actively seek to try and get him placed back into a position where he felt more comfortable.	I would have a word with the previous supervisor. I'd get the two together and get them to talk it amongst themselves and decide what to do from there.

Vignette 3

The lead technician is reasonably experienced but is not the best communicator in the world. The team gets a new recruit and you quickly discover that there is a personality clash between the new man and the lead technician. You learn that the new recruit is a bit head strong and he feels that the lead technician hand is picking on him. You are informed that the new man has been using threatening behaviour towards the lead technician...

Ideal response

Gather background information. Speak to individuals separately. Get them to communicate together and attempt to integrate into team. Emphasise team values. Explain job roles and explain your support for the current management structure. Create a plan of action. Discipline and dismissal will follow if no improvement. Situation is monitored.

High Score Example	Low Score Example
Interview them together and discuss everything in a group meeting. Try to get both sides of the story. Try clearing the air. Establish to the new recruit exactly what the responsibilities of himself and the lead technician are and I expect the new recruit to respect that. Similarly, try to explain to the lead technician that it is not all about personalities, the new man has got a job to do, he hasn't come into the group for his personality, he has come for his technical ability, his capability for doing the job. Just monitor them both. I wouldn't have waited until a situation like this had arisen.	Put him on the straight and narrow, that is, the man who is using threatening behaviour. If he has a grievance he has to go through the normal procedures.

Vignette 4

There are conflicting procedures on re-starting the plant after a plant shutdown. The official procedure takes 45 minutes but there are some aspects that may not be 100% safe. Unofficial "procedures" have been followed in the past and are safer but take up to 90 minutes. You have recognised the need to update the procedures to incorporate this longer safer method but have not yet done so.

The plant trips and the OIM has insisted that company procedures must be strictly followed...

Ideal response

Speak to OIM directly. Be assertive and convince OIM that the longer but safer method will have to be adopted. Refuse categorically to undertake an unsafe act. Update procedures immediately after shutdown/re-start.

High Score Example	Low Score Example
I would take the safe method here. I would inform the OIM that I was taking the procedure and that it would be 90 minutes before we would be returning to service. If he had a problem with that, he could take it up with my immediate supervisor. I'd make a decision there to stick by the 90 minutes method, even if the OIM or my supervisor were to tell me otherwise. After the platform is returned, I would make sure that new procedures are written down, updating the unsafe 45 minute one. That would be my first priority.	As regards to the initial procedure, you must follow it as the OIM would insist. All you can do in this instance is follow it and fully log the events that had taken place and try in the future to have things changed.

Vignette 5

One of your team is working through some technical elements of the new standards of competence. He has completed the self assessment part and is now seeking confirmation of his competence from you as the assessor.

Your first impression is that he is underselling his actual competence and has marked himself down. You, as the assessor, have to decide whether this is a genuine attempt to avoid responsibility or that he requires more training.

Ideal response

Interview individually. Attempt to understand motives. Get technician to speak out about problem. Gather other information such as previous assessments and talk to previous supervisors. Be objective. Show and demonstrate technician's evidence of ability. Set goals with technician and review later.

High Score Example	Low Score Example
Get him to explain to me why he said that he was poor on this or below average on that. Maybe highlight past experience or past jobs that he had done that would be contrary to what he was saying. In other words if he said he was not sure how to pump the line then we will go look at the previous five times in the last six months that he pumped the line. So, I would try and demonstrate to him through his past performances that what he was saying was not true. But also try and not force that upon him and convince him into believing it because he may genuinely may need to be encouraged to look at himself from a different point of view.	We do six monthly assessments on the lads. We fill it out and bring them in one at time. They'll read their assessments and agree or disagree. We'll write down what training they require and they have the opportunity to make comments.

The five examples above describe how a subset of the sample of supervisors would tackle each of the DMVs. As a technique, the DMVs do appear to have discriminated performance between the supervisors. In most of the examples there is some degree of overlap but there are also differences in the style of approach between higher scoring and lower scoring supervisors. The next section outlines the how the full sample compares with the 'ideal' response from a quantitative perspective.

9.6.3 DMV Results

All three platform DMV results shall be described separately per platform within this section so that any potential differences between platforms are exposed. A score of zero was no match at all with the ideal response whereas a score of four was perfect match.

Table 9.14
UK1 DMV Results

DMVs	% scoring 0	% scoring 1	% scoring 2	% scoring 3	% scoring 4	Mean	S.D
Compassionate leave	13.7	47.1	35.3	3.9	0	1.3	.76
Skill deficiency	13.7	37.3	43.1	5.9	0	1.4	.8
Threatening behaviour	11.8	43.1	37.3	7.8	0	1.4	.8
Safety versus production	5.9	39.2	47.1	5.9	2	1.6	.78
Standards of competence	9.8	39.2	47.1	3.9	0	1.4	.73

Given the rationale of using "experts" and then identifying key behaviours from that group to form an ideal response, it is perhaps not surprising that only one supervisor scored the top rating for one of the decision making vignettes. By using ideal response as the standard, many of the supervisors fall into the "average" performance band. However, this narrow grouping of average scores is consistent with the job performance ratings described in Section 6.1. The supervisors score highest in scenario four and lowest in scenario one. This may reflect the supervisory style found offshore which is arguably more comfortable with rational decision making situations (safety versus production) rather than the personnel issues (compassionate leave).

Table 9.15
UK2 DMV Results

DMVs	% scoring 0	% scoring 1	% scoring 2	% scoring 3	% scoring 4	Mean	S.D
Compassionate leave	30	33.3	33.3	3.3	0	1.1	.89
Skill deficiency	10	36.7	33.3	20	0	1.6	.93
Threatening behaviour	6.7	30	46.7	16.7	0	1.7	.83
Safety versus production	6.7	23.3	60	10	0	1.7	.74
Standards of competence	3.3	46.7	50	0	0	1.5	.57

As above with platform UK1, many of the supervisors from UK2 fall into the "average" performance band and again this is consistent with the job performance ratings described in Section 7.1.

The supervisors, as with UK1, score highest in scenario four and lowest in scenario one. This finding is similar to the results for UK1, i.e., that it reflects the supervisory style found offshore which is arguably more comfortable with rational decision making situations, however, there is a further distinction between the platforms in the results. In scenario four, UK2 score 70% as a percentage scoring '2', '3' or '4' whereas UK1 score only 55% in '2', '3', or '4'. A smaller difference, although not significant, was found for scenario one, as UK 2 scores 63.3% in '0' or '1' whereas UK1 scores 60.8% in '0' or '1'. Although there are only slight differences, UK2 is rated more highly in the "safety versus production" scenario than UK1 but has "higher" low scores for "compassionate leave" than UK1. This suggests that there may be a difference of supervisory style between the platforms. UK2 supervisors display a style more oriented toward binary decisions than UK1 but UK1 supervisors are rated better in the more ambiguous situations. All the scores were examined using a t-test but there were no significant differences between the two platforms. Table 9.16 outlines the DMV results for the Norwegian platform N1.

Table 9.16
N1 DMV Results

DMVs	% scoring 0	% scoring 1	% scoring 2	% scoring 3	% scoring 4	Mean	S.D
Compassionate leave	7.7	53.8	30.8	7.7	0	1.4	.77
Skill deficiency	23.1	30.8	38.5	7.7	0	1.31	.95
Threatening behaviour	7.7	15.4	69.2	7.7	0	1.8	.9
Safety versus production	0	23.1	46.2	30.8	0	2.1	.76

Scenario five, ("standards of competence") was not used as it was specific to the current changes within UK management and education.

also a common phrase within the UK management literature there are material distinctions from the US definition. The UK definition refers to a skill or behaviour that relates to a specific outcome relevant for that job role and does not differentiate between good and superior performance within that role). It is the "skill" competence that is of particular interest in this study as it was the supervisor's behaviour that was intended to be elicited from the Supervisory Decision Making Vignettes. Another important distinction is the difference between competence and job function. A competence is the ability to demonstrate a system and sequence of behaviour that is functionally related to attaining a performance goal (Boyatsis, 1982, p.33), whereas a job function such as selecting staff is an aspect of the job but not an aspect of the person's capabilities. In short, competencies are defined not as aspects of the job, but as special characteristics of the people who do the job best.

The tables below describe in turn the relevant Boyatsis cluster and the corresponding Offshore Supervisory Effectiveness cluster as provided by the expert responses from the Supervisory Decision Making Vignettes. (The Boyatsis model is used to facilitate the description of competencies of effective supervisors. It should be noted that the DMVs were not originally intended to map against the Boyatsis 'effective management clusters' but are described below for comparative purposes only). The table columns are labelled "Competency", "Skills" and "DMV". The "Competency" column describes the terms used in the Boyatsis model that relate to job competencies that if exhibited by a manager correspond with effective and or superior performance in the job. The same description is used under the section of the table titled "Offshore Supervisors". The "Skills" column describes the observable behaviours used by the effective manager which relate to that particular competency. The "Skills" column under the "Offshore Supervisors" section describes the behaviours that effective supervisors use in the offshore working environment as collected by the Supervisory Decision Making Vignettes. The "DMV" column cross-references the data collected to the DMV scenario number from which it was captured. Table 9.17 describes the Goal and Action Management Cluster or in other words the behaviours required by a leader. Table 9.18 describes the Leadership Cluster or how leader behaviour impacts on the workforce they lead in order to be effective. Table 9.19 describes the Human Resource Management Cluster or the behaviours required by an effective leader to make a team effective. Table 9.20 outlines the Directing Subordinates Cluster or the behaviours required by the leader when addressing the individual needs of the team, and table 9.21 shows the Focus on Others Cluster or the "people" skills required by an effective leader.

Table 9.17
The Goal and Action Management Cluster for Effective Managers

The Effective Manager (Boyatsis, 1982)		Offshore Supervisors		
Competency	**Skills**	***Competency***	***Skills***	**DMV**
Efficiency orientation	Goal-setting skills	*Efficiency orientation*	*Set mutually agreed goals monitor and review*	2,5
	Planning skills			2
	Skills in organising resources efficiently		*Create a plan of action and monitor for improvement*	3
Proactivity	Problem solving skills	*Proactivity*	*Gather information*	2,3,5
	Information seeking skills		*Use questioning techniques*	1,2,5
	Pattern identification through concept application			
Diagnostic use of concepts	Deductive reasoning	*No evidence collected*		
Concern with impact	Symbolic influence behaviour	*Concern with impact*	*Explain job roles and your support for the current management structure*	3

Based on Boyatsis (1982), Table 4.1, p.94.

Efficiency orientation, in Boyatsis terminology, represents the behaviour of wanting to continually improve. Managers that have a strong need for efficiency orientation are usually very concerned with the monitoring of results and the ability to react to these results. In the offshore industry, supervisors, regardless of functional role, will be able to respond to data relating to platform performance even if it is not directly relevant to their role. As the table shows, this competency is required in both management environments. The DMVs collected several examples where this skill was evident in the behaviour of the offshore supervisor and as such demonstrates that "efficiency orientation" is a key element in the make up of an effective supervisor.

Proactivity represents the behaviour of taking action to accomplish a task. Managers usually see themselves as the ones to originate action and demonstrate skills in problem solving. As the table shows, the DMVs captured many examples where these skills are used by an effective supervisor, thus the offshore supervisor is expected to exhibit "proactivity" as one of the essential behaviours within the role. The skill of seeking more information through questioning is clearly relevant in many different occupations and perhaps the number of examples is not surprising. It is, however, another good illustration of the Boyatsis model remaining congruent with the skills required in the offshore industry.

Diagnostic use of concepts describes a way of interpreting events through a pre-determined mental picture. Managers who exhibit this behaviour tend to "test" events against criteria within a mental model such as labelling staff that leave early on a Friday as matching McGregor's (1985) Theory X system of management. The data collected and described above suggests that none of the supervisors from the expert group display "diagnostic use of concepts" as defined by the Boyatsis methodology. However, the offshore environment is dominated by processes and procedures such as Permit to Work (PTW) and it is inconceivable that the more

effective supervisors do not decipher work problems through mental pictures. Therefore, it is likely that more effective supervisors do exhibit this behaviour but that the scenarios were unable to generate evidence of this competency.

Concern with impact represents a behaviour that is concerned with the organisational symbols of power and how these affect individuals. Managers who exhibit this behaviour require large offices, for example, as one of their tools of influence within the organisation. The offshore environment dictates a culture where strict management allegiance to the decisions of the Offshore Installation Manager are necessary for normal operation as well as emergency situations and the evidence suggests that it is the effective supervisor that maintains this loyalty. While the table only denotes one scenario contributing data, the example provided is, however, a useful one. The following table, Table 9.18 describes the behaviours required to be effective as a workplace leader.

Table 9.18
The Leadership Cluster for Effective Managers

The Effective Manager (Boyatsis, 1982)		Offshore Comparison		
Competency	**Skills**	***Competency***	***Skills***	**DMV**
Self confidence	Self presentation skills	*Self confidence*	*Speak to OIM directly. Be assertive and convince*	4
Use of oral presentations	Verbal presentation skills	*Use of oral presentations*	*Explain decision to the team*	1
Logical thought	Organisation of thoughts and activities Sequential thinking	*Logical thought*	*Prioritise claims with onshore help, if necessary*	1
Conceptualisation	Pattern identification through concept formation Thematic or pattern analysis	*No evidence collected*		

Based on Boyatsis (1982), Table 5.1, p.118.

Self confidence represents the behaviour of leadership in terms of decisiveness or presence. Managers who exhibit this behaviour have no doubt about the decisions that they have made and have a solid belief in their ability to succeed. The offshore environment because of its harshness and masculine bravado backdrop has arguably created supervisors that frequently demonstrate this behaviour in order to survive both politically and socially. There is clear evidence from the table above that this skill is essential when confronted with DMV 4.

Use of oral presentations is a described as a behaviour of being able to make effective verbal presentations. Managers who have this skill can communicate to small or large audiences using both verbal and nonverbal behaviour that reinforce the content of their message. Offshore supervisors would be frequently expected to communicate decisions to their teams, although to what extent they are effective is also determined by assessing the understanding of the message from the recipient. Table 9.18 demonstrates that there was evidence that making presentations to a team is an effective skill.

Logical thought describes the behaviour of using a thought process that places events in a sequential order. Managers who behave using this competency would be organised and would discuss situations in an order which implies a clear pattern of cause and effect. The offshore environment with its formulated working procedures demands that supervisors adhere strictly to these rules (see Diagnostic use of concepts above) and as shown in Table 9.18 there was clear evidence of this competency collected from DMV 1.

Conceptualisation describes another thought process except that it relates to identifying patterns amongst an assortment of information. Managers who possess this skill can understand new information by interpreting it with a new concept. They also use metaphors to get their message across. As with 'Diagnostic use of concepts', it is likely that effective offshore supervisors do exhibit this behaviour, but as shown in Table 9.18 the scenarios did not capture any data.

Table 9.19
The Human Resource Management Cluster for Effective Managers

The Effective Manager (Boyatsis, 1982)		Offshore Supervisors		
Competency	**Skills**	***Competency***	***Skills***	**DMV**
Use of Socialised Power	Alliance producing skills	*Use of Socialised Power*	*Emphasise team values*	3
			Attempt to integrate into team	3
Positive Regard	Verbal and nonverbal skills that result in people feeling valued	*No evidence collected*		
Managing group processes	Instrumental affiliative behaviours	*Managing group processes*	*Allow team to decide who has most deserving case*	1
	Group process skills			
Accurate self-assessment	Self-assessment skills	*No evidence collected*		
	Reality testing skills			

Based on Boyatsis (1982), Table 6.1, p.138.

Use of Socialised Power describes the behaviour in which the person uses forms of influence to build teams and alliances. In achieving tasks, they bring individuals together to form groups that may previously have not existed. These managers resolve problems through their newly formed "teams" and in doing so allow the teams to drive through decisions. The offshore environment probably emphasises further the need to use teams. Effective supervisors are likely to use their already established teams but enhance the decision making process within the team to resolve work related issues. There is clear evidence from Table 9.19 that DMV 3 has gathered examples of this competency.

Positive Regard describes the behaviour where people view one another as positive. Managers that demonstrate this competency may see themselves as an optimist, and attempt to make their employees feel valued. The Supervisory Decision Making Vignettes did not generate any evidence of this behaviour, however, unlike the

above competencies that provided no data, it is my opinion that this behaviour would not necessarily differentiate between effective and less effective supervisors. This is probably due to the 'close-knit' nature of the offshore environment that maintains an overt friendliness among its workforce. It could be argued that this 'atmosphere' masks the more direct and confrontational style that may exist in an onshore situation. Therefore, while 'positive regard' can be described as a competence onshore, the offshore supervisor probably exhibits this behaviour generally and the effective supervisor does something in addition and this was not captured by this definition or the DMVs.

Managing Group Processes describes the behaviour where managers believe that they can stimulate individuals to work effectively within groups. Managers who are able to successfully achieve this communicate to their teams the need for co-operation and collaboration amongst their own team and with other groups. The demand for this competency is ever increasing offshore as a result of both the changing safety and commercial needs of the industry, and evidence of this competency was expressed in DMV 1.

Accurate self-assessment describes the behaviour of accurate self perception. Managers who display this behaviour are able to describe their own performance in terms of both strengths and weaknesses. There was no evidence collected from any of the scenarios for this competency, however, given the offshore culture which is perceived as unforgiving when mistakes occur it is unclear whether the supervisor who is able to admit errors can simultaneously survive in this climate.

