الجامعة البريطانية في دبي
The British University in Dubai

Dissertation research
FOR
MSc in Project Management

Innovation in oil and gas industry: Are we enjoying an innovative organization climate.

A case study of an oil and gas organization in UAE

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Date: March-2010

Appraisal form

Executive Summary

The objective of this study is analysing the innovation climate status in oil and gas industry in UAE. This study is taking the case study of only one oil and gas organization in UAE. There have been lots of initiatives in the candidate organization to stimulate innovation and creativity in the organization. This research is investigating does the candidate organization really have an organization climate that stimulate innovation.

The research started with a search in the literature for the description of the innovative culture and climate, and what are the factors of an innovative organization climate. Further, a self-administered questionnaire has been distributed to gather data about the employees' perception of their innovative organization climate and management innovative behaviour. The purpose is to compare management responses towards their innovative behaviour and employees' response towards their perception of their organization climate.

Employees rated their management as high in supervisory support. In addition employees rated the organization as high in caring about the quality of the work. Employees also said they are facing pressure at work. In addition they described the organization as attached to traditional way of doing work. There is a gap found in group of organization climate factors namely, integration, involvement, innovation and flexibility. Employees went in two minds about these factors. 50 % to 60% agreed and 40% to 50% disagreed. Further research has to be conducted to understand where this gap came from. Leadership innovative behaviour could not be related to employees' perception of innovative behaviour. Management described them selves as high in innovative behaviour and this contradict employees perception of organization climate.

Key words: innovative climate, creativity, innovative culture, innovative individuals, leadership innovative behaviour

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CHAPTER 1

Introduction

CHAPTER 1:INTRODUCTION

1.1.Why do Oil and Gas industry needs innovation?

Oil and Gas industry is a challenging working environment. Recent financial crises cased drastic decrees in the oil price. Oil and Gas companies need innovation disparately. To accommodate the changes in oil price, oil producer companies need to come up with cost efficient production method. The increase to the oil price induced the increase to oil production. Thus more fields need to be developed and more wells have to be drilled.

Another challenge faced by the industry is to explore and accommodate new techniques and technologies in oil and gas exploration and production industry. Oil and gas companies need to be more flexible and adaptable to changes in the environment.

1.2. Research Objectives.

The objective of this research is to study the status of innovation in Oil and Gas industry in UAE. This research is investigating does oil and gas industry in UAE is having the working environment that stimulates people to innovate. This research is handling the case study of only one of the oil and gas organization in UAE. The reason why this organization has been selected is that it has recently started programs to stimulate innovation in the organization. Programs such as yearly innovation award for best innovation and added value projects

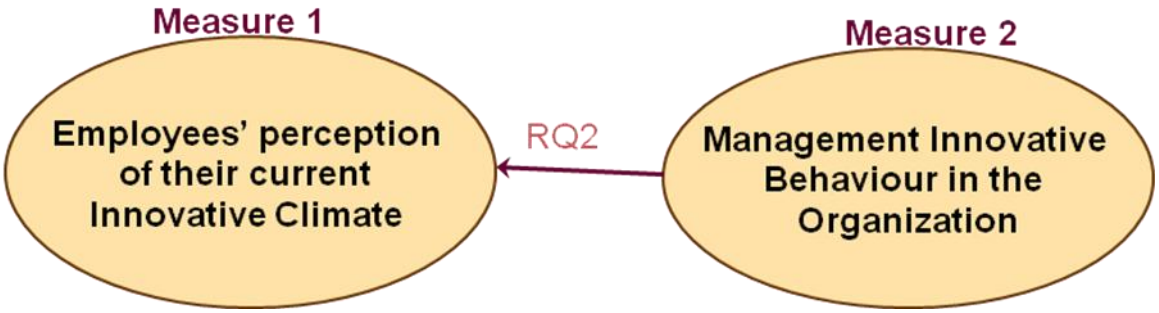
The study is measuring the candidate organization employees' perception of their organization climate, is it supporting innovation? Further this research is studying leadership innovative behaviour and how it is related to employees perception of their organization climate.

1.2.1. Research questions:

RQ1: How do the candidate organization's employees perceive their organization climate as supportive for innovation and creativity?