TABLE 9.20
The Directing Subordinates Cluster for Effective Managers

The Effective Manager (Boyatsis, 1982)		Offshore Supervisor		
Competency	**Skills**	***Competency***	***Skills***	**DMV**
Developing others	Skills in feedback to facilitate self development	*Developing others*	*Demonstrate evidence of technician's ability*	5
Use of unilateral power	Compliance producing skills	*Use of unilateral power*	*Effective use of company disciplinary policy to reinforce correct behaviour*	3
Spontaneity	Self-expression skills	*No evidence collected*		

Based on Boyatsis (1982), Table 7.1, p.156.

Developing others is a behaviour where managers particularly attempt to help a member of staff do their job. These managers give feedback on performance and then provide training resources to help develop in any areas of performance requiring improvement. The offshore supervisor has significant opportunity to "develop others' while on a trip offshore. It is the effective supervisor, however, who is able to provide accurate feedback on performance in an environment where claustrophobic work relationships may compromise supervisory decisions. Evidence of this competency was elicited from scenario DMV 5.

Use of unilateral power is a behaviour where people use their influence to gain acceptance of their ideas. Managers that use this behaviour use commands, direction and perceived power associated with their role to implement the policies of the organisation. Given the safety regime offshore, the effective supervisor will at times be required to display this type of behaviour in order that compliance from the workforce is maintained. DMW 3 collected behavioural data that were congruent with the description outlined in Table 9.20.

Spontaneity is a competency where people demonstrate the ability to express themselves in an impromptu manner. These managers can be guilty of speaking first before thinking and can as a result upset employees. The managers, however, are secure with the way they express themselves. No evidence of this competency was collected using the DMVs. "Spontaneity" does, however, exist within constant banter among the offshore workforce, but it is unclear whether this behaviour would discriminate between supervisors on levels of performance.

Table 9.21
The Focus on Others Cluster of Effective Managers

The Effective Manager (Boyatsis, 1982)		Offshore Supervisors		
Competency	**Skills**	***Competency***	***Skills***	**DMV**
Self-control	Self-control skills	*No evidence collected*		
Perceptual objectivity	Effective distancing skills	*Perceptual objectivity*	*Gather information*	1,2,3
			Be objective	5
Stamina and adaptability	Adaptation skills	*No evidence collected*		
	Coping skills			
Concern with close relationships	Nonverbal skills that result in people feeling cared for	*Concern with close relationships*	*Show empathy*	1
	Friendship building skills		*Attempt to understand motives*	5

Based on Boyatsis (1982), Table 8.2, p.180.

Self control describes the behaviour where employees hold back personal needs at the expense of organisational ones. Managers that demonstrate this competency often remain calm when confronted by an angry employee and attempt to find out why an employee is upset. No evidence of this competency was collected using the DMVs, however, demonstrating calm under stress does appeal as a behaviour that would be vital for an effective offshore supervisor, especially given their role in an offshore emergency. The need for this behaviour has recently been described as a key quality by employers when selecting the ideal offshore employee (Flin & Slaven, 1996).

Perceptual objectivity is a behaviour with which people can be objective in their view of situations and are not limited by their own personal biases and prejudices. Managers that display this competency are able to describe both sides of a conflict. This skill is essential from an offshore perspective as retaining an impartial view of problems is difficult enough without the added constraints that the offshore workplace brings. Several of the DMVs collected data in this area as shown in table 9.21.

Stamina and adaptability describes the behaviour where people have the energy to sustain long hours and adapt to both changes in the social and organisational environment. Managers who demonstrate this skill retain high levels of performance even after working long hours. No data was captured under this competency, however, the long hours, harsh working conditions and isolated working environment that exist offshore would suggest that supervisors require such a competency to be effective.

Concern with close relationships is a skill where individuals endeavour to build friendships with work colleagues. Managers that display this behaviour spend time talking to employees without a work related reason dominating the conversation. These conversations are not intended primarily to motivate an employee but to find out about the employee on a friendship basis. The offshore environment is probably more suited to this behaviour than others because of the length of time that employees spend with one another. (Typical

offshore trips last fourteen days). However, this is a skill that could still differentiate levels of effectiveness as the less effective supervisor may attempt to use the "offshore friendship" solely for organisational gain.

Discussion

The purpose of the Supervisory Decision Making Vignettes was to provide a tool that elicited qualitative supervisory behaviours for pre-determined situations. From this exercise a list of key offshore supervisory competencies was developed. The scenarios provided a useful insight into the behaviours that are required by an effective offshore supervisor. By mapping these against the established 'Job Competence Model' from Boyatsis (1982), the scenarios have demonstrated that they were a useful instrument in generating behaviours which broadly overlapped with Boyatsis' effective manager model. Table 9.17 "Goal and Action Management", in particular, describes many of the skills deemed effective for US Managers as directly applicable for supervisors on an offshore platform. The areas where offshore supervisory behaviours did not map directly to the Boyatsis Model have been explained in the text, but it is likely that full behavioural event interviews would have produced the full range of competencies. What is not clear is whether there are any effective behaviours that may be required offshore but not in an onshore supervisory or management situation and vice-versa. This problem is highlighted by the data described in Table 9.19 "Human Resource Management" as the offshore environment may have excluded behavioural examples of other competencies. For example, the offshore environment does create a climate where living and working together could compromise the ability of the supervisor to make difficult man-management decisions. As discussed in Chapter One, there may be a competency which describes the behaviour of being able to reprimand a team member for poor performance but communicate it in such a way that maintains social harmony on the platform. While "perceptual objectivity" does describe a similar behaviour, the offshore environment may mandate something extra. Another key competency that is required offshore is the ability of the supervisor to make decisions in an emergency situation as the supervisor is very often a key member of the platform emergency response team. These scenarios were all designed to draw out behaviours necessary during a steady state operation. The use of a platform simulator (onshore) would facilitate the opportunity to record competencies required in an emergency that clearly could not be captured during an interview. Another possible competency that maybe required is the ability to cope with confinement and isolation (Flin & Slaven, 1996). These are issues for both the supervisors and their teams, however, it is the supervisor who is expected to maintain a productive workplace irrespective of the impact of offshore related stressors. "Stamina and adaptability" (Table 9.21) does overlap with the competency of an effective manager, however, to what extent a supervisor needs to display this behaviour on a platform has still to be tested. Some Norwegian companies job descriptions for OIMs describe this behaviour (see Flin, Slaven & Carnegie, 1996)

One aspect of collecting evidence in this manner that was not described is where there is a significant over emphasis of one particular behaviour. For example, the supervisor who shows an abundance of "spontaneity" has a potential weak competence in "self control". Further analysis is required to identify if there are specific conflicts among the competencies that are described above for the role of an offshore supervisor. This analysis has identified certain competencies that if used by an offshore supervisor would probably indicate excellent

supervisory performance. Even though the method compartmentalises behaviour into segments, the competence model does provide a better holistic insight into the supervisor's role than does the MCI personal competence model. What the Boyatsis model has not shown is which competencies are commutative and which ones are not, and only further testing would explain this weakness.

The performance of the sample of supervisors when compared with that of the expert group indicate that there are several areas for development as few supervisors matched the full range of behaviours from the expert group against each of the DMVs. The analysis, however, provided a useful model from which to benchmark supervisory behaviours against supervisory competencies using Boyatsis as an accepted framework. The driver to understand what these competencies are and how to train supervisors to use them still remains a key driver in the development of the "ideal" offshore supervisor.

9.7 The Offshore Supervisory Competence Model

The Offshore Supervisory Competence Model described below summarises the qualitative findings from the DMV section. The model contains those elements of the Boyatsis Model which have been described above but also highlights possible competencies that were not gathered from the DMV expert interviews. The text in bold outlines these gaps and suggests areas where offshore behaviours might be found to complete the model. The quantitative results may add further value to the model but this will be discussed separately in Chapter Ten.

Table 9.22
The Offshore Supervisory Competence Model

Competency	Generic Skills	*Offshore Skills*
The Goal and	***Action Management Cluster for***	***Effective Managers***
Efficiency orientation	Goal-setting skills Planning skills Skills in organising resources Efficiently	*Set mutually agreed goals monitor and review* *Create a plan of action and monitor for improvement*
Proactivity	Problem solving skills Information seeking skills	*Gather information* *Use questioning techniques*
Diagnostic use of concepts	Pattern identification through concept application Deductive reasoning	**Quickly identifies problems by matching previous experience to new situation**
Concern with impact	Symbolic influence behaviour	*Explain job roles and your support for the current management structure*
The Leadership	***Cluster for Effective Managers***	
Self confidence	Self presentation skills	*Speak to OIM directly. Be assertive and convince him.* *Explain decision to the team*
Use of oral presentations	Verbal presentation skills	*Prioritise claims with onshore help, if necessary*
Logical thought	Organisation of thoughts and activities Sequential thinking	**Uses 'mental models' to understand new problems**
Conceptualisation	Pattern identification through concept formation Thematic or pattern analysis	
The Human	***Resource Management Cluster***	***for Effective Managers***
Use of Socialised Power	Alliance producing skills	*Emphasise team values* *Attempt to integrate into team*
Positive Regard	Verbal and nonverbal skills that result in people feeling valued	**Demonstrates friendly relationships among team but does not let relationships interfere with job**
Managing group processes	Instrumental affiliative behaviours Group process skills	*Allow team to decide who has most deserving case*
Accurate self-assessment	Self-assessment skills Reality testing skills	**Takes responsibility for both their own and their team's performance**

Competency	Generic Skills	*Offshore Skills*
The Directing	**Subordinates Cluster for**	**Effective Managers**
Developing others	Skills in feedback to facilitate self development	Demonstrate evidence of technician's ability
Use of unilateral power	Compliance producing skills	Discipline and dismissal will follow if no improvement
Spontaneity	Self-expression skills	In a work situation always thinks before he/she speaks
		Does not exhibit creativity in the workplace
The Focus on	**Others Cluster of Effective Managers**	
Self-control	Self-control skills	Remains calm and collected during stressful situations
Perceptual objectivity	Effective distancing skills	Gather information
		Be objective
Stamina and adaptability	Adaptation skills	Maintains a 'quality' of work despite working long hours
	Coping skills	
Concern with close relationships	Nonverbal skills that result in people feeling cared for	Show empathy
	Friendship building skills	Attempt to understand motives

The Offshore Supervisory Competence Model describes a framework that could help in the recruitment, selection and development of future offshore supervisors. Traditional models of job analysis have examined both the job and the person in the workplace, and then attempted to fit them together. Selection techniques based on personality and leadership styles may be less useful as quantitative results have shown. The data collected by the DMVs and then using the Boyatsis model for presentation have identified the key behaviours that are required by taking a person centred approach to offshore supervisory effectiveness (Klemp, 1982). This method provides the skills that are necessary to be an effective "manager" rather than traditional approaches to management training which can burden the manager with broad skills which may or may not result in improved performance. Furthermore, the model provides examples of the skills that are requisite for an effective offshore supervisor. Thus, providing descriptions of the skills that fit with the environment under investigation.

9.8 CONCLUSION

This chapter described key results about the Offshore Supervisor Survey. The platforms, unlike the three previous chapters, were examined as a total sample. The results are presented from two distinct methodological perspectives; quantitative instruments and qualitative "behavioural interviews". Although some of the findings relating to the performance measures were statistically in different directions, there were some interesting outcomes resulting from investigating all three platforms together. These are described below.

Differences between the UKCS & NCS

The statistical test 'analysis of variance' revealed cultural differences between the Norwegian Platforms and the UK platforms. It appears that perceptions about safety attitudes are significantly different and although there may be a company effect it is more likely that these findings are due to a cultural difference. The WES scale, in particular, identified distinct differences between the UK and Norway. The Norwegian sample rated their environment as possessing characteristics (concomitant with an environment) with intrinsic themes such as workforce empowerment while recognising the need for rules and structure when it was necessary. The results for job satisfaction also identify cultural differences between the countries. The supervisors on N1 are significantly more job satisfied than their counterparts on the UKCS. Furthermore, the Norwegian sample have significantly longer offshore supervisory experience than supervisors on UK1 and UK2 and as a consequence may score higher job satisfaction because they are more familiar with their environment. The final key difference between the two North Sea sectors was identified by the transactional leadership variable "management by exception 'active'. The N1 supervisors report that they do not intervene at the workplace when things are going wrong as readily as the UK supervisors and as stated above this finding is consistent with the WES results and portrays a more empowered work culture on this platform.

Differences between UK1 and UK2

The analysis of variance results also describe some interesting differences between the three platforms. Of particular note are the findings that differentiate UK1 and UK2. As stated earlier, these platforms have in common many of the potentially differentiating attributes that logically could account for differences such as type of platform, operating company and North Sea location. In essence, it is the 'personnel' that are accounting for the variation. For example, the UK1 supervisors rate the importance of man-management as critical for the future of the offshore industry more highly than the other two platforms. UK2 supervisors scored the personality dimension "emotional" significantly higher than UK1 supervisors. Although caution should prevail with this personality instrument because of the sample size, this finding is curious since it is unlikely that there is intentionally a different recruitment policy between these platforms and yet there is a difference in means for this personality dimension. Furthermore, UK2 supervisors report a different leadership style from their counterparts on UK1. Their style is more assertive in the workplace as shown by the findings in Table 9.8. As supervisors, they portray a more active role with their teams which may indicate a platform management style where trust is replaced by constant checking and reviewing.

Differences between UK1, UK2 and N1

Discriminant analysis was used to predict platform membership using certain independent variables (innovation, length in current role as a supervisor, management by exception 'active', management by exception 'passive' and the attitude statement 'the role of the supervisor is not dominated by paperwork'). Supervisory responses against these variables demonstrated that where the supervisors worked was discriminating within the overall sample. This clearly indicates that the five variables highlighted can describe not only that there are differences between the three platforms but measure the extent of them. Current selection and recruitment methods for most platforms are not scientific and are at best 'trial and error'. Therefore, if this technique were expanded to

increase the data set to multiple platforms, it potentially could improve the selection of future offshore recruits by mapping organisational, attitude and cultural factors in line with the platform style.

Quantitative Supervisory Performance

Discriminant analysis was also used to predict supervisory performance of the total sample. As above, for platform membership, this technique proved very useful. The effective supervisors across these platforms were different from the rest. They exhibited a common leadership style (proactive transactional), interacted with the workplace differently (i.e., recognising the need for management rules and structure within a harsh environment) and were more experienced within their role. Therefore, to assist with recruitment and selection, these variables (except for experience in role) can improve offshore supervisory performance as defined by the criterion performance measure.

Qualitative Supervisory Performance

The use of the Supervisory Decision Making Vignettes (DMVs) was an innovative attempt at differentiating supervisory performance. Although there were contrary correlations with performance as measured by appraisals from superiors, the methodology produced both interesting findings and the foundations of an offshore supervisory behavioural model.

Firstly, the scenarios generated many corresponding behaviours to 'Boyatsis Effective Manager'. Many of the effective supervisory behaviours were similar to this model and while the DMVs were not intended to map directly with the Boyatsis model it does indicate that as a tool they were both relevant and credible (see Table 9.20).

Secondly, this qualitative technique was probably the most appropriate technique for articulating what creates the distinctions within the key groupings of 'effective versus less effective offshore supervisory performance' and 'onshore versus offshore supervisory performance'. (The data set was not large enough to effectively capture differences between platforms). One of the main strengths of the technique was that it was environment specific and consequently generates a model that is offshore supervisor centred. Therefore, as a job analysis technique, the output is immediately transferable in an offshore context and training, selection and or development strategies can be driven by output which is directly applicable.

Finally, the methodological benefit of the DMVs were to triangulate the data with the standard instruments and although there were mixed findings, it created a more holistic view of the offshore supervisory role and in many areas has identified factors that have discriminated performance.

CHAPTER TEN

CONCLUSIONS AND RECOMMENDATIONS

This chapter will draw together the overall findings from the study. The model outlined in Chapter Five will facilitate the description of the findings in conjunction with the aims. In summary, the main aims of the study were to identify factors that differentiated a more effective supervisor from a less effective one, to investigate the preferred leadership styles of offshore supervisors and to assess whether there were any differences between supervisors working on platforms on the UKCS compared to the NCS.

The key findings of the thesis were in the following areas; (i) the summary data described for the first time the offshore first line supervisor in terms of bio-data, personality, leadership style, job satisfaction and perceptions of the work environment, (ii) the findings from these instruments, particularly the Bass leadership instrument, identified that supervisory effectiveness was dependent on the platform membership of the supervisor, (iii) the supervisory decision making vignettes created a competence model that could be used for recruitment, selection and development of offshore supervisors and finally (iv) platform differences, in terms of supervisory style, were elicited from both within the UK sector and between the North Sea sectors.

Recommendations for the Offshore Oil and Gas Industry and directions for future research are also proposed.