RQ2: How is Management innovative behavior is related to employees' perception of their innovative climate

Figure (1): Research questions



1.3.The candidate organization

The candidate organization where this study is conducted is an oil and gas producer in UAE. It has been operating since 1954. The size of the organization population is 2500 employees.

1.4.Overview of Methodology

A quantitative research has been conducted in order to collect information about employees' perception of their organization climate in the candidate organization. The questionnaire is divided into 3 parts. Part 1 is to understand the respondent demographic information. Part 2 is a questionnaire titled organization climate measure (OCM). Finally, Part 3 is a questionnaire titled leadership innovative behaviour.

Employees from different divisions, and positions were asked to complete part 1 and 2 of the questionnaire. The targeted organization sample is employees who are in professional (i.e. engineers, and analyst) positions. In addition they are employees who are decision makers and more exposed to issues that affect the change and innovation in the organization. The questionnaire results were analyzed using SPSS software. The questionnaire instrument is reading employees perception towards 14 areas namely, autonomy, integration, involvement, supervisory support, training, welfare, formalization, tradition, innovation and flexibility, reflexivity, clarity of organization goals, performance feedback, pressure to produce, and quality.

Another group of respondents are employees in management position. They were asked to complete part 1,2 and 3 which was about measuring leadership innovative behaviour. There are certain behaviours were selected to be measured which would affect employees' enthusiasm toward innovation. They are innovation role-modelling, intellectual stimulation and motivation, stimulating knowledge diffusion, providing vision, consulting, delegating and task assignment, support for innovation and flexibility, monitoring and recognition and feedback.

CHAPTER 2

Literature Review

CHAPTER 2:LITERATURE REVIEW

2.1. What is Organization Innovation and Comparative with other terms

2.1.1. What is innovation

2.1.1.1. Innovation definition

There are two definitions found in the literature search. Some define innovation as a new outcome or human attitude or behavior

a) Defined innovation as new outcome

Innovation can be described as an outcome like new product, or idea. In addition it can be a process such as a new process of making something Sarros, et al (2008). Sarros, et al (2008) cited (Suranyi-Unger, 1994) definition of organization innovation which is the introduction of any new production, process, or system into an organization.

b) Attitude or behaviour

Ahmed (1998) describes innovation as engine for change and pervasive attitude which allows the organization to see beyond the present and create the future. Innovation is something that can be felt however it cannot, be touched, tasted, heard or tasted

Murray and Blackman 2006 in their literature defines innovation as a continuous process which involves little change in behaviour (cited from Murray and Chapman, 2003; West, 1992) or product or customer orientations.

Most definitions describe innovation as novelty and newness. However Johannessen, et al 2001) add that, they do not describe what is new? New to who?, and how new?. What is new is important because not necessary that everything new is innovation. How new is also important because it describes to which degree newness is considered innovation. New to who is important because newness is related to certain domain where it is adopted?

Knox (2002) gives a full definition; innovation is about new solutions that offer better value to customers.

Innovation is important because it is the instrument/tactic towards creating and sustaining a competitive advantage (Johannessen, et al 2001, Wang & Ahmed 2004).

2.1.1.2. Types of innovation

There are different approaches of classifying innovation types. Wang & Ahmed (2004) in their literature described 5 types of innovation, product, market, process, behaviour, and strategic innovativeness. Nelly et al., 2001 described different classification of innovation which he cited from Rothwell, 1994. It is called the five generations model of innovation. The model perception of innovation is in five different generations and how it changed from 1950s to 1990s. Another way of classifying innovation is radical and incremental innovation (Johannessen, et al 2001, Wang & Ahmed (2004))

a) Wang & Ahmed (2004) 5 types of innovation

Product innovation is about the newness, novelty, and originality of new product Wang & Ahmed (2004) cited from (Henard and Szymanski, 2001) and it is highly connected to business success. Knox (2002) explains that product innovation could be new to customer or organization. Service companies do not produce physical product but they produce services like banks and insurance companies. Service innovation is defined by Oke (2007) as a new process or activities of delivering service product to make them more attractive to customers or faster the delivery of the service.

Market innovativeness definition which Wang & Ahmed (2004) cited from (Andrews and Smith, 1996) is that innovation is related to companies innovation in market research, advertising, promotion, identifying new market opportunity and their approach to enter and invest on that market. Market innovativeness is also associated with product innovation as the newness and novelty of a product is often related to certain market.