10.1 INTRODUCTION

The review of research into management of the offshore industry outlined the importance of this unique working environment to the UK economy, and surprisingly, how little management research was undertaken into the industry. There have, however, been previous psychological investigations of shift work, occupational stress, mental and physical health, job satisfaction and safety on North Sea installations (see Flin & Slaven, 1996; Hellesoy, 1985) which consistently (if tangentially) identify the important contribution of supervisors in maintaining a safe and satisfied workforce. The contribution of the onshore supervisor to job performance and productivity at the workplace is unequivocal (Child & Partridge, 1982; Phillips, 1985). In Chapter Two several of the 'supervisor' productivity effects were discussed. This included the seminal work undertaken by Woodward (1965). Her study, although thirty years old, still provides useful lessons for the current workplace. In particular, understanding the potential impact both the number of subordinates and the types of technology have on supervisory style. While, Woodward's study does not provide the conclusive answer as to what creates effective supervision it did provide clear directions for future research. Child and Partridge (1982) outlined

several models for the development of the supervisor. The difficulty is transferring their models to the workplace and, if necessary, investing in both the time and the training required to implement them. Within the offshore oil industry, the cultural/environment elements will have a significant influence on the supervisory model. These factors are integrated as part of the "effective offshore supervisor model". This model is described at the end of this chapter. Chapter Three outlined the empirical research into leadership in the workplace and concluded that there is not one dominant/accepted theory of effective leadership. However, there is value in studying the leader from different theoretical perspectives. In essence, an integrated leadership concept comprising leadership behaviour, trait theory and the augmentation model of transformational leadership (Bass, 1990) may hold many of the answers in the search for effective leadership, although even this model produced low magnitude and at times contradictory correlations. The Bass model, while useful, was not the definitive research instrument that was anticipated from the leadership literature.

The pilot study of offshore supervisors identified some key factors in researching the role and potential weaknesses in the viability of the instruments used to measure leadership style. The main findings from the pilot interviews were that the offshore environment was a significant element that made communicating with and motivating staff more troublesome. The supervisors felt that potentially difficult interpersonal conversations (such as criticism of work performance) were diluted, even avoided, because of the remote environment. It was felt by the supervisors that the offshore workplace could negatively influence appraisals, affect the selection of future supervisors and may compromise supervisory decisions. Finally, the supervisors did perceive that change management skills would be required because of the increased focus on safety management and the expanding commercial emphasis offshore.

The results of the pilot study helped refine the data collection methodology for the larger survey. For example, the offshore environment was repeatedly mentioned by the supervisors as a key factor that affected their roles. As a consequence, the "offshore environment" was researched as a key independent variable in the full study. The environment was measured directly using the Work Environment Scale (Moos & Billings, 1974) and this instrument proved helpful in identifying key offshore characteristics. The use of the Work Environment Scale (WES) was maintained in the full study. The use of the Leadership Opinion Questionnaire (LOQ) and Supervisory Behaviour Description Questionnaire (SBDQ) (Fleishman, 1953) were withdrawn for the full study as a leadership measure because of the weak correlations with the performance measure and the central concepts were not reflecting current management thinking of this industry. Given the concurrent validation, namely an untested independent variable (for this industry) and an untested performance criterion, there was a danger that one or both of these 'unknowns' is inaccurate. In spite of this risk, the decision was taken to search both for a potentially better instrument for investigating leadership and an improved performance measure. As a result, Bass's Leadership Model (1985) and two alternative appraisal measures were used. The job satisfaction scale (Warr et al, 1979) was found useful in classifying differences in job satisfaction levels between onshore and offshore groups and also with previous offshore studies. Moreover, given the intention of attempting cross cultural research, it was felt that this robust and relatively straightforward instrument could provide useful comparative data. Finally, the responses from Q.26 (The situational scenario where equipment fails and the respondents were offered several prompts to indicate their next action) led to the development of the Supervisory Decision Making Vignettes (DMVs). These vignettes were a rich source of qualitative data and are described in detail in Chapter Nine, section 9.5.

These findings assisted in the formation of the aims of the full study. They were as follows:

(i) To record the experiences and perceptions of a sample of offshore supervisors in relation to the working environment, training, job satisfaction, personality and leadership skills.

(ii) To discover which of these factors differentiate a more effective from a less effective offshore supervisor in terms of job performance.

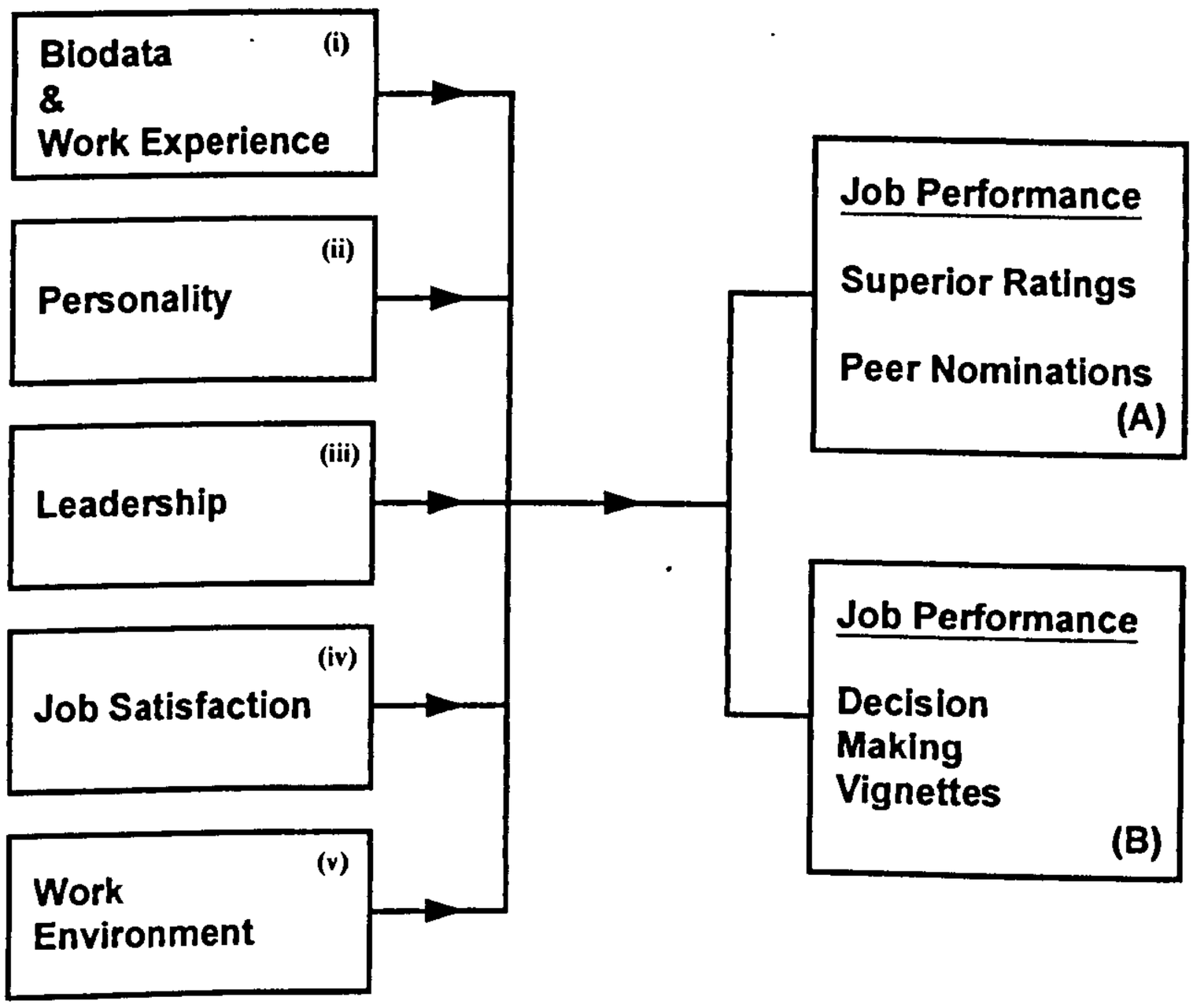
(iii) To investigate the preferred leadership styles of the supervisors and to test where these differentiate the effective from the less effective offshore supervisor by incorporating the views of the supervisors, the supervisors' superiors and the supervisors' subordinates.

(iv) To examine two alternative techniques for measuring supervisory performance.

(v) To assess whether there are any differences between supervisors working on platforms on the United Kingdom Continental Shelf (UKCS) and those on the Norwegian Continental Shelf (NCS); and between supervisors working for contracting companies as opposed to operating companies.

These aims were examined within the context of the thesis model of the effective supervisor, described in Chapter 5, section 5.4. It is presented again below as figure 10.1.

Figure 10.1
Model for Effective Offshore Supervision



Chapters Six, Seven and Eight describe how the research findings fulfilled these aims. Chapter Nine describes the examination of the aims across all three platforms as one sample. This chapter will review the research aims and the major conclusions through key offshore supervisory themes such as 'the offshore supervisor *in situ*,'

'the supervisory style of effective offshore supervisors' and 'the platform effect'. Secondly the contribution of the research to our understanding of leadership in the workplace will be described, and finally the chapter will present both a framework for practical action for the offshore industry and suggestions for future research.

10.2 PLATFORM FINDINGS

10.2.1 Overall Findings

The North Sea Offshore Oil and Gas Industry is a demanding, diverse and dangerous working environment. The sample of the supervisors studied, although small, represented significant offshore experience both in terms of length of service and their time as supervisors. As a group, they embodied the typical workforce of this unique working environment and many of their views, characteristics and skills probably mirrored the larger offshore population. The next section describes, in summary, how the sample met each of the objectives outlined above.

(i) To record the experiences and perceptions of a sample of offshore supervisors in relation to the working environment, training, job satisfaction, personality and leadership skills.

Most of the respondents were aged between 36 and 47 years and the average length of service as a supervisor was almost eight years. The total offshore experience of the sample was in excess of one thousand years with nine subordinates typically supervised by each supervisor. Most of the supervisors had taken post secondary school examinations such as City and Guilds or Higher National Certificates before pursuing their careers offshore.

The majority received ratings from their superiors towards the higher end of the job performance scale. As a total sample, *Technical/Specialist Ability* was the highest scoring indicator with the lowest scoring performance indicator *Initiative* on UK1, *Influencing Others* on UK2 and *Change Oriented* on N1.

In terms of personality, they appeared to be a fairly heterogeneous group. There is some indication for UK1 & UK2 that they are more *Imaginative, Methodical, Achieving* and *Gregarious* (UK1only) than a population norm group but this is only a preliminary finding. The Norwegian supervisors (n=17) appear more *Methodical* but less *Emotional* than a UK population norm group.

The job satisfaction scores of the total sample of supervisors was higher than the technicians' scores and significantly higher on UK1 and N1 compared to UK2 ($p<.01$). On UK2 there was no significant difference for the job satisfaction total scores (71.7 vs 68.6, $t=-.3$). On UK1, they rate highest satisfaction with *your fellow workers* but rate lowest satisfaction with *the way your firm is managed,* on UK2 the highest satisfaction is with

your immediate boss and lowest with *industrial relations between management and workers in your firm,* and finally on N1, the supervisors rate the highest and lowest job satisfaction items similar to that of UK1, *your fellow workers* but additionally rate highly *the amount of responsibility you are given,* and lowest satisfaction with *the way your firm is managed.* In general, the three groups of supervisors were job satisfied and their ratings were higher than previous offshore studies (Sutherland & Flin, 1991; Sutherland, V, & Cooper, 1986). See also Table 4.4.

The work environment instrument scores were useful in identifying the supervisors' perceptions of the work climate. Both UK1 and UK2 platforms described the offshore workplace as having a high degree of pressure and time urgency to get jobs done, and management use rules to keep employees under control. Both supervisor groups felt that the physical work conditions did not contribute to a pleasant working environment. The UK2 supervisors specifically indicated that they felt there was a strong cooperative culture among the staff. On N1, the supervisors described an environment with a strong cooperative employee culture and a high degree of workplace innovation but within a culture of management control and task accomplishment. These findings are similar to the conclusions of Burnett and Tait (1996) on offshore workplace empowerment. Using a separate question on stress, the majority of supervisors rated their role as mildly to considerably stressful.

The final key variable of investigation was the self reported leadership style of the supervisors using the MLQ (Bass & Avolio, 1993). On platform UK1, three transformational items were rated highly; *idealised influence, intellectual stimulation* and *individual consideration. Laissez-faire* was rated the lowest factor by this group. On UK2, the supervisors scored highest on the transformational item *inspirational leadership,* and as with UK1, the lowest item was laissez-faire. Finally, N1 supervisors rated the item *idealised influence* and *intellectual stimulation* highly and as with the two UK platforms *laissez-faire* the lowest. This showed that on the three platforms supervisors believed that they showed a proactive transformational style rather than the non-involved laissez-faire style.

(ii) To discover which of these factors differentiate a more effective from a less effective offshore supervisor in terms of job performance.

This objective was the most critical of all. To determine the factors behind effective supervisory job performance was singularly the most interesting element of this research for the sponsoring oil industry managers. Regrettably, determining the skills of the effective offshore supervisor in terms of training, work environment, job satisfaction and leadership style has remained inconclusive. The pooling of the data (n=91) may have masked underlying themes in the data and statistically cancelled out possible effects. The platforms examined separately have, however, identified some interesting findings. On UK1 and N1, none of the biodata or personality items correlated with the job performance measure suggesting that these were not useful predictors of performance. However, on UK2, *length of time as a supervisor* ($r=.56$, $p<.01$) and *methodical* ($r=-.37$, $p<.05$) significantly correlated with the job performance measure.

In terms of job satisfaction, as a predictor of performance, the results were slightly more encouraging. On UK1, several items correlated with the job performance measure. These included; *the recognition you get for good work, your opportunity to use your abilities* and *industrial relations between management and workers in your firm.* This suggests that higher performing supervisors are more satisfied with the social elements of the workplace such as empowerment, management praise and management/employee relationships. On UK2 and N1, none of the job satisfaction items significantly correlated with performance.

Some of the WES items for UK1 and UK2 were identified as useful discriminators of performance. On UK1, both *involvement* and *innovation* showed significant correlations with the job performance measure. This analysis suggests that the more effective supervisor on this platform understands the need for change at the workplace and leads a team of subordinates who are committed to their jobs. On UK2, *innovation* also significantly correlated with the job performance measure but was negative ($r=-.56$, $p<.01$) implying that on this platform the more effective supervisor does not perceive that the workplace is changing. None of the items for N1 correlated significantly with the job performance measure.

The leadership variable was the final one that could potentially discriminate the effective supervisor from the less effective one. On UK1, *inspirational leadership* and *management by exception 'active'* significantly correlated with the performance measure, but on UK2 *individual consideration* and *management by exception 'active'* both negatively correlated with the performance measure suggesting that different, almost opposing, leadership styles are effective on each platform. None of the leadership items were significant on platform N1.

So in terms of predicting job performance, standardised measures were of limited value, although they did provide structured descriptions about this workgroup.

(iii) To investigate the preferred leadership styles of the supervisors and to test where these differentiate the effective from the less effective offshore supervisor by incorporating the views of the supervisors, the supervisors' superiors and the supervisors' subordinates.

The preferred leadership style was investigated through open questions and a structured leadership questionnaire; the MLQ by Bass and Avolio (1993). The responses to the open questions did not contain any startling revelations about their preferred styles. The respondents used labels such as 'motivates his team', 'assertive' and 'discusses job with team' to describe the behaviours of effective supervisors. In fact, both UK1 and UK2 respondents described 'knowing the capabilities of team', 'leadership' and 'man-management' as the most critical skills of an effective supervisor. But, as outlined briefly above, it was the inconsistent quantitative findings for the two UK platforms that was surprising. Moreover, it appears that the effective leadership style is platform dependent. The UK1 effective leadership behaviour is partially transformational i.e., using emotional appeals to encourage improved work performance and this is further enhanced by transactional leadership behaviour. This is characterised by a supervisor who portrays a 'hands on' style at the workplace. However, the UK2 effective style is almost the antithesis of UK1. Effective supervisors on this platform are physically

and psychologically distant from both the workplace and their teams, and only take action when either significant difficulties arise or situations become so chronic that they have to get involved. None of the leadership items correlated significantly with the job performance measure on N1 and therefore no conclusions were drawn about the effective style on this platform.

The perceptions of the subordinates about their supervisors' leadership style was measured through the raters' version of the MLQ. The work demands of the offshore environment meant the sample size of subordinates was low (n=70 for UK1, n= 41 for UK2 & n=20 for N1). This resulted in a low ratio of raters to supervisors, so this analysis was withdrawn. This was regrettable because subordinate ratings about the leadership style of supervisors is an essential feedback loop in determining leadership behaviour and therefore future projects should consider more carefully the logistics of ensuring a larger data set of subordinates.

(iv) To examine two alternative techniques for measuring supervisory performance.

The job performance measure was the main method used to determine supervisory performance. It had been used in a previous study with offshore subjects (Sutherland, 1994) and, as then, was found to have high internal reliability. However, this measure did not discriminate performance as effectively as anticipated (see Chapter Six, Seven & Eight). There are weaknesses with this type of measure, namely the central tendency with the scoring and as the performance measure is single source, other factors can have an influence such as "impression management," to increase the subjectivity of the supervisory appraisal.

Peer nominations were attempted because of their advantages over performance measures such as appraisal (Kane & Lawler, 1978). Their research showed this tool effectively discriminates group members who are extreme on a variable from those who are not with a high degree of validity and reliability. This method proved extremely contentious on the confined atmosphere of an offshore platform and was withdrawn after the visit to UK1. However, on this platform, peer nominations provided some interesting findings. These scores correlated significantly with the WES item *innovation* ($r=.32$, $p<.05$) endorsing the finding from the job performance measure that the supervisor who perceives change positively is a high performing supervisor. The leadership items also significantly correlated with the peer nominations. The transactional factor *management-by-exception* 'active' and three of the four transformational factors (*idealised influence*, *individual consideration* & *inspirational leadership*) showed that when rated by peers these were all leadership variables that identified high performing supervisors. Future research should consider altering this method of appraising performance in order to make it less contentious without compromising the functionality. For example, the "less effective" scoring could be withdrawn and allow only positive ratings to be recorded, thus maintaining the performance discrimination as the more effective supervisors should still receive the most votes.