Process innovativeness is the introduction of new production method and management approaches, or the new technology used in the production method and management approaches. It is also about the company's innovation in exploiting their resource and capabilities to meet the requirement of creative production which leads to the company's success.

Behavioural innovativeness is demonstrated through organization's individuals, teams, and management. It is a fundamental factor of forming innovative culture.

Strategic innovativeness definition as Wang & Ahmed (2004) cited from Besanko et al. (1996) is the development of new competitive strategies that create value for the organization. Wang & Ahmed (2004) elaborated more saying that strategic innovativeness is about measuring organizations ability to manage ambitious objectives and then identifying miss match with current organization resources. Further filling these gaps by developing current resources capabilities.

b) Rothwell, 1994 five generations model of innovation.

The first generation:

It is called technology-push or linear model. In the 1950s the post-war recovering period, there was high demand on manufactured goods. Innovation was perceived as output of research in development, manufacturing and marketing of products. The greater the level of Research and development, the greater is the organization's ability to produce product.

Second generation:

It is called market-pull. In the 1960s, the competition increased for companies were going towards diversifying their products. The studies were more focused on marketing innovation. This module put on the first place customers satisfaction as driver for innovation. However this module ignored the importance of scientific and technological knowledge which is important for innovation.

Third generation:

It is called coupling model. In the 1970s the innovation process shifted towards the complex net of communication which links the intra-organization with the extrat-organization. This complex communication links the organizations in-house functions and then links the organization with the scientific and technology community and the market place.

Fourth generation:

It is called the integrated model. In the 1980s the concept of innovation was based on high level of functional integration and parallel activities. This concept came from automobile and electronics sector in Japan.

Fifth generation:

It is called systems integration and networking model, which is an important enabler of the process o information technology revolution.

c) radical and incremental innovation

Johannessen, *et al* (2001) cited Damanpour (1996) explanation of both terms. Radical innovation producees fundamental changes in the activities and practices of an organization. However the term incremental innovation involves lesser change to the organizations activities and practices.

2.1.2. Creativity and Innovation

Similar to innovation, creativity in most literature is related to newness and novelty. Creativity is commonly defined as Individual or Team process which leads to novel, useful, and understandable idea (Mostafa (2005) cited Kao (1991, p.14); Sadi and AlDubaisi (2007) cited Greenberg and Baron (2003); DiLiello and Houghton (2006)). Amabile (1997) explained that creativity can be in any type of human activity, science, art, education, business, and everyday life. Amabile (1997) added that creativity has to be appropriate to the problem and presents opportunity.

However, some researches differentiate between innovation and creativity. Creativity is the process of generating novel idea, however innovation is about the implementation of creative idea in the organization (DiLiello and Houghton (2006) cited Amabile *et al*. (2006)). Creativity is considered as the initial phase of innovation process, where problems or performance gaps are recognized and ideas are generated in response to a perceived need for innovation Jong & Hartog (2007) cited West (2002). Therefore team and individual and team creativity is the originator of organization innovation (DiLiello and Houghton (2006) cited Amabile et al. (2006); Mostafa (2005) cited Koontz et al. (1980))

2.1.3. Entrepreneur and Innovation

2.1.3.1. What is Entrepreneur

Hisrich, *et al*. (2005) defines entrepreneurship as the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of momentary and personal satisfaction and independence. The definition has three parts. First entrepreneurship involves the process of creating something new that have value to the entrepreneur and the user. Second, entrepreneurship requires dedicating necessary time for the development of the new thing and makes it operational. In addition it requires taking onto account the variety forms of risks that could involve during the creation of the new thing. The final part of the definition is about rewarding the entrepreneur like personal satisfaction and independence.

Bastic, and Leskovar-Apacapan (2006) argues that entrepreneurship represents organizational behaviour in risk taking, pro-activity, innovation and resistance to bureaucracy.

Garcia-Morales, et al 2006 sited (Ireland *et al.*, 2001; Lant and Mezias, 1990) explanation of Entrepreneurial behaviour in a learning framework. It involves search activities such as expending resources on the exploration of alternative possibilities, attempting to understand the relationship between organizational characteristics and outcomes, and determining the viability of organizational change.

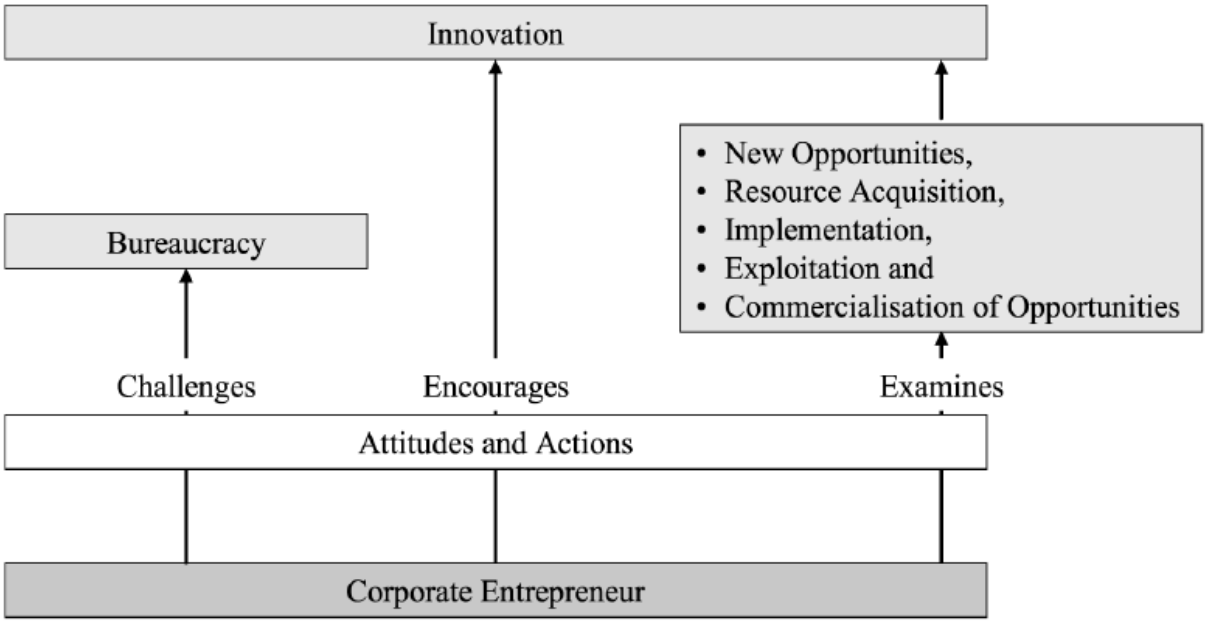
2.1.3.2. Corporate entrepreneur and innovation

McFadzean, *et al* (2005) explains that many literatures consider entrepreneurship as the primary support and stimulator for innovation. However the author discusses that it is not only the entrepreneurship, it is the corporate entrepreneurship that is responsible of promoting entrepreneurship behaviour in the organization using management and leadership style that stimulate innovation in the organization. Corporate entrepreneurship stimulates innovation by exploring the organization for potential new development opportunities, resources, implementing and marketing new product or services. The author also added that

corporate entrepreneurship includes attitudes and actions that enhance company's ability to take risk (cited from Zahra 1991, 1995).

McFadzean, *et al* (2005) defines corporate entrepreneurship as the effort of promoting innovation from an internal organisational perspective, through the assessment of potential new opportunities, alignment of resources, exploitation and commercialisation of said opportunities. He summarized the link between corporate entrepreneurship and innovation by saying that it has become clear that without the presence of some form of entrepreneurial activity to exploit opportunities as they arise within organisations, innovation remains little more than an inspirational, rather than a tangible destination (cited from Pinchot, 1985; Schumpeter, 1961; Thornberry, 2001; Zahra, 1995).

Figure (2): Corporate Entrepreneurship from McFadzean, et al 2005



2.1.3.3. Entrepreneur and leadership

The leadership entrepreneur behaviour is very essential in promoting innovation. Russell (2007) argued that entrepreneur leader helps in creating group norms that support innovation by consistently reinforcing innovative behaviour within the group. He continuously maintains interactions with organization's members to communicate his vision

of innovation. He also promotes innovation by example, acting as innovative leader .Russel (2007) listed four entrepreneur leader behaviours that shape an innovative culture:

(1) Mentor and coach group members in innovation-supporting behaviours

(2) Focus the attention of group members on the successful development and implementation of innovation.