(v) To assess whether there are any differences between supervisors working on platforms on the United Kingdom Continental Shelf (UKCS) and those on the Norwegian Continental Shelf (NCS); and between supervisors working for contracting companies as opposed to operating companies.

Some of the differences between the platforms have been described above such as the leadership scores and the perceptions of the work environment of the UK1 and UK2 effective supervisors. There were, however, several other differences between the groups within the sample. The most obvious distinction to examine was between the two offshore sectors. The safety and attitude scale highlighted significant cultural differences between the Norwegian sample and the UK one. For example, the attitude scale item *if supervisors did not take risks now and again the job wouldn't get done* showed that the Norwegian sample significantly disagreed with this statement (See Table 9.3 for other examples).

There were other between platform differences such as for personality which although not effective at discriminating job performance, did reveal that UK2 supervisors were significantly more *emotional* than supervisors on UK1 and N1.

The UK platforms were staffed by supervisors from two different companies. Typically, the operator supervisors managed production and the contractor supervisors managed maintenance departments, respectively. The samples, although small, did indicate some interesting differences between the two groups. It should be noted, however, that there were no bio-data differences suggesting that other variations can be attributed to the supervisors' parent company. On UK1, the contractor supervisors rated their role less stressful, less *work pressure* but more *control* than the operator supervisors (see section 6.7). On UK2, the key distinction was for the WES item *innovation*. Both groups significantly correlated with the job performance measure, but in opposite directions. The higher performing contractor supervisors perceived change and new approaches were to be encouraged whereas the higher performing operator supervisors perceived a static work environment.

In short, significant differences were found between the three platforms, the two offshore sectors and the two supervisor groups on the UK platforms. Broadly the results of this study, the first to investigate the role of the offshore supervisor, showed that the effective supervisor does have a distinctive style. It appears, however, that the effectiveness of the supervisor is heavily influenced by the job context, and as stated the source employer created further distinctions. Therefore, each of the main findings from the three platforms studied are summarised individually as there were several key differences between them which are described in the next section.

10.2.2 The Supervisory Style of Effective Offshore Supervisors

The results from Chapter Six showed that effective supervisors on UK1 have a predominantly transactional leadership style (i.e., exchange and reward in return for compliance). There is also some evidence of transformational leadership among supervisory behaviours (i.e., raising followers expectations of possible performance to higher levels), although only one dimension - inspirational leadership - predicted performance (see section 6.6). In other words, the effective supervisors take an active role in enforcing the compliance of standards by their team and motivate higher performance from their team by using pep talks, enthusiasm and describing attainable visions of the future. They are also satisfied with the work opportunities that are open to them and are satisfied with the employee relations on the platform as shown by the job satisfaction scores (see table 6.9). Moreover, they are supervisors who understand the current changes offshore and supervise a team who are committed to their work. Undertaking correlational analysis using only one performance criterion has limitations (Yukl, 1994) and low magnitude correlations, although significant, bear out this weakness. Given the lack of easily accessible objective criteria, immediate superior evaluations of supervisory performance was, in theory, the most reliable measure available. This is still the most popular method of measuring performance within UK industry (Cook, 1993). While an attempt was made to collect peer nomination scores on performance, the close-knit community atmosphere of the platform made this extremely contentious and as a result was withdrawn for use on the other platforms in the study. However, the key findings using this measure are presented in Chapter Six. Future research should address this issue and ideally multiple criteria of supervisory performance should be developed.

Overall, the results from UK1, indicate that there is some evidence of a distinct and effective offshore supervisory style. The platform membership of the supervisor is a critical factor and the employer status of the supervisor may further discriminate performance. For example, the contractor supervisor rated key aspects of the work environment, job satisfaction and items of the attitude scale more positively than the operator supervisor. This is broadly contrary to offshore research from the early to mid-eighties (Sutherland, K, 1994; Sutherland, V, 1986) which recorded significant dissatisfaction generally with the offshore environment from a contractor's point of view. Factors that may have caused this change include the increased focus in improving offshore safety by involving all groups of staff and the impact of outsourcing (Green, 1994). There is also evidence that the more effective supervisor perceives a changing work environment and understands these changes. Furthermore, they have higher levels of job satisfaction particularly with reference to using their skills and being recognised for doing good work.

It is encouraging that while the prominent leadership style of the supervisor is transactional, there is some evidence of transformational leadership behaviours. Bass (1985) argues that transformational leadership has to be fostered if organisations are to meet the new challenges facing industry and there is substantial evidence that

transformational leaders improve the performance of an organisation at all levels (Bass & Avolio, 1990; Bass & Yammarino, 1991). The challenge for the offshore industry is to examine whether this model of leadership is applicable and assuming it is , then to extend these key behaviours so that they become the norm rather than the exception.

On platform UK2, however, the more effective supervisor appears to display a style that it is counter intuitive and this poses different development problems. For example, as shown by the Bass leadership model (1990) the more effective supervisor on this platform does not take an active role in enforcing the compliance of standards by their team and does not search for mistakes. But when mistakes occur, only intervenes when the issues become really chronic as shown by the better performers demonstrating negative correlations for 'management by exception (active)' (see section 7.6). The more effective supervisor also takes little interest in the individual needs and wants of his or her team and finally perceives little or no change in the work environment (as shown in section 7.5.1). This style is more autocratic and is not only at odds with the findings from UK1 and the current management and leadership literature but is also an anathema in a high risk environment. Although Bass (1997), argues in a reference to these findings (p.137) that this may be due to a distant, tough, no-nonsense onshore boss who is dictating the views of platform management. In reality, however, this onshore platform manager was highly visible making frequent offshore trips, was mild mannered and aimed to make decisions by involving his offshore managers. Therefore, the evidence found describing this harsh offshore management style may be perpetuated consciously or even unconsciously by the offshore management group in isolation of the wider management philosophy of the company.

The quantitative results for describing an effective supervisor on platform N1 were less conclusive. The data set was considerably smaller than platforms UK1 and UK2, and as result none of the performance predictions were significant. However, there were aspects of the data that may store clues for identifying an effective supervisor on this platform. The performance ratings indicate that technical ability was rated as an essential skill for an effective supervisor, the majority of supervisors perceived their role as one of a team leader with 'empowerment' and 'involving employees' mentioned, and most supervisors felt that technical experience was essential for the role. This is also consistent with the views shared by another Norwegian Platform Manager (Lynghaug, 1995).

Suggested reasons to account for platform differences

These findings show, somewhat unexpectedly, that supervisory performance is dependent on platform as different supervisory styles appear effective on each of the UK platforms. Surprisingly, the 'platform effect' appears a stronger link to supervisory performance than other more tangible aspects such as biodata or parent company. The 'platform effect' or culture appears to exist independently of the fixed elements of the offshore workplace such as remoteness and safety considerations. It is, however, both these static attributes and the platform culture that create many of the difficulties of investigating this workplace and ultimately to make recommendations for change and improvement. For example, the findings from the three results chapters indicate that a hydrocarbon production platform is a structured, potentially stressful and task oriented

workplace, based in an environment that is dominated by high inventory dangers and complex safety systems. Although these attributes of the environment must remain fixed, the supervisory and managerial characteristics, which have to change as a result of the current commercial impetus, still seem to belong to the 'boom era' of the late seventies and early eighties. A number of explanations may be entertained. One possibility is that current industry wide commercial initiatives such as Cost Reduction in a New Era (CRINE) and the resultant message are not making the impact that is required at the front line. Cynics may argue that no message gets through, however evidence from the offshore industry shows that the Safety Case and other Cullen sponsored initiatives have made an encouraging impact (HSE, 1995) If this is so, there still remains the challenge of nurturing innovative work practices, proactive supervisory and management styles, and a general attitude shift without compromising the safety culture of the platform (e.g. Simons, 1995). This 'safety discipline' versus 'workplace empowerment' dichotomy was also discussed by Dawson (1989) who stated "Routine procedures must be seen as critical and be encouraged and monitored, but people should also be developed to be alert, take initiative and to think laterally" (p.4). Similar challenges were addressed by Swiss chemical company Ciba-Geigy in the early nineties. They attempted radical culture change to meet the environmental revolution that was concomitant with the changing values of society. Using Robert Waterman's concept of "Directed Autonomy" (Kennedy, 1993), creativity and innovation were effectively maintained within pre-set departmental boundaries. Another possibility is that the new safety initiatives offshore have merely encouraged a technically dominant work culture to further focus on technical solutions. Thus, minimising the opportunity for "soft management factors" to contribute to the change process. A third possibility is training. The UK sample, in particular, has not been exposed to a great deal of management/leadership/supervisory training (see section 6.3, for example) and this is required if both cost conscious and innovative supervision are to become a reality. Although training for training's sake is not being advocated but new training initiatives such as the new focus on safety culture (Flin, Mearns, Gordon & Fleming, 1996) have to match the needs of the organisation, fit the offshore context and perhaps even the specific platform culture.

The following table summarises the main differences between the three platforms.

Characteristics of more effective supervisors

PLATFORM UK1	PLATFORM UK2	PLATFORM N1
Active role in enforcing of standards, motivates performance through pep talks, enthusiastic, and describes attainable visions for the workplace.	Passive role in enforcing standards until issue becomes chronic, manages team autocratically and does not know the needs and wants of the individuals within team.	Experienced supervisors, highly job satisfied, extremely safety conscious supervisors, but could improve on the job satisfaction of teams.
Embraces change, is satisfied with opportunities for themselves and their team.	Perceives the work environment culture to be stagnant and not needing to change.	Although well trained, fears the increasing commercialism offshore.

These descriptions, particularly for UK1 and UK2, outline the difficulties of drawing generic industry conclusions. Predicting the skills of the effective offshore supervisor appears to be platform specific. Moreover, the finding for UK2 is inconsistent with the supervisory and leadership literature. While there are issues relating to the method i.e., the specially devised performance rating measure, a leadership instrument untested for this industry and a small data set, there is one significant factor of this field research which may retain many clues; differences in the offshore work environment between the platforms.

The next section describes one of the main aspects of the questionnaire that attempted to extract the supervisory behaviours that exist on a given platform; the supervisory decision making vignettes.

10.2.3 The Offshore Supervisor in *situ*

One technique that was used in order to investigate the cultural aspects of the work environment was the use of the supervisory decision making vignettes. These vignettes were created in order to map the offshore respondents' views about how they would tackle each scenario against a model answer. The results from the supervisory decision making vignettes were of interest both from an attempt to gain a better understanding of supervisory behaviours and from a methodological approach. Any qualitative approach can be made difficult by the infinite range of potential responses, but this was minimised by using these hypothetical yet structured situations. This type of method is gaining popularity in the selection of future UK Managers (Potentia International, 1997) and full extended behavioural event interviews (Boyatsis, 1982) in future research would further enhance this qualitative method.

The findings from the DMVs indicated that the majority of supervisors were 'average' performers. This conclusion was also supported by the superior appraisal ratings, although the performance scores did not correlate (i.e., different supervisors were rated as average). In spite of this, the DMVs could be developed into an instrument for differentiating supervisory performance and the Offshore Supervisory Competence Model described many of the required behaviours in Section 9.7. These included themes such as *the goal and action management cluster* (efficiency orientation, proactivity and diagnostic use of concepts) *the leadership cluster* (self confidence, use of oral presentations and logical thought) and *the directing others cluster* (developing others, the use of unilateral power and spontaneity). A key strength of this approach has been the creation of competencies in role i.e., the theory underpinning this methodology is that while there may be overlap with other industry sectors, these competencies are highly relevant for an effective supervisor in the offshore environment. For example, the results chapters have repeated the need for a supervisor to lead a team effectively in a remote environment where the close-knit community, an almost claustrophobic society dominates while maintaining a professional and disciplined approach to achieving tasks. Although "perceptual objectivity" captures aspects of this competency it may not be enough for the offshore environment. Previous research by NASA may hold clues for the effective offshore supervisor. Their research has shown that leaders of effective and high performing groups in confined social environments (e.g. space stations) tend to be task and achievement oriented, have a flexible (primarily democratic) leadership style, work to maintain group harmony

and can tolerate intimacy and status levelling without losing authority or respect of the group. Effective leaders are described as having self confidence, emotional control, self reliance, and the strength of personality to maintain their authority during both sustained intimacy and moments of crisis (Penwell, 1990, p.42-43). This would appear to match the competencies required of the effective offshore supervisor.

The offshore supervisor decision making vignettes identified certain competencies that if used by an offshore supervisor would probably indicate excellent supervisory performance. Even though the method compartmentalises behaviour into segments, the competence model does provide a better holistic insight into the offshore supervisor's role than does the MCI personal competence model, for example. What the Boyatsis model has not shown is which competencies are commutative and which ones are not, and only further testing would explain this weakness. The results showed that were several areas for development. These included, for example, communicating complex problems with team (DMV1) and addressing ambiguity generally (DMV2 & DMV5) as few supervisors matched the behaviours from the expert group, but it created a useful model from which to benchmark supervisory behaviours against supervisory competencies using Boyatsis (1982) as an accepted framework. Furthermore, one particular strength of this method of data collection is with small data sets and unlike the weaknesses of pooling with quantitative analysis, cultural and management style differences can be found within these small samples. A final strength of this approach would be to combine it with an independent and reliable performance measure, therefore creating a performance model that explains the differences in supervisory performance. The remaining problem of identifying a reliable and valid measure of supervisory performance is discussed below.

The next section offers an explanation for the difficulties in finding definitive answers within the study.

10.2.4 The Platform Effect

The 'platform effect' has been a significant aspect of these results. Pooling the data across UK1, UK2 and N1 appeared to mask differences within the sample. The results described in Chapters Six, Seven and Eight identified platform specific supervisory characteristics. The data from platforms UK1 and UK2 defined specific attributes of what made an effective supervisor on their platforms, and in spite of the real and perceived similarities of the two platforms, there were key differences in this supervisory style. Discriminant analysis was also a useful statistical tool in identifying this platform effect (see section 9.5.2). But, as stated, throughout the results chapters, the critical finding is the apparent differences between both the two groups of platform supervisors and the effective supervisors on UK1 and UK2. These offshore platforms were linked by several common characteristics. For example, they were designed and built in the early to mid-eighties, they both produced oil and were operated and maintained by approximately the same numbers of personnel. Moreover, these platforms were operated by the same company, maintained by the same service company, produced from the same offshore field and were visible from one to the other. It is therefore surprising that so many differences were found between them. These include the following; the personality dimension *emotional* where UK2 supervisors score significantly higher than UK1 supervisors, the job satisfaction items "physical work

conditions", "freedom to choose own working" and "chances of promotion" are all scored significantly higher by UK1 supervisors than UK2 supervisors, and finally UK2 supervisors report a more assertive leadership in the workplace as shown by the findings in Table 9.8 than UK1 supervisors, although this finding is not significant.

While suggestions have been presented to account for these differences (see section 9.8), the work of organisational theorists such as Dawson (1996), Hofstede (1990) and Peters and Waterman (1982) may explain why these differences exist. In particular, the work of Hofstede seems most relevant. After fifteen years of research into what discriminates national culture within large multi-national organisations such as IBM, he found that there were fundamentally different ways of perceiving 'ways of working'. This would depend on geography, ethnic and religious origins and experiences. On the face of it, this theory would explain more easily differences between the UK sector and the Norwegian sector rather than between the two UK platforms, but as stated above, there are examples within the data that suggest the 'way of working' to be different within one UK corporate culture. The findings described above may indicate that there are further distinctions or sub-cultures within this corporate culture at the platform level. Offshore safety research by Flin et al (1996) found that within offshore platforms there were significant differences in safety management performance between effective and less effective supervisors and their respective subordinates. However, this supervisory research, while finding examples consistent with this safety study, also found differences in corporate culture namely what determines supervisory effectiveness to exist at the platform level. A relatively new theory may explain how to account for this further distinction within this corporate culture. Capra (1996) argues, in his book 'The Web of Life', that in order to comprehensively understand living systems such as organisations one has to synthesise two different scientific approaches. They are the study of substance (or structure) and the study of form (or pattern). In other words, structure involves quantities, while pattern involves qualities (Capra, 1996). In scientific research, he argues, an organism is studied by breaking it down to its parts, thus destroying the pattern of the organism. The parts of the organism are still there, but the configuration of it or its pattern is not.

This biological paradigm translates easily into this study of offshore supervision. While the research maintained a triangulation approach to both the data collection and analysis, it was predominantly a research method investigating 'structure' and linear relationships using quantitative analysis. The 'pattern' or culture of the platforms was not expressly investigated, although many respondents commented on the styles of management, the "way we do things here" approach and the WES, Job Satisfaction Scale, Multifactor Leadership Questionnaire and IMAGES did capture attributes that were platform specific. In essence, the substantial differences specifically between UK1 and UK2 may be explained by the patterns and non-linear relationships within these working environments. In practice, creating a new more effective offshore management style may require the complete removal of the old one and this would include all the managers, the supervisors, and the rules and regulations as to how the platform community was governed. Assuming Capra's theory is correct merely replacing the OIM and a few direct reports would not be revolutionary enough to change the old "style" as the 'culture' would still remain. In reality the whole management team would have to be removed plus some influential characters who endorse the old "style" simultaneously and replace with the new "style" team. In the offshore industry, wholesale management expulsion is practically impossible. Therefore, generic corporate

wide initiatives such as new safety improvements or new cost cutting methods will have varying levels of success depending on the platform. This reasoning would probably surprise many onshore staff tasked with communicating and implementing these new strategies. For new offshore projects such as Dunbar and Hibernia (offshore Newfoundland), significant efforts have been made to select staff for a particular type of team working culture (Ling, 1995).