(3) Create a reward system which rewards both successful innovation and innovation-supporting behaviour.

(4) Recruit, hire and promote innovative people.

2.2. Organization innovation capacity

The capacity to innovate is the ability of the organization to adopt or implement new ideas, processes, or products successfully (Montes *et al*, 2003 cited Bruns and Stalkers, 1961; Hurley and Hult, 1998). Innovation is affected by factors that contributed to organization capacity for innovation and organization's member's motivation for innovation (Ahmed, 1998 ; Montes et all 2003). This section of the literature summarizes the researches done about the factors affecting innovative organization. They are organization individuals, organization culture and climate.

Innovation starts with people, and people in the organization are either professional individuals or management. Organization innovation capacity relays on individuals who generate and implement innovative ideas and on management who leads individuals to innovate. Further more individuals shape and shaped by the organization climate. Individuals' perception of their organization climate as supportive for innovation also affects organization innovation capacity

2.2.1. Organization individuals

Innovation starts with people who are both willing and able to innovate. One way for organizations to become more innovative is to capitalize on their employees' ability to innovate (Jong & Hartog 2007). Furthermore, Organisations need to consider employing the type of employees who can most effectively drive innovation (Ahmed 1998). Employees could have different roles in the production of innovation. An organization would need idea generators, information gatekeepers, product champions who support the adoption of new

practices, project manager who implements innovative projects, and leaders who actively encourage and sponsor innovation (Roffe, 1999 cited Roberts, 1988)

Mumford, et al (2002) describes that common characteristics of innovative thinkers are motivation, autonomy, openness, flexibility, cognitive complexity, self-confidence, dominance and introversion. Table(1) includes list of individual characteristics that leads to innovative behaviour by different authors.

Table (1): Characteristics of innovative individuals

Characteristic	Description	Authors
Ambivert	a balance between extrovert and introvert, but tends more towards introversion	Roffe(1999) cited Adair(1990)
General interests	Having wide range of interests	Roffe(1999) cited Adair(1990); Ahmed (1998)
Expertise and fanatics	pioneers in their technologies and fanatics at problem solving high valuation of aesthetic qualities in experience	Roffe, 1999 cited Quinn, 1985; Ahmed (1998)
Intelligence	Higher in general intelligence, information storage, recall and analysis	Roffe(1999) cited Adair(1990)
Independence	High degree of independence and self-sufficiency	Roffe(1999) cited Adair(1990)
Independent judgement	Autonomy of judgement and resilience to peer pressure on conformity in thinking	Roffe(1999) cited Adair(1990); Ahmed (1998)
vivid representation	An ability to draw attention to the unrecognised or unobserved	Roffe(1999) cited Adair(1990)
Achievement	A particular interest in achievement on problems where their own ability can be a deciding factor	Roffe(1999) cited Adair(1990)
Curiosity	Prolonged curiosity, observation and listening abilities	Roffe(1999) cited Adair(1990); Ahmed (1998)
Intuitive and	An ability to tune into intuitive feelings and let fantasy	Roffe(1999) cited

imaginative	in	Adair(1990)
Conscientiousness	Dedicated, committed and hard-working	Roffe(1999) cited Adair(1990)
Creative tension	Capable of holding many ideas together in creative tension without making a premature resolution of ambiguity and sometimes providing synthesis from disparate notions	Roffe(1999) cited Adair(1990)
Long time horizons	The time horizons for radical innovation make them tend to underestimate the length of time for success	Roffe(1999) cited Quinn(1985)
Low early costs	Innovators tend to work with low costs and try to decrease their early risks	Roffe(1999) cited Quinn(1985)
Multiple approaches	The innovator can tolerate the unpredictable interactions between the discoverer and the outside world, and cope well with unencumbered and informal development attraction to complexity, ability to accommodate opposites	Roffe(1999) cited Quinn(1985); Ahmed (1998)
Flexibility and quickness	The inventor-entrepreneur can design, test and recycle speedily thus yielding timing and performance advantages over slow-moving competitors	Roffe(1999) cited Quinn(1985)
Incentive	The inventor-entrepreneur can envisage tangible benefits and personal rewards if they are successful	Roffe, 1999 cited Quinn, 1985
Availability of capital	If entrepreneurs are turned down by one source, other sources are sought sometimes in creative combinations	Roffe, 1999 cited Quinn, 1985
self-confidence		Ahmed (1998)
high energy		Ahmed (1998)
Intuition		Ahmed (1998)
Persistence		Ahmed (1998)
intellectual honesty		Ahmed (1998) cited Amabile (1988)
personal master	It is the discipline of personal growth and learning. it is the fine art of managing your mind and the desire to	Garcia-Morales, et al 2006

	understand and learn Garcia- Morales, et al 2006. people with high level of personal mastery have passion for learning and they are continually expanding their competencies and abilities Garcia-Morales, et al 2006.	
attraction to complexity		Ahmed (1998)
Self-leadership	Individuals' ability to lead and manage themselves in the workplace. Individuals can self motivate and direct themselves to perform effectively in the workplace.	DiLiello and Houghton 2006)

2.2.1.1. Componential theory of individual creativity

Amabile (1997) described her componential theory of individual creativity. The theory assumes that all humans with normal capacities are able to produce at least moderately creative work in some domain, some of the time—and that the social environment (the work environment) can influence both the level and the frequency of creative behaviour.

The theory includes three components which are crucial for creativity in any domain as showed in figure (2). Creativity reaches the highest when all the components intersect together. The components are:

Expertise: Considered the basic of all creative work. It includes memory for factual knowledge, technical proficiency, and special talents in the target work domain. Knowledge in certain domain enhances the possibility of creating new understanding (Ahmed, 1998).

Creative Thinking: Even if a person has expertise in certain domain, he won't produce creative work without the skill of creative thinking. This skill involves individual's passion for taking new perspective on solving problems and application of techniques while doing their own work. Creative thinking skill depends on individual's personal characteristics like self-discipline, orientation towards risk-taking, tolerance for uncertainty, independence, perseverance when facing frustration, and lack of confidence for social approval. This skill can be developed by learning and practicing

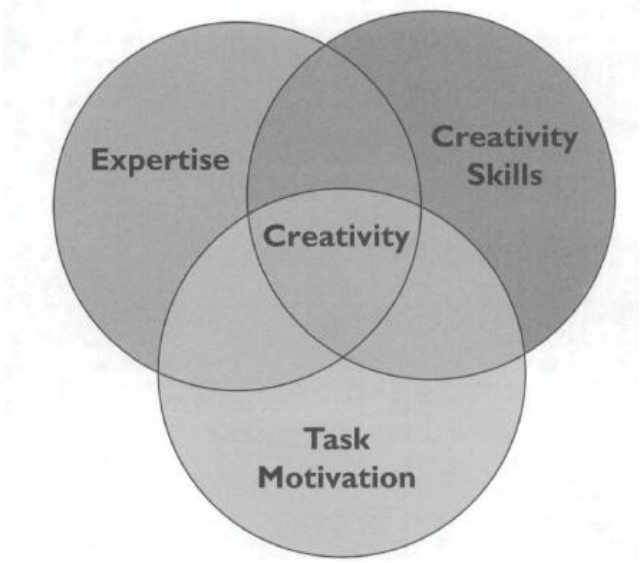
Task motivation: Although an individual could have the required expertise and creative thinking skill, however task motivation decided how that individual will engage his expertise and thinking for the purpose of creative performance. There are two types of motivation intrinsic, and extrinsic.

Intrinsic resides in person's personality and it is affected by the person's social environment at any given time. It has significant effects in person's creativity. Intrinsic motivation is driven by the individuals deep in their work, curiosity, enjoyment, and personal sense of challenge. Intrinsic motivation refers to the motivational state in which employees are interested in a task for its own sake, rather than for the external outcomes or rewards related to the task (Gumusluoglu and Ilsev, 2009 cited Deci and Ryan, 1985).

Extrinsic motivation is driven by the desire to achieve certain goal at work like meeting deadline or winning a completion.