The next section discusses the prospects for the offshore supervisor within the context of the thesis findings and the literature review (Chapter's One to Three).

10.3 THE FUTURE OF THE OFFSHORE SUPERVISOR

10.3.1 Changes within the offshore industry

The offshore oil and gas industry has continually been predicted to diminish since it began over 25 years ago. These predictions have been wildly inaccurate. The future of the offshore supervisor along with the offshore industry is assured for the immediate future, although the focus on continued cost reduction will remain (Wood Mackenzie, 1996, 1997). The role of the first line supervisor, however, will have to adapt and change in order to fit with the changing demands of the industry. There are two main reasons for this. At the macro level, the increased globalisation of the oil industry is demanding that the UK based companies search for new markets abroad and where appropriate export knowledge to these markets (e.g., the emerging Faroes, Falkland waters and Far East) and as a result of this expansion also significantly improve margins at home. At the micro level, there is a general consensus that there will be a significant reduction in offshore capital expenditure beyond 1998 with the introduction of new, less capital, intensive technology such as Floating Production and Storage (FPS). It is anticipated that there could be as many as 90 new floaters installed world-wide within the next six years (Moir, 1996). Therefore, the skills of the UK staff at all levels and the companies for whom they work are both under pressure to evolve; the supervisors to update their technical, commercial and management skills, and the companies to invest in the development of their staff.

Several models of supervision were described in Chapter Two especially the concepts proposed by Child and Partridge (1982) and it may be a combination of these models that may suit this industry. On some offshore platforms with a small headcount (under 100) the supervision model of improving the technical component of the role (Child & Partridge, 1982, 'model iv') might improve organisational efficiencies. One of the main criteria for this model is significant offshore experience and this clearly exists (see sections 6.2, 7.2 & 8.2). The next step is to invest in the resources and time required to improve the technical expertise of both the supervisors and also the skills of the technicians. One of the benefits of this approach is the removal of the reliance on the supervisor to supervise and given the research findings (see section 9.6.3) this may be a more appealing solution. Secondly, on larger offshore installations (>100) creating an "empowered workforce"

(Child & Partridge, 1982, 'model i') while addressing the caveats raised earlier i.e., safety discipline but also simultaneously raising the skills of the supervisor to that of first-line manager (Child & Partridge, 1982, 'model iii'), thus, creating the management layer required to meet the new commercial emphasis offshore. This model was indirectly advocated by Craig (1997) who recognised the need to provide new opportunities to mid-career employees as flatter organisations, such as the ones emerging offshore, reduce both job satisfaction and job security. There may be a further alternative option for the offshore supervisor not described here which is irrespective of platform headcount and technical challenge, but whatever the new supervisory paradigm this group appear not only to want development but are currently in danger of being disenfranchised as the rest of the industry evolves around them.

10.3.2 Measuring supervisory performance

The effective supervisory skills elicited from the thesis suggest that notwithstanding the supervisory model adopted, there are several areas for improvement in this research methodology. These shall be described in turn. However, one of the key challenges throughout this research was the absence of a dependable supervisory performance measure. The companies surveyed were not able to produce both valid and reliable appraisal data and therefore the use of the supervisors' performance rating scale was used. While this instrument appeared reliable (Cronbach's α =.774 for UK1, .926 for UK2 and .847 for N1) it did not discriminate supervisory performance to the levels anticipated. Efforts to develop an additional and alternative performance measure using peer nominations proved extremely contentious, and was only used with the first sample; UK1. This was regrettable as many organisations are driving towards a 360 degree model of performance appraisal (Nowack, 1993). The results, however, for peer nominations did not correlate with the supervisors' appraisal scale, thus confirming the need to create a dependable performance measure. This measure could incorporate both superior and peer perceptions but also integrate the tangible performance indicators offshore such as 'barrels per day', 'hours of downtime' and 'performance against the platform plan' i.e., measuring actual performance against expected performance, and finally, if appropriate, the use of scoring against "experts" similar to the method adopted for the DMVs. The supervisor's "manager" would still be required to provide the context around these performance indicators in order to explain erroneous results.

The leadership skills of the effective supervisor, for example, were not found to be as transformational as expected by both the literature (Bass, 1990) and the researcher. The effective supervisors, however, rated themselves as exhibiting a more transactional leadership style than other leadership behaviours in spite of the opposing findings for UK1 and UK2 (see section 6.6 and 7.6, respectively). In retrospect, this finding is consistent with the other factors found offshore such as the need to address the intense safety demands and the genuine transactional nature of the environment. Many respondents commented "the need to progress work" was their biggest source of stress and the findings for the WES (*control* the highest scoring dimension on both UK1 & UK2) further endorse the offshore supervisory style as heavily transactional. Given this finding, supervisors should be encouraged to increase their pro-active transactional leadership style and (if appropriate i.e., not compromise their safety responsibilities) augment not substitute this style with some transformational leadership behaviours.

Disappointing results were found for the Occupational Personality Questionnaire - IMAGES. None of the dimensions correlated significantly with the performance measure, in spite of the likelihood of personality differences between effective and less effective supervisors (Hogan et al, 1994). There was, however, an interesting difference between the platforms with one personality dimension *Emotional* (UK2 supervisors scored significantly higher than both UK1 and N1 for this dimension) using analysis of variance (see Table 9.4). But, in general, this instrument proved inconclusive as a potential discriminator of supervisory performance. Measuring personality differences is problematic and using this particular instrument, which is probably not detailed enough with only six personality scales, would not be recommended for future research.

The Job Satisfaction Scale developed by Warr, Cook and Wall (1979) has been used in several previous offshore studies (Sutherland, V., & Cooper, 1986; Sutherland, K., & Flin, 1991; Flin, Mearns, Fleming & Gordon, 1996) and was again found to be a useful independent variable in this study. Not only did some of the items predict effective job performance (e.g., item 4 *the recognition you get for good work*, $r=.45$, $p<.01$) but it identified key differences between the supervisors and their subordinates (e.g., *freedom to choose your own method of working* $t=-.44$, $p<.01$), and job satisfaction differences among the three platforms (e.g., *your chance of promotion*). The debate remains, though, about the causation between job satisfaction and job performance. However, due to the harshness of the offshore environment, it is more likely that an employee who enjoys their role will also be more effective in their job.

The Work Environment Scale (Moos & Insell, 1974) was extremely effective in this study in describing differences between the three platforms (see Table 9.5). In particular, the N1 supervisors rate their working environment as involving the employees and encouraging new ideas, yet coexisting with the need to plan, be efficient and complete tasks. This description would match the aim of many UK offshore operators (Tait & Hutton, 1994). Certain subscales of the WES were also useful at discriminating effective supervisory performance. In particular, *Innovation*, correlated significantly with the performance measure, but for UK1 and UK2 the correlation was in opposite directions which may reveal a clear cultural difference between these two platforms. Overall, the WES was an instrument that, notwithstanding its simplicity, was effective in discerning cultural differences from each of the platforms, and where appropriate would be recommended for use in further offshore research to elicit and measure platform differences.

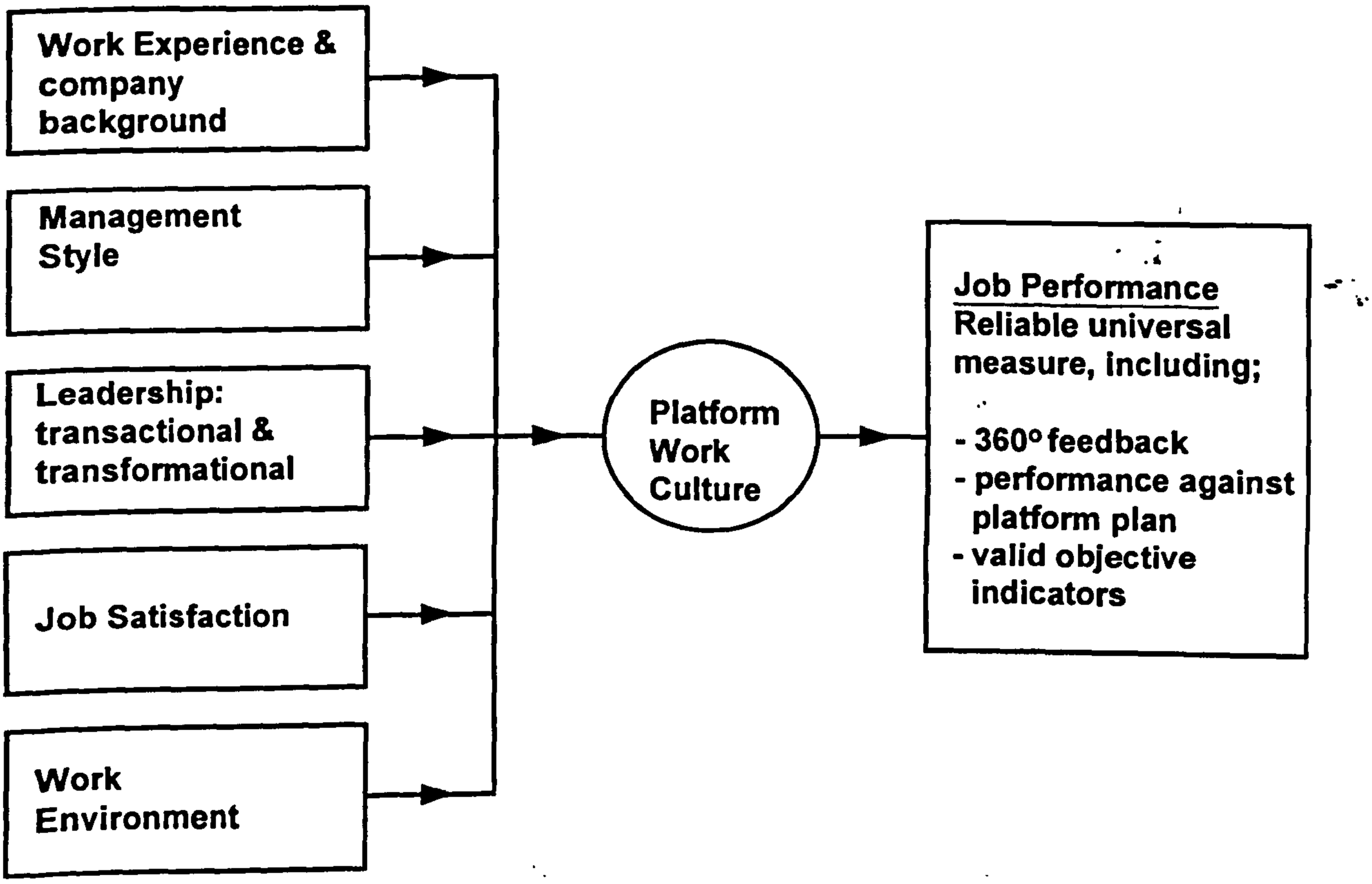
Another interesting difference between the platforms was the cross border one identified through the attitude scale (see Table 9.3). N1 supervisors appeared to differ from their UK counterparts in most of the safety statements which suggests that N1 supervisors perceive significantly higher safety standards on their platform than the equivalent supervisors on UK1 and UK2. Given the recent (since 1988) multi-million pound expenditure on offshore platform safety improvements, this is a potentially disappointing finding for the two UK platforms (see also attitude scale, Table 9.3), but across the UKCS there is significant evidence that safety messages are making an impact (HSE, 1995).

The supervisor decision making vignettes (DMVs) remained one of the key successes in the research methodology. As a technique for eliciting offshore supervisors' behaviours, this qualitative method proved very effective. The supervisors' responses generated a list of offshore supervisory competencies (see section 9.6.4). These descriptions of effective behaviour were job centred thus to undertake competency based interviewing and selection using these offshore supervisory competencies should prove more relevant for this unique environment than traditional selection techniques that attempt to fit generic skills to generic situations. The quantitative findings also provided support to this methodology. For example, the findings for transactional leadership style dovetail with *efficiency orientation* where the ideal offshore supervisor uses behaviours such as "sets mutually agreed goals, monitors and reviews" and "creates a plan of action and monitors for improvement". As a performance measure, the DMV 'expert' responses, although underpinned by the traditional method of superior appraisal and therein those inherent interpersonal biases, demonstrated that it had the potential to be a useful performance measure, particularly as a tool for matching supervisory behaviours to an ideal response.

The methodological descriptions above summarised the key variables that comprised the model for effective supervision. This model formed the basis of the thesis and was presented above as figure 10.1. The findings from the thesis raise implications for the original model described above. Based on the results, the following proposals are made to improve the model. Personality measurement using IMAGES and Biodata are withdrawn. However, work experience, particularly company background, appears relevant and remains. The key transactional variables (MBEA & MBEP) and the transformational variables are retained. Job satisfaction,

although not a discriminating performance variable, records useful baseline data for satisfaction and remains part of the model. The Work Environment Scale was a useful instrument for describing some platform differences. It did not, however, interact with the other variables sufficiently to explain the "platform effect" and become the mediating factor of the model, and therefore remains as an independent variable. The Supervisory Decision Making Vignettes (DMVs) provided excellent qualitative data about the background to supervisory performance. There is still some doubt, however, as to how effective it would be as an independent performance measure. The DMVs are therefore retained within the model, but become an independent variable assessing management style. It is anticipated that 'platform work culture' is inserted as a mediating variable within the model. Although 'platform work culture' is difficult to quantify and isolate, there is strong evidence to suggest that it had a significant impact on leadership, job satisfaction and work environment scores. Formulating a reliable outcome measure or job performance measure still remains a key objective. A universal "platform performance measure" that incorporates objective data such as barrels per day (bpd) and 'performance achieved against performance expected' and subjective data such as 360° feedback should be developed and tested. Based on the above, the new model would then look like Figure 10.2 (see below).

Figure 10.2
New Model for Effective Offshore Supervision



This model incorporates both the strengths of the previous model (figure 10.1) and the weaknesses of the method described above. The main difference in Figure 10.2 is the recognition of the 'platform work culture' which is a critical contribution of this thesis. Measuring the impact of this variable in the study still requires further investigation. A significantly larger data set including several more offshore platforms may store some clues. An accurate job performance measure is also expressly stated as key objective for this type of research methodology: a problem that continues to create challenges for this style of social science research.

The next section outlines some suggestions for the offshore supervisors in the current work environment and some proposals for further research.

10.4 RECOMMENDATIONS AND FUTURE RESEARCH

10.4.1 Concluding comments

The first-line supervisor is an integral and critical part of the management team on an offshore oil and gas production platform. As operating costs increase, fixed platforms get older and require more maintenance, and oil and gas resources from existing fields become more difficult to extract, the supervisor remains a key figure in the day to day challenge of maximising return at lowest cost within a safe working environment. However, in spite of the importance of the role, there is no published research about what makes an effective offshore supervisor. This thesis was the first research specifically to examine this role and attempt to identify the characteristics of what made a supervisor effective in this unique working environment.

The research findings were not decisive. What makes an effective offshore supervisor was only partially answered namely that different, even contradictory, supervisory skills are required for different platforms. For example, on UK1 the effective supervisor uses a transactional leadership style with some transformational behaviours i.e., getting directly involved at the workplace but in addition is able to encourage his or her subordinates to work harder towards mutually desired goals. This leadership style occurs within a changing work environment where effective supervisors and their subordinates are committed to their roles, and they are satisfied with the recognition they get for good work and the opportunities that are open to them. On UK2, the findings were almost paradoxical given so many other common characteristics between these two UK platforms. The effective supervisor also used a transactional leadership style, but in a passive way. The effective supervisor would only get involved when the workplace issues became so deep rooted that they had no option but to take action. As a consequence, their leadership style was distant, autocratic, (almost macho) and they were unlikely to know the needs and wants of their subordinates. This leadership style existed in a work environment that they perceived as static without requiring change. On N1, the performance measure did not indicate clear quantitative findings, but this sample was well trained, experienced and safety conscious, although they were uneasy about the increased need for commercial thinking within their roles. Finally, there is a potential concern over the N1 supervisors' subordinates ratings for the job satisfaction items as many of them were significantly lower than the supervisor scores. In spite of these mixed results, the thesis, has identified several interesting findings and possible suggestions for further research. These are described below.

10.4.2 Oil industry feedback

One of the most satisfying pieces of feedback about the research findings was the enthusiastic response from the "sponsoring" oil industry managers. For them, the results vindicated their beliefs that there were significant management issues offshore. They believed that these management weaknesses, if rectified, could enhance significantly the industry wide cost reduction initiatives such as CRINE and consequently increase field life. Within Company B, for example, company specific feedback reports were presented initially at local

management levels, i.e., the senior management responsible for the platforms visited. However, the response gained here was very constructive and it was felt by this group that the next layer of Company B management (those managers responsible for several platforms offshore) should also hear the findings. Again, a positive response was received at this level and a final presentation of the research findings were made to the Managing Director and other senior directors of Company B on the 16th of December 1994 as part of their quarterly business review.

The commercial success of Company B traditionally relied on building depth in technical expertise. It was, therefore, both exciting and surprising to see a social science research project receiving positive "press" within this type of company culture. During this time a benchmarking project developed by management consultants 'McKinsey' projected that the costs per barrel of Company B's production of hydrocarbons were significantly higher than their competitors. Company B set a financial target of producing a barrel of oil equivalent (boe) or actual cost for one pound sterling by the year 2000 when the current cost was one pound and seventy-two pence per boe. To achieve this result would require a step change in overall operational efficiency and in cost reduction. Several different projects were launched at the beginning of 1995 in order to achieve this goal, but they were all linked by a common theme, the improvement of individual skills and capabilities. One of the expressly stated objectives was 'through upgrading skills, coaching and active learning at all levels to obtain behaviours better in line with the company's cultural aspirations.' While there is no written evidence that explicitly states any causation between the research into the role of the supervisor and the move to investigate cost savings through skill improvement of offshore personnel, one of Company B managers commented that the findings about offshore supervision helped to sustain the view that technical innovation and process development were saturated and that new approaches were required. The cultural, competitive and technical challenges have been briefly described above and it remains a key proposition to relate the thesis findings to the needs of tomorrow's effective supervisor. Suggestions for the offshore supervisor are described in the next sections.

10.4.3 Supervisor remains pivotal but needs help

The supervisor is undoubtedly a key member of the offshore management team. Their role is critical for day-to-day operational activities, critical in safety management and critical for change. There is also a concern, raised in Chapter One, that the supervisor may be given too much responsibility. The challenge, however, is for onshore senior management to facilitate an attitude shift among their offshore supervisors concurrent with the commercial requirements and safety expectations of the new era. As stated in Chapter Two, Wickens (1987) of Nissan argued that first-line supervisors, as a group, can make more difference to the long term success of a company other than top management, but that it is the supervisors who deliver top management policies. In a more recent article, Nissan were again endorsing the role of the supervisor in producing commercial success of the company (Ashmore, 1997). It is clear that the current cost consciousness that is sweeping the offshore industry (Craig, 1997) demands a new approach to supervision and regrettably it appears that traditional training strategies and current selection methods are not meeting this need. In fact, recent offshore safety research by

Fleming, Flin, Mearns & Gordon (1996) suggested that there were distinct behaviours in safety management between effective and less effective supervisors and that future supervisor safety training should focus on interpersonal skills. (The differences that they found are coincidentally similar to those described between UK1 & UK2). For example, the effective supervisors appeared to "value their subordinates more", "visit the work site frequently and use these visits to see if their subordinates required any assistance" and "encourage participation in decision making". The less effective supervisor appeared to "abdicate responsibility for their subordinates safety when they were not directly involved in the operation", "focus more on productivity and deadlines" and "appeared to feel pressure to get the job done such that at times it was difficult to be safe and get the job done" (Fleming et al, 1996).

There is, however, a further complex challenge facing the offshore supervisor and ultimately the offshore workforce. The current commercial impetus towards cost reduction and external competitive pressures such as cheaper oil could have a disastrous impact on all the recent excellent initiatives to improve offshore safety. The company culture of many offshore operators is now "more production, less shutdowns", although senior industry management still focus on the priority of zero accidents and individual safety. This change of emphasis creates a worrying paradox for the offshore supervisor. This paradox can be explained by the following scenario. The supervisor in charge of the oil and gas separation process may attempt, in a response to management pressure by the OIM, to improve the business performance of the platform, to delay a shutdown. For example, this supervisor could argue that to stop production every two years to maintain and possibly change 'relief valves' is unnecessary even though the 'safety management system' and the 'safety case' of the platform might dictate it. The supervisor (with the support of onshore experts studying historical data) could legitimately claim that since the relief valves have never tripped or failed, to change them every two years is not imperative and delay this shutdown for a further two more years, thus maintaining production. The Offshore Safety Division (OSD) would be unaware of this change to the platform safety case, given that they only undertake reviews every four years. Working within conflicting priorities is not new for the offshore supervisor but despite the significant offshore safety improvements and a demonstrable change in safety culture, there is a risk of the pre-Piper Alpha climate returning to the offshore industry. The critical difference, ten years on, is that senior oil industry management are under pressure to support the drive towards greater and greater profitability (less shutdowns, less downtime, less manpower, less maintenance etc) and this has resulted in dramatic changes to maintenance and operational strategies. These new methods are being generated by both onshore technical expertise and offshore supervisors. Thus, the offshore supervisor supporting the company profit philosophy, may make wrong and potentially fatal decisions against a backdrop of safety education and technical rationale.

10.4.4 Supervisor correctly selected could exceed performance expectations

It is strongly endorsed by the literature review that supervisory leadership style is a key measure of effectiveness in the workplace (Chapter Three). Therefore, it is essential for industry to attempt to select the offshore supervisors of the future against the competencies required in the future and as a consequence jettison current selection strategies. One possible way forward is the new leadership paradigm advocated by Bass and Avolio (1990). This model requires further testing in an offshore environment, but some positive results were found which appeared to discriminate between effective and less effective supervisory performance. Transformational leadership behaviours, although of a small magnitude, were found to exist among a sample of effective supervisors (UK1 - see section 6.6) and should be reinforced and developed. Companies that favour this leadership style and select future supervisors possessing these behaviours are more likely to achieve better than expected organisational performance (Bass & Avolio, 1994). The current offshore leadership style of "you do this and you'll get this in return" (transactional) remains the foundation and is unequivocal because of the safety demands but will not achieve the same levels of platform performance as the transformational style. Therefore, selecting future supervisors who can develop the performance of the individual to a higher level using team and organisational goals which augment the traditional exchange and reward style (Bass, 1985) prevails as the ideal model of leadership for the future offshore supervisor.

10.4.5 Supervisor will probably be developed from within

The UK offshore supervisor population is ageing (see Table 9.2). Current promotional opportunities are limited and therefore over the next few years stagnation among ambitious technicians could occur. Development opportunities for these technicians have to be created, perhaps through Model IV advocated by Child and Partridge (1982) which is to raise the technical skills of the technician to an expert level. Furthermore, the more mature supervisor may not embrace the attitude and culture change that is required within the role, and to what extent the phrase "an old dog cannot be taught new tricks" applies to this position remains a significant management development issue. This problem which is further exacerbated by the current dearth of opportunities across the UK which may make it more difficult to attract younger recruits to the offshore oil and gas industry (Urquhart, 1998, February 4) as salaries in onshore industries become more competitive.

10.4.6 The way forward

This research project examined the role of the offshore first line supervisor and, among other aims, attempted to define effective supervisory behaviours from less effective ones. The description of this sample of supervisors showed that they had possessed a transactional leadership style with some evidence of transformational behaviour, they perceived the workplace culture differently from less effective supervisors, and were job satisfied in their roles particularly when they received recognition for good work. But, as stated earlier, it appeared that the definition of "supervisory effectiveness" depended on the platform where the supervisor worked.

While the study had mixed results in defining the non-technical skills of the effective offshore supervisor, it is important to emphasise that this was the first significant attempt to interview these supervisors in their work environment. The impact of this method is essentially a smaller but fuller data set compared to other data collection techniques such as a postal survey, for example. However, this technique highlights the need to undertake a triangulation approach in order to describe the effective supervisor in the real work environment because of the inherent weaknesses with the criterion measure; i.e., the superior appraisal. Further research should develop this strategy. The results chapters highlighted some of the behaviours that discriminate between effective and less effective performers such as leadership style, perceptions about the work environment and ways of communicating with subordinates as demonstrated by the DMVs, but there are still some issues that have to be examined. They include;

- a supervisory development strategy that encourages career progression, a transformational leadership style and a new cost consciousness while retaining the technical skill profile of each supervisor.
- a model of supervisory man-management competencies which mirror the new managerial, commercial skills and safety skills required by an offshore supervisor in CRINE and beyond.
- a model for investigating offshore supervisory performance that recognises that 'effectiveness' may exist within explicit and implicit sub-groups or mini-cultures such as at the platform level, the shift level, between operator and contractor supervisors and even the management style of the platform management.
- a platform-wide multiple performance criteria that reflects the business performance of the production platform and more importantly has 'buy-in' as an objective measure throughout the platform workforce.

The supervisor is a key figure in the offshore industry. Identifying these effective supervisors remains a fundamental research question. The offshore managers are readily able to identify who they perceive as their best supervisors but describing their leadership characteristics has proved to be more challenging. Moreover, there is the need to select supervisors for the future. The thesis, without providing definitive answers, has elicited some suggestions for (i) the recruitment, selection and development of effective supervisors, (ii) the recognition that the role of the supervisor is heavily influenced by the offshore work environment and (iii) recommendations to improve the research methodology:

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APPENDIX I

Appendix title

"Pilot study of Offshore Supervisors on a Production Platform in the North Sea."

Introduction

On the 31st of March 1992, the researcher travelled to an Offshore Production Platform 100 miles east of the Shetland islands and spent three days offshore undertaking interviews with seven first line supervisors. The objective of the trip was to gather data that would contribute both to the researcher's understanding of the managerial skills required by offshore first line supervisors and assist in the formulation of a future instrument for a larger sample.

Methodology

Company A, an American owned multinational oil company, provided access to their offshore staff for this study. It operates one production platform in the UK sector of the North Sea.

The design of the questionnaire was based on (i) preliminary background reading (see Chapters One to Three) and (ii) on suggestions and ideas made during a meeting with onshore senior management representatives from Company A and the researcher. The instrument comprised of 35 open questions and covered the following areas; previous employment and training, management skills, and key roles and responsibilities of the offshore supervisor. Other specific themes were also examined such as the supervisors' perceptions about the potential differences between working offshore and an equivalent position onshore, and questions relating to situations that had been managed by the supervisor.

Semi-structured interviews were carried out with seven first line supervisors from Company A. All the supervisors reported directly to the OIM. The interviews were 60 minutes long and all but one of the interviews took place in the "quiet room" within the platform accommodation. The other interview took place in the office of a supervisor at the beginning of his night shift hours. At the end of the questionnaire all the respondents were invited to make comments regarding the structure of questions and to make suggestions for future investigation. After the interview, if it was operationally viable, the supervisor showed the researcher round the platform modules and described the functions of the plant, thus, providing an opportunity for the supervisor to further explain his questionnaire responses that related to specific processes within his technical expertise.

Results

Bio-data and general Information

Six of those interviewed were production supervisors and the other was a maintenance supervisor. When asked "*How long have you been in your present job?*" Four of the respondents had been supervisors for four years or more and the other three respondents had only been in a supervisory position for about one year. The supervisors were all asked what their previous two positions were and their responses are listed below ; marine engineer, apprentice fitter, production operator, maintenance foreman, instrument technician; maintenance supervisor, maintenance electrician, instrument technician, radio technician, maintenance supervisor, mechanic, production operator and utility assistant. When asked *"What was your first job in the oil industry?"* The responses were all varied, ranging from backgrounds in production, maintenance and electrical disciplines offshore to a radio operator on an oil tanker. When asked "*Did you have a previous job outwith the oil industry?"* All respondents had worked in onshore non-oil related positions and none had held supervisory positions. The supervisors were all asked "*How long had you worked in the offshore industry?"* The responses ranged from 14 years to 20 years. The minimum length of service with Company A was 13 years with 14 years about the average, although, one respondent had been with Company A for 16 years.

Employment Training

When asked *"How many days in the last five years (approximately) would you say had accounted for training days?"* The supervisors' responses ranged from four to fifteen days, although, most of them added that this was 'off the job training' and that 'on the job training' was continuous. The supervisors were asked *"What current qualifications do you have?"* Two of the supervisors responded that they had no formal qualifications whatsoever, others mentioned "City and Guild", "ONC", " 'O' levels" and one had a mechanical engineering certificate. The supervisors were asked "*what type of training have you had?"* Their responses are listed below; mostly self taught, gas compression course, supervisors course, turbines, loss control, gas lift, safety representatives course, meetings, report writing, OIM regulations, instrumentation in hazardous areas and fiscal metering course. Six of the supervisors had attended the "OIM regulations course."

The supervisors were asked *"Have you had training which relates specifically to managerial skills?"* All seven supervisors responded that they had attended the 'supervisors course' which had covered the following types of managerial training; task and role play exercises, man management techniques, interviewing, motivation, the psychology of supervision, communication and incident and accident reporting. When asked *"What skills did the course train you in?"* Many of the responses were similar to the ones described above, although, some of the supervisors said that the course had given them a better understanding of leadership and team building and one felt that he was now more aware of getting away from the 'task circle and overseeing the whole picture'. The supervisors were all asked, *"How beneficial was the training?"* Most of the responses were positive, although, one supervisor said that he was too old to learn and another felt that the training should have addressed specific problems that occur on the platform. When asked, *"In which aspects of your job do you feel that you require more training?"* Three of the supervisors cited the need for more technical courses, three

supervisors said that they would have wanted more man management type training, and one felt that he needed more training regarding the legislation in the offshore oil industry. The supervisors were asked, *"What do you know about training and development in other parts of the oil industry?"* One said that the companies were probably all about the same and the other six supervisors said that they did not know what happened. The final question in this section asked *"Which do you feel is more important technical or supervisory/managerial training ?"* Three supervisors said that they should be side by side, with one respondent adding that what is important is that the supervisor knows the job and has gained the respect of his subordinates. One said technical training and the other three supervisors said that it should be about 60:40 in favour of supervisory/managerial training.

Supervisory Skills

The supervisors were asked *"With the benefit of hindsight could you comment on an incident that you feel you could have handled more effectively if you had had different training?"* One supervisor said "no", five answered "yes" and one supervisor said that each situation was different and did not think that training would have been of help. All the supervisors were asked to expand on their answers, three did not provide any examples, one supervisor mentioned 'appraisals', another said "disciplining the workforce", another said that when dealing with the workforce he can become too task orientated and one supervisor cited an example where mismanagement in solving a relatively minor problem can cause a chain reaction resulting in continued downtime and subsequent loss of production.

The supervisors were asked *"Could they describe an incident that you managed very effectively and can attribute your success directly to training?"* Four of the supervisors responded that any training that raised their awareness of potential problems in the worksite would have helped in incidents that they had managed but no specific examples were given. One supervisor said that a fire fighting drill became reality two days later and everything was followed to plan. Two supervisors said that they were always learning. When asked *"How many people do you supervise?"* The supervisors responses all varied from seven to sixteen directly and up to twenty five indirectly. The supervisors are formally appraised annually and they also carried out annual appraisals with their subordinates. The supervisors were asked *"What key management skills do you think that a supervisor should have?"* Three supervisors said that communication skills were very important, one added further that you have got to sell management's view to the workforce. Other management skills that were put forward include good organisation and planning, the ability to delegate and the motivation of the team. One supervisor said "you have to be the mother and father to everyone." When asked, *"What key management skills do you have?"* The majority of supervisors cited technical skills first, and added that it was important that good planning and communication backed them up. Other responses included 'safety awareness', 'trust' and 'on the job training with the men'. The supervisors were then asked *"Have you ever been assessed in a systematic way with regard to your management skills?"* One supervisor said that the he is assessed through the appraisal system, but the six other supervisors said that they had not undergone any systematic assessment of their management skills. When asked *"What do you consider to be your strongest asset in your supervisory*

capacity?" Four supervisors said "technical knowledge", one added further that this was combined with communication skills. Other responses included "the ability to get things done without creating animosity", "organisation and planning" and "communication and common sense".

The supervisors were asked *"Do you think that your position offshore is different with respect to managerial ability than a position onshore?"* One supervisor said that apart from the location, the work is very similar to working in a refinery. The other six supervisors said that there were differences and they cited the following reasons; "living with the men" , "no available back up, closed environment and no real relaxation" , "the offshore person is more affected by outside pressures" , "being offshore is like being in the trenches, problems just do not go away" , "the product creates problems and there is no hospital or firebrigade" and "the environment can work to your advantage, particularly through increased budget controls." The supervisors were asked, *"In your role do you get involved in non work related issues such as counselling for example?"* One supervisor said that he did not as he encouraged them to go and see the medic or the OIM. The other supervisors all said that they did and their responses are listed below; "personal troubles" , "listening, giving advice, recognising someone with preoccupied thoughts" , "not a day goes passed without something" , "always a shoulder to cry on" , "the homelife affects the job all the time" , "you become a confidant".

Views and opinions about the Oil Industry

When asked, *"What do you feel are the most important issues in the North Sea Oil industry?"* Six out of the seven supervisors said that 'safety' was the most important issue offshore. Other examples included "too many working hours" and "ad hoc skills are not recognised." The supervisors were asked, *"What single change would you advocate for the industry?"* Two supervisors said that it was too late as there were only marginal fields left. Another two supervisors said that there should be a rethink in terms of working hours. Other supervisors mentioned "too much paperwork" , "too many mixed job roles and this creates conflicts" and "we need time to understand the new procedures". When asked, *"What impact do you feel will the Cullen Inquiry have on your position?"* One supervisor felt that the Inquiry has changed the company's attitude. The other respondents said that although procedures had changed such as 'permit to work', it has increased the professionalism of both the workforce and the organisation. The final question was *"Are there other areas of investigation that you feel that I should consider in relation to the role of the first line supervisor?"* Their suggestions included "promotion, is he always promoted from within" , "the first line supervisor should always know the job that he is supervising" , "there is too much fire fighting and not enough implementation of ideas" and "qualifications are beginning to dominate".