Intrinsic and extrinsic motivation can exist together at any given time, however number of studies showed that intrinsic motivation is the primary stimulant for creativity. When an employee is intrinsically attracted to a task, he or she is more likely to focus on it and explore and experiment with it, hence exhibit more creative behaviour (Gumusluoglu and Ilsev, 2009) .

Figure (3): 3 component level of creativity



2.2.2. Organization culture and climate

2.2.2.1. Introduction

Organization culture and climate is the main factor that affects and contributes to organization innovation. Under its umbrella it incorporate other factors like leadership style, organization structure, etc. Ahmed (1998) considers culture as the primary determinant of innovation and it guides members to strive for innovation. Furthermore, it is important for the organization's culture and climate to be complementary (bastic, Leskovar-Apacapan 2006).

2.2.2.2. Organization Culture

2.2.2.2.1. *Definition*

There are different definitions in the literature but most of them describe culture as the pattern of arrangement or behaviour adopted by a group (society, corporation, or team) as the accepted way of solving problems (Ahmed, 1998; Bastic and Leskovar-Apacapan, 2006). Therefore culture includes all the beliefs, values, and norms that form the behavior (Ahmed, 1998).

Dombrowski *et al* (2007) sited similar definitions by Barney (1986) and Schein (1985), who define culture as shared set of values, beliefs, assumptions and practices between people in the organization that governs the way they conduct their business. Dombrowski *et al* (2007) explained examples of how organization culture is reflected in people's behaviour. It can be seen in the stories people tell in the organization, or their marketing efforts, management approach to relationships, values they evaluate, long and short term rewarded behaviour, and their adopted slogans.

2.2.2.2.2. *Innovative Culture*

Dobni (2008) explains that the extent to which an organization can be regarded as innovative will be circumscribed by its culture. Similar to culture, innovation is often expressed through behaviors or activities that are ultimately linked to a tangible action or outcome. The metric for success is dependent on the nature of the outcome itself and is often compared against changes in performance.

Dobni (2008) defines innovative culture as a multi-dimensional context which includes the intention to be innovative, the infrastructure to support innovation, operational level

behaviors necessary to influence a market and value orientation, and the environment to implement innovation. The definition is illustrated in figure (4).

Wang and Ahmed (2004) defined innovative culture as an organisation's overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative behaviour and process

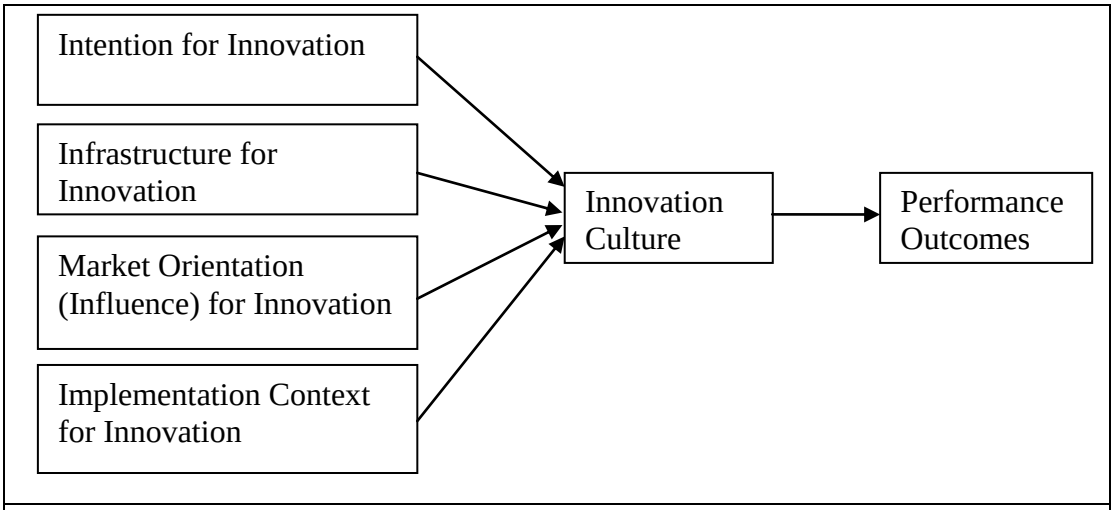


Figure (4): Model of innovation