Conclusion

This preliminary survey was designed to enable the researcher to gather information concerning the offshore oil industry and the role of the offshore supervisor. It may seem that the initial analysis is limited as only seven supervisors were interviewed. However their combined offshore work experience of 99 years enhances the validity of their responses and can justifiably provide a suitable foundation on which to base further research.

The central hypothesis of the research is to determine whether an offshore supervisor requires additional or specialised managerial skills compared to an equivalent supervisor onshore. Six of the supervisors interviewed felt that managerial ability was different onshore. This offers support for the hypothesis outlined above. It could be argued that the other supervisor's response also supports the hypothesis. He stated that apart from the location there were no differences between working in a refinery and working offshore. It is the significance of the "location" factor that theoretically creates the difference in management skills between the two work environments. One element that was mentioned when asked about the differences was the impact of personal problems in the workplace. It is likely that both onshore and offshore supervisors are involved in non-work related issues with their subordinates and this raises the question of whether the remote offshore environment creates a greater need for supervisors to have "counselling" skills compared to onshore supervisors.

The questions that related to management and supervisory skills generated some interesting issues. All of the supervisors questioned had extensive offshore working experience and yet the vast majority were unaware of what type of training and development occurred within other organisations. This suggests that although employees are working for the generic "offshore oil and gas industry" their managerial development exists in isolation, although the impact of the Cullen Inquiry, particularly in aspects of safety, has already begun to change this situation. The technical abilities of a supervisor were cited as the most important skills within the role. Communication and planning were perceived as essential management skills in supporting the technical abilities of the supervisor although only one supervisor said that he had had his management skills systematically assessed, and that was through staff appraisal. This implies that the supervisors are supervising in the way that they feel is the most appropriate and are not following any specific supervisory directives from senior management with regard to supervisory styles.

All of the supervisors had attended a "supervisors course" which had covered a multitude of supervisory and management themes with one supervisor expressing a view that the course could have been platform specific. This endorses a current theme across UK industry, which is attempting to focus training on the specific needs of the context in which the training is needed.

Although many of the themes raised within this pilot survey may be platform specific, there are issues, which are relevant to the whole of the North Sea offshore oil and gas industry. Supervision and management skills are of major concern within the industry. This focus has been driven both by the Cullen Inquiry and the increased commercial pressures facing the industry. It is the researcher's view that as the first line supervisor is the only 'real time' management position within the industry, further investigation is required to assess the specific skill requirements of this role.

APPENDIX Ia

Appendix title

"Interviews with Offshore Supervisors on a semi-submersible drilling rig in the North Sea."

Introduction

On the 11th of May 1992, two days were spent offshore on a Semi-Submersible Drilling Rig 100 miles east of the Scottish mainland and spent two days offshore to interview four first line supervisors. The objective of the trip was to gather data which would contribute to a better understanding of the managerial skills required by offshore first line supervisors working in the exploration industry and to facilitate the comparison between supervisors supervising on drilling rigs and those from production platforms.

Methodology

Company D, an American owned drilling contractor, provided access to their offshore staff for this study. It operates several drilling rigs in the UK sector of the North Sea.

The design of the questionnaire was based on preliminary background reading (see Chapters One to Three) and the responses gathered in Appendix 1. The instrument consisted of 30 open questions and covered the following areas; previous employment and training, management skills, and key roles and responsibilities of the offshore supervisor. Other specific themes were also examined such as the supervisors' perceptions about the potential differences between supervising offshore and supervising onshore, and questions relating to situations they had managed as supervisors.

Semi-structured interviews were carried out with four first line supervisors from Company D, who reported directly to the Rig Superintendent. The supervisors were all involved in the drilling operation of the rig. The job titles of the subjects were senior toolpusher, two toolpushers and one driller. Although all had varying degrees of supervisory responsibility their responses will be described as a single sample. The interviews were 60 minutes long. Two of the interviews took place in the "quiet room" within the living quarters and the other two interviews took place in a "visitor's" cabin. At the end of the questionnaire all the respondents were invited to make comments regarding the structure of questions and to make suggestions for future investigation.

Results

Bio-data and general Information

The subjects were asked to describe the main functions of their jobs. Their responses included statements such as "drill a hole with a team, the first line supervisor in the event of a drilling incident, a realtime supervisor,"; "smooth drilling operation for the client and safe working,"; "the overseer of all drilling operations, liaison between all departments and liaison between the drilling contractor and client," and "oversee all drilling on a daily basis."

The supervisors were asked *"How long have you been in your present job?"* Two of the respondents had been supervisors for one year, the other responses were 6 years and 4 years. The supervisors were all asked, *"What was their first job in the offshore oil industry?"* One supervisor had started as a mechanic and the other three supervisors began as roustabouts. The supervisors were asked *"How long have you worked in the Offshore Industry?"* The responses ranged from twelve years to eighteen years. The supervisors were then asked *"How long had they worked with Company D?"*. The minimum length of service with Company D was 1 year and the longest 9 years, with the average about 4 years.

The supervisors were asked, *"What current qualifications do you have?"* One supervisor responded that he had only had school level qualifications but that he had completed most of the oilfield drilling qualifications. The other three respondents said that they had oilfield qualifications. These included; 5-day firefighting, well control, advanced well control, drilling operations and techniques, casing and cementing, drilling calculations and high pressures.

Finally, as part of this section, the supervisors were asked if they were aware of standards of competence and their development for the UK workforce. Only one of the supervisors said that he was aware of recent changes.

Employment Training

When questioned *"What type of training have you had?"* The supervisors all cited the oilfield courses that had been outlined above. One supervisor mentioned the importance of 'on the job training' from others on the rig. One supervisor had been on assertiveness training. Two supervisors listed supervisory effectiveness training courses that would last between three and five days. The supervisors were asked, *"How many days in the last five years accounted for training days?"* Their responses ranged from 5 days to 10 days annually. The supervisors were asked, *"Have you had any training, which relates specifically to managerial skills?"* All four supervisors said that they had had some. Three supervisors said that they had attended courses geared specifically for supervisors. The courses focussed on leadership skills, negotiating skills and counselling skills by simulating conditions typical of supervisory management. One supervisor said that his supervisor/managerial training had come from working in real situations on the rig. The supervisors were all then prompted *"How beneficial was the training?"* One supervisor said that he was unsure of the benefits.

Another said "initially back in the workplace it was good, but then some skills fell away." Another supervisor said "Using training skills in the workplace is always difficult as you never really know what your team are really like i.e., you don't know what they are like during their time onshore." They were all then asked, *"Which aspects of your job do you feel require more training?"* One supervisor said, "Motivation skills, the easy part is on the drill floor the hard part is the people." Another supervisor said "More managerial skills with particular emphasis on team skills." The other two supervisors said that they needed more man-management skills with one of them adding that he also wanted more drilling training.

The supervisors were asked, *"What skills do you feel that you have acquired and use that 'training' would never have provided you with?"* (Each supervisor was reminded of the number of years experience that they had in the offshore oil industry.) Their answers included statements such as "Common sense, dealing with people, there is no substitute for experience," , "Experience with people, and the experience gained during full emergency simulations," , "Communications skills," , "Man management skills". The supervisors were all then questioned *"In your role, which do you feel is more important - technical or supervisory/managerial training?"* One supervisor said that it was 90:10 supervisory to technical. "You don't have to be 100% but you must know where to get it." Two supervisors said that technical was more important than supervisory with ratios of 70:30 and 60:40. The other supervisor said "50:50."

<u>Supervisory Skills</u>

The supervisors were asked, *"How would you describe your managerial or supervisory style?"* All the supervisors described their individual supervisory styles with either adjectives or outcomes. They included "leading by example, be a motivator, have the guts to say that you are wrong and then get on with the job," , "Never show panic, I don't fly off the handle, get the facts before you make a decision, get involved at the worksite if needed, speak the team's language, use first name terms, be a perfectionist, be approachable, be more participative than task oriented," , "be relaxed but not slipshod, have an easy going attitude, make instant decisions," , "be relaxed and approachable, be aware of 'looking busy' activities."

The supervisors were then asked if they could comment on an incident that they felt could have been handled more effectively if they had had different training? One supervisor said that nothing came to mind. Another supervisor said that judgements could be made too quickly about people. The other two supervisors said that the full emergency simulation scenario could have been handled better had they had training in handling emergencies. They were then asked if training had helped them in an incident that they had managed? One supervisor said "When trouble seems to be brewing he always nips it in the bud." Another said that he is more confident in well control situations as a result of well control training. The other supervisors said that they were aware of examples but that they were too numerous too mention. The supervisors were all asked "How many people do they supervise?" Their responses were "three directly and twenty indirectly," , "eight directly and up to twenty indirectly," and two supervisors said "six directly and four indirectly."

The supervisors were then asked *"By reporting to the Rig Superintendent does he have an affect on your management style ?"* All four supervisors said that it did not affect their own management style. The supervisors were asked *"Have you ever been assessed in a systematic way with regard to your management skills?"* Three supervisors said that they had never been formally assessed. The other supervisor said yes he had but it was with a previous employer.

The supervisors were asked *"What do you consider to be your strongest asset in your supervisory capacity?"* "Attempting to give people a sense of importance, when a team wins we all win," said one supervisor. Another said "Technical knowledge and empathy with the team." "People skills," said the remaining two supervisors.

The supervisors were then asked *"What personality characteristics do you feel that an effective supervisor should possess?"* Their responses are outlined below; "Honesty, integrity, be accountable, goal oriented, have a commitment to continuity, a sense of humour, never talk down to people and always be in the process of learning." Another supervisor said "Be friendly but firm, be there for questions no matter how trivial and emphasise the importance of technical issues." Other responses that defined the personality characteristics of an effective supervisor were "Decisiveness, good communication, a sense of humour, sensitivity and approachability."

The supervisors were asked, *"Do you think that your position is different with respect to managerial ability than a position onshore?"* The supervisors' responses included statements such as "Transferring the responsibility across shifts does not happen, tension is always there offshore and you only notice it once you are at home how much tension was there," and "The supervisory skills are different, decision making is instantaneous and team working offshore is easier."

The supervisors were asked to identify factors that justified their responses above. "Dealing with people who don't see their families means that you must be patient and compassionate," and "Working offshore can be affected by the 2 weeks at home," were two responses.

<u>Views and opinions about the Oil Industry</u>

The supervisors were asked, *"What do you feel are the most important issues in the North Sea Oil and Gas Industry?"* Their responses included statements such as "Safety, and improving technology." "Becoming more cost conscious." "The Safety Case and the increasing complexity of downhole drilling." "The lack of security and the cynicism of long term contracts." The supervisors were finally asked, *"Are there any other areas that you feel should be considered in relation to the role of the supervisor?"* One supervisor said "The training providers of management training only seem to get their information from books." Another supervisor said that there was a big divide between onshore and offshore, and that it was a bigger barrier than just the water. Another comment was "Why does everything work alright during the weekend?" One supervisor said "There are problems with the power relationships on the platform," , "The lack of interest by the company concerning

the relationships between the wife and family because of the offshore environment," and "The stress factor - offshore."

Conclusion

The central hypothesis of the research is to determine what differentiates an effective from less effective supervisor in terms of management style. While the aim of this pilot survey was not to correlate a performance measure against the management skills, which would be a requirement for measuring supervisory effectiveness, the supervisors' responses raised some interesting issues.

This survey was compiled to enable the researcher to gather information concerning the exploration arm of the offshore oil and gas industry and the role of the offshore supervisor working on a drilling rig. Four supervisors were interviewed, out of a drilling rig supervision team of six, their offshore work experience of 57 years considerably enhanced the validity of their responses.

Despite attendance at supervisory type training courses, the need for improving "people skills" was a theme that was raised throughout the survey. Particularly since the supervisors recognised their supervisory skills as a significant function if not the largest part of their job. 'On the job' experience was also stated as a significant factor that provided supervisory skills, but without correlating these skills against a performance measure it is difficult to assess whether that type of learning promotes good supervisory abilities or enhances previous customs and practices that are less effective.

One reason that may explain the shortfall of supervisory training is the failure of it to recognise the differences between the onshore and offshore work environments. Living two weeks away from home and family life in a 24 hour society are significant factors that the supervisor has to learn to cope with both personally and as the team leader for their subordinates.

Although many of the themes raised within this survey may be specific to drilling supervisors, there are issues that are relevant to the whole of the North Sea oil and gas industry. Supervision and management skills are of increasing significance within the industry. This focus has been driven both by the Cullen Inquiry and the commercial pressures facing the industry. It is the researcher's view that as the first line supervisor is the only 'real time' management position within the industry, further investigation is required to assess the specific requirements of this critical role.

APPENDIX II

THE OFFSHORE SUPERVISORS' QUESTIONNAIRE II

1993

DAVID CARNEGIE

OFFSHORE MANAGEMENT RESEARCH GROUP

THE ROBERT GORDON UNIVERSITY

CONFIDENTIAL

The Offshore Supervisors Questionnaire 1993

Dear Supervisor

I am a final year research student at the Robert Gordon University investigating the management skills of the Offshore First Line Supervisor.

Your participation in this interview is greatly valued, as this is the first time an independent study has examined the role of the offshore supervisor. Therefore your responses could have a considerable impact on the way oil industry management perceive the future needs of front line supervision.

Your responses during the semi-structured interviews will be confidential and will not be disclosed to anyone. Your employer will only receive summary results which will not reveal any individual responses.

Yours sincerely

David Carnegie.

Introduction.

This questionnaire contains a number of sections, which contain a series of questions. The sections are divided into general background information, supervision, motivation, the work environment, leadership and supervisory decision making. The questions vary from requiring a tick or circling a response to open verbal answers. Standard scales will also be used which I will ask you to personally complete.

There are also a number of guidelines which should assist you in completing this questionnaire.

1. Your first answer is normally your natural answer, however please answer honestly and as accurately as you can.
2. Please answer all the questions. This is very important as I will be looking at groups of items and one unanswered question can spoil the questionnaire.
3. Questions that require a discussion are few but where this is necessary the timing of the questionnaire will be maintained.
4. The questionnaire does not follow a traditional format and some questions may appear to overlap, however this is part of the questionnaire strategy.
5. Please remember that all the answers you give will be held in the strictest confidence and will not be divulged to anyone.
6. Before we start do you have any questions ?

General Information

Q1. What is your job title ?

Q2. What was your job title before you became (answer to Q1.)?

Q3. How long have you been in your current post?

Q4. How long have you been a supervisor?

Q5. How long have you worked offshore?

Q6. What was your first discipline when you began working offshore?

Q7. Circle your age on the following scale.

18-23 24-29 30-35 36-41 42-47 48-53 53 and over

Q8. What qualifications do you have ? (mark as many as apply).

A. School leaver qualifications.

B. City and Guilds certificates.

C. ONC / HNC / HND.

D. Oilfield qualifications.

E. University or College Degree.

F. Masters / PhD.

G. Other.

Images Questionnaire

Every supervisor is read these instructions.

- This questionnaire is used in order to provide objective information on personality, which is relevant to successful performance in aspects of the job.
- In the questionnaire you are asked to rate yourself on a number of statements.
- The questions are concerned with how you typically behave at work, so if you are in any doubt try to answer from a work point of view.
- People who try to guess what they think is wanted are often incorrect, so just try to rate yourself as accurately and honestly as possible.
- This is a questionnaire and not a test; consequently there are no right or wrong answers. It is concerned with personality style and not abilities.
- There is no time limit, but you should work quickly rather than pondering at length over any one question. Please complete all the questions. Most people take a maximum of 10-15 minutes to complete it.

Give Questionnaire and answer booklet to the supervisor:

Read aloud as supervisor also reads the instructions on the first page of the Images 1 Questionnaire.

Supervision

Q9. How many people do you supervise ?

Q10. Who do you report to?

Q11. What do you consider to be your best asset in your supervisory capacity?

Q12. Have you had any non technical training for your role as a supervisor ?

Q13. What skills do you use currently that were taught at the training course (mentioned above)?

Q14. Which aspects of your job do you feel require more training and why?

Q15. Have you had any commercial or financial training as a supervisor?

Q16. Do you wish to be promoted and if yes into which position?

Q17. Please circle the response that best describes how you feel about the following statements.

A. The offshore supervisor's main role is that of "fire fighter" e.g making many rapid decisions. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

B. The offshore supervisor is pushed from above and below at the same time. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

C. On this platform, the best supervisory style is authoritarian with autocratic overtones. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

D. The offshore supervisor is not a key figure in reducing loss and increasing profit. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

E. The best supervisory style is to provide firm leadership and direction to employees. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

F. The offshore supervisor has become another specialist whose main concern is organising and looking after his/her workers. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

G. The offshore supervisor should not have the status of first line management. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

H. Staff reports and appraisals do not invite honest and open criticism within the offshore environment. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

I. The offshore supervisor should be a team leader. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

J. Man management is less important than technical ability for an effective offshore supervisor. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

Q18. K. Offshore supervisors play a key role in the success of "partnering". (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

L. The future success of the offshore oil industry depends heavily on the man management skills of all offshore supervisory roles. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

M. Most supervisors sometimes turn a blind eye to the strict safety rules to get the job done on time. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

N. The permit to work system ensures safe working. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

O. The existence of the Offshore Safety Division of the HSE does not make me feel safe. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

P. If supervisors did not take risks now and again the job wouldn't get done. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

Q. Most accidents just happen - there's not much you can do about it. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

R. The permit to work system is just a way of covering people's backs. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

S. There are certainly risks working offshore. (N)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

U. The role of the supervisor is not dominated by paperwork. (P)
Agree Strongly Agree Slightly Neither Agree nor Disagree Disagree Slightly Disagree Strongly

Motivation

Q19. Please rate each of the following motivators in terms of how they motivate you at work.

Promotion

not effective 1 2 3 4 5 6 7 highly effective

Disciplinary action

not effective 1 2 3 4 5 6 7 highly effective

Praise

not effective 1 2 3 4 5 6 7 highly effective

Pay

not effective 1 2 3 4 5 6 7 highly effective

Job Pride

not effective 1 2 3 4 5 6 7 highly effective

Time off

not effective 1 2 3 4 5 6 7 highly effective

Q20. Please rate each of the following motivators in how effective they motivate your team/shift at work ?

Promotion

not effective 1 2 3 4 5 6 7 highly effective

Disciplinary action

not effective 1 2 3 4 5 6 7 highly effective

Praise

not effective 1 2 3 4 5 6 7 highly effective

Pay

not effective 1 2 3 4 5 6 7 highly effective

Job Pride

not effective 1 2 3 4 5 6 7 highly effective

Time off

not effective 1 2 3 4 5 6 7 highly effective

Q21. What are the main challenges for an offshore supervisor in terms of motivating his shift ?

Q22. What motivates you to perform better ? (3 examples)

JOB SATISFACTION

This set of items deals with various aspects of your job. We would like you to tell us how satisfied or dissatisfied you feel with each of these features of your present job. Please use the scale below to indicate your feelings.

I'm extremely dissatisfied = 1

I'm very dissatisfied = 2

I'm moderately dissatisfied = 3

I'm not sure = 4

I'm moderately satisfied = 5

I'm very satisfied = 6

I'm extremely satisfied = 7

1. The physical working conditions.

1 2 3 4 5 6 7

2. The freedom to choose your own method of working.

1 2 3 4 5 6 7

3. Your fellow workers.

1 2 3 4 5 6 7

4. The recognition you get for good work.

1 2 3 4 5 6 7

5. Your immediate boss.

1 2 3 4 5 6 7

6. The amount of responsibility you are given.

1 2 3 4 5 6 7

7. Your rate of pay.

1 2 3 4 5 6 7

8. Your opportunity to use your abilities.

1 2 3 4 5 6 7

9. Industrial relations between management and workers in your firm.

1 2 3 4 5 6 7

10. Your chance of promotion.

1 2 3 4 5 6 7

11. The way your firm is managed.

1 2 3 4 5 6 7

12. The attention paid to suggestions that you make.

1 2 3 4 5 6 7

13. Your hours of work.

1 2 3 4 5 6 7

14. The amount of variety in your job.

1 2 3 4 5 6 7

15. Your job history.

1 2 3 4 5 6 7

16. Now, taking everything into consideration, how do you feel about you job as a whole.

1 2 3 4 5 6 7 by Warr, Cook and Wall, 1979.

The Offshore Environment

Q23. What is it that worries most offshore supervisors?

Q24. What has been the single biggest change in the offshore oil industry in recent years. Describe ?

Q25. How stressful do you feel the post of supervisor is ? (please tick)

(1) Not at all stressful

(2) Rarely stressful

(3) Mildly stressful

(4) Considerably stressful

(5) Extremely stressful

Q26. What is the biggest cause of stress for most offshore supervisors?

Q27. What two suggestions would you make to improve the life offshore ?

Work Environment Scale by Rudolf Moos and Paul N. Insel (1974)

Instructions

There are 90 statements in this booklet. They are statements about the place in which you work. The statements are intended to apply to all work environments. However, some words may not be quite suitable for your work environment. For example, the term supervisor is meant to refer to the boss, manager, department head, or the person or persons to whom and employee reports. (Where some statements apply more to describing the living accommodation area than the worksite, please respond in terms of the platform in general.)

You are to decide which statements are true of your work environment and which are false. Make all your marks on the separate answer sheet.

If you think the statement is *true* or mostly *true* of your work environment, make and X in the box labelled T (true).

If you think the statement is *false* of your work environment, make an X in the box labelled F (false).

Please be sure to answer every statement.

1. The work is really challenging.
2. People go out of their way to make a new employee feel comfortable.
3. Supervisors tend to talk down to employees.
4. Few employees have any important responsibilities.
5. People pay a lot of attention to getting work done.
6. There is constant pressure to keep working.
7. Things are sometimes pretty disorganised.
8. There's a strict emphasis on following policies and regulations.
9. Doing things in a different way is valued.
10. It sometimes gets too hot.
11. There's not much group spirit.
12. The atmosphere is somewhat impersonal.
13. Supervisors usually compliment an employee who does something well.
14. Employees have a great deal of freedom to do as they like.
15. There's a lot of time wasted because of inefficiencies.
16. There always seems to be urgency about everything.
17. Activities are well planned.
18. People can wear non-work clothing while on the job if they want.
19. New and different ideas are always being tried out.
20. The lighting is extremely good.
21. A lot of people seem to be just putting in time.
22. People take a personal interest in each other.
23. Supervisors tend to discourage criticisms from employees.
24. Employees are discouraged to make their decisions.
25. Things rarely get "put off till tomorrow."
26. People cannot afford to relax.
27. Rules and regulations are somewhat vague and ambiguous.
28. People are expected to follow set rules in doing their work.
29. This place would be one of the first to try out a new idea.
30. Work space is awfully crowded.
31. People seem to take pride in the organisation.
32. Employees rarely do things together after shift.
33. Supervisors usually give full credit to ideas contributed by employees.
34. People can use their own initiative to do things.
35. This is a highly efficient, work-oriented place.
36. Nobody works too hard.
37. The responsibilities of supervisors are clearly defined.
46. There is no time pressure.
47. The details of assigned jobs are generally explained to employees.
48. Rules and regulations are pretty well enforced.
49. The same methods have been used for quite a long time.
50. The place could stand some new interior decorations.
51. Few people ever volunteer.
52. Employees often eat lunch together.
53. Employees generally feel free to ask for a raise.
54. Employees generally do not try to be unique and different.
55. There's an emphasis on "work before play."
56. It is very hard to keep up with your work load.
57. Employees are often confused about what they are supposed to do.
58. Supervisors are always checking on employees and supervise them closely.
59. New approaches to things are rarely tried.
60. The colours and decorations make the place warm and cheerful to work and live in.
61. It is quite a lively place.
62. Employees who differ greatly from the others in the organisation don't get on well.
63. Supervisors expect far too much from employees.
64. Employees are encouraged to learn things even if they are not directly related to the job.
65. Employees work very hard.
66. You can take it easy and still get your work done.
67. Fringe benefits are fully explained to employees.
68. Supervisors do not often give in to employee pressure.
69. Things tend to stay just about the same.
70. It is rather draughty at times.
71. It's hard to get people to do any extra work.
72. Employees often talk to each other about their personal problems.
73. Employees discuss their personal problems with supervisors.
74. Employees function fairly independently of supervisors.
75. People seem to be quite inefficient.
76. There are always deadlines to be met.
77. Rules and policies are constantly changing.
78. Employees are expected to conform rather strictly to the rules and custom.
79. There is a fresh, novel atmosphere about the place.
80. The furniture is usually well-arranged.
81. The work is usually very interesting.
82. Often people make trouble by talking behind others' backs.

38. Supervisors keep a rather close watch on employees.

39. Variety and change are not particularly important.

40. This place has a stylish and modern appearance.

41. People put quite a lot of effort into what they do.

42. People are generally frank about how they feel.

43. Supervisors often criticise employees over minor things.

44. Supervisors encourage employees to rely on themselves when a problem arises.

45. Getting a lot of work done is important to people.

83. Supervisors really stand up for their people,

84. Supervisors meet with employees regularly to discuss their future work goals.

85. There's a tendency for people to start their shift late.

86. People often have to work overtime to get their work done.

87. Supervisors encourage employees to be neat and orderly.

88. If an employee starts late, he can make it up by working late.

89. Things always seem to be changing.

90. The rooms are well ventilated.

Leadership

Q28. If all the effective supervisors in the offshore industry decided to go to a pub in Aberdeen what type of pub would it be ?

Q29. What three similar characteristics would define a large group of effective supervisors ?

Q30. From your own experience what was it that an effective supervisor does which others do not ?

Q31. If you could do whatever you liked without penalty, what leadership style would you choose and how would you describe it?

Q32. What is it that is **most** critical to being an excellent first line supervisor.

Multifactor Leadership Questionnaire

This is a questionnaire to provide a description about your leadership. Answer the questions by marking your response in pen. When the item is irrelevant or does not apply, or where you are uncertain or don't know, leave the answer blank. Make no more than one mark for each question. If you want to change your answer, cross out your response and mark another one clearly.

Directions: Listed below are descriptive statements about leaders. For each statement we would like you to judge how frequently you have displayed the behaviour described.

Use the following for the five responses:

Key:	A	B	C	D	E
	Frequently if not always	Fairly often	Sometimes	Once in a while	Not at all

1. I make personal sacrificies for the benefit of others.

2. I avoid getting involved when important issues arise.

3. I talk to those I lead about my most important values and beliefs.

4. It requires a failure to meet an objective for me to take action.

5. I set high standards.

6. I focus attention on irregularities, mistakes, exceptions, and deviations from standards.

41. I provide reassurance that we will overcome obstacles.

42. I avoid making decisions.

43. I display conviction in my ideals, beliefs, and values.

44. I show that I am a firm believer in "If it ain't broke, don't fix it".

45. I provide continuous encouragement to those I lead.

46. My attention is directed towards failure to meet standards.

7. I emphasise the value of questioning assumptions.

8. I give those I lead what they want in exchange for their support.
9. I treat those I lead as individuals rather that just members of a group.
10. I take no action even when problems chronic.
11. I remain calm during crisis situations.

12. The work of those I lead has to fall below minimum standards for me to try to make improvements.
13. I emphasise the importance of being committed to our beliefs.
14. I closely monitor the performance of those I lead for errors.
15. I envision exciting new possibilities.

16. I make clear to those I lead what they can expect to receive, if their performance meets standards.

17. I re-examine critical assumptions to question whether they are appropriate.
18. I am absent when needed.

19. I listen attentively to the concerns of those I lead.

20. I fail to intervene until problems become serious.

21. I instil pride in those I lead in being associated with me.
22. I spend my time looking to "put out fires".

23. I specify the importance of having a strong sense of purpose.
24. I work out agreements with those I lead on what they will receive if they do what needs to be done.
25. I talk optimistically about the future.

26. I fail to follow-up requests for assistance.

27. I encourage those I lead to rethink ideas that had never been questioned before.
28. I tell those I lead what they have done wrong rather than what they have done right.
29. I provide useful advice for the development of those I lead.
30. I keep track of the mistakes of those I lead.

31. I go beyond my own self-interest for the good of our group.
32. I negotiate with those I lead about what they can expect to receive for what they accomplish.
33. I consider the moral and ethical consequences of my decisions.
34. I resist expressing my views on important issues.

35. I express my confidence that we will achieve our

47. I seek differing perspectives when solving problems.
48. I tell those I lead what to do to be rewarded for their efforts.
49. I spend time teaching and coaching those I lead.
50. I delay responding to urgent questions.
51. I display extraordinary talent and competence in whatever I undertake.
52. Problems must become chronic before I will take action.

53. I take a stand on difficult issues.

54. I search for mistakes before commenting on the performance of those I lead.
55. I focus the attention of those I lead on "what it takes" to be successful.
56. I make sure that those I lead receive appropriate rewards for achieving performance targets.
57. I suggest new ways of looking at how we do our jobs.
58. I divert the attention of those I lead away from addressing work-related problems.
59. I treat each of those I lead as individuals with different needs, abilities, and aspirations.
60. I motivate those I lead to do more than they thought they could do.

61. My actions build respect for me from those I lead.
62. Those I lead earn credit with me by doing their tasks well.
63. I clarify the central purpose underlying our actions.
64. I talk enthusiastically about what needs to be accomplished.
65. I encourage those I lead to express their ideas and opinions.
66. I teach those I lead how to identify the needs and capabilities of others.
67. I display a sense of power and confidence.

68. I talk about how trusting each other can help us overcome our difficulties.
69. I arouse in those I lead an awareness of what is essential to consider.
70. I heighten the motivation to succeed of those I lead.
71. I emphasise the importance of having a collective sense of mission.
72. I articulate a compelling vision of the future for those I lead.
73. I get those I lead to look at problems from many different angles.
74. I promote self-development among those I lead.
75. I behave in ways that are consistent with my

goals.

36. Things have to go wrong for me to take action.

37. I question the traditional ways of doing things.

38. I enforce rules to avoid mistakes.

39. I focus those I lead on developing their strengths.

40. I provide assistance to those I lead in exchange for their effort.

expressed values.

76. I show determination to accomplish what I set out to do.

77. I encourage non-traditional thinking to deal with traditional problems.

78. I give personal attention to those I lead who seem neglected.

79. I get those I lead to do more than they expected they could do.

80. I express satisfaction when those I lead do a good job.

81. I encourage addressing problems by using reasoning and evidence, rather than unsupported opinion.

Use this key for the five possible responses to items 82-85.

Key:	A	B	C	D	E
	Not effective	Only slightly effective	Effective	Very effective	Extremely effective

82. The overall effectiveness of your group made up of those you lead and yourself can be classified as?

83. How effective are you in representing your group to higher authority?

84. How effective are you in meeting the job-related needs of those with whom you work?

85. How satisfied are you with your leadership abilities?

86. In all, how satisfied are you with the methods of leadership you use to get your group's assignments completed?

A. Very dissatisfied
B. Somewhat dissatisfied
C. Neither satisfied nor dissatisfied
D. Fairly satisfied
E. Very satisfied

87. In all, how satisfied are you with the methods of leadership you use to get you group's job done?

A. Very dissatisfied
B. Somewhat dissatisfied
C. Neither satisfied nor dissatisfied
D. Fairly satisfied
E. Very satisfied

(This questionnaire was also translated into Norwegian for the supervisors on platform N1)

APPENDIX IIa

Decisiòn Making Scenarios

Five scenarios are outlined below. In each case you are asked to describe what you would do as an offshore supervisor if faced by these problems.

What would you do ?

1. You are supervising many men on the platform. The flight programme has been cancelled for the last four days and there is a large backlog to clear. 14 men turn up at your door all claiming compassionate leave ranging from "the wife is not well" to "my house has been broken into." You are convinced that at least half of them are trying it on...
2. You have a technician who has worked for you a few months. His position has changed due to reorganisation and he is not coping due to the additional demands. His previous supervisor did not tell you that the technician was unlikely to cope with any changes. The technician was an average performer in his previous position and now cannot accept that within the new role he is not producing what is required of him...
3. The lead technician is reasonably experienced but is not the best communicator in the world. The team gets a new recruit and you quickly discover that there is a personality clash between the new man and the lead technician. You learn that the new recruit is a bit head strong and he feels that the lead technician hand is picking on him. You are informed that the new man has been using threatening behaviour towards the lead technician...
4. There are conflicting procedures on re-starting the plant after a plant shutdown. The official procedure takes 45 minutes but there are some aspects that may not be 100% safe. Unofficial "procedures" have been followed in the past and are safer but take up to 90 minutes. You have recognised the need to update the procedures to incorporate this longer safer method but have not yet done so.

The plant trips and the OIM has insisted that company procedures must be strictly

followed...

5. One of your team is working through some technical elements of the new standards of competence. He has completed the self assessment part and is now seeking confirmation of his competence from you as the assessor.

   Your first impression is that he is underselling his actual competence and has marked himself down. You, as the assessor, have to decide whether this is a genuine attempt to avoid responsibility or that he requires more training...

Scoring scale for the DMVs.

The scale for scoring the DMVs is represented by the following scale:

Congruent match	4
Substantial match	3
Moderate match	2
Limited match	1
Incongruent match	0

APPENDIX IIb

JOB PERFORMANCE INDICATORS

For each of the scales, please indicate the appropriate level in terms of job performance.

6 = An outstanding performer.

5 = A very good performer.

4 = A good performer.

3 = Performance is entirely satisfactory.

2 = Performs at somewhat below a satisfactory level.

1 = A poor performer.

Technical/Specialist ability : Knowledge and skills demonstrated in the job.

6 5 4 3 2 1

Communication : Ability to put across ideas and information verbally or in writing.

6 5 4 3 2 1

Relationships : Ability to supervise and to work with others as part of a team.

6 5 4 3 2 1

Managing resources : Demonstration of ability to make appropriate use of assets and understand the cost implications of their decisions.

6 5 4 3 2 1

Influencing others : Skill shown by the employee in handling relationships with superiors, subordinates and peers.

6 5 4 3 2 1

Initiative : Effectiveness in making necessary decisions and taking appropriate action to achieve results.

6 5 4 3 2 1

Change Oriented : Attitude to flexibility both within the workplace and the organisational environment in order to maintain local and global performance objectives.

6 5 4 3 2 1

Overall job performance : Taking everything into consideration.

6 5 4 3 2 1

APPENDIX IIc

Peer Nominations

Listed below are the names of supervisors working on this shift. You are asked to score these supervisors in terms of who you think are the most effective supervisors and also who are the least effective supervisors.

Make your choice against performance indicators such as *best* team leader on the platform, *best* supervisor in terms of motivating his shift and *best* job performing supervisor.

Most Effective Supervisors

1.
2.
3

Least Effective Supervisors

1.
2.
3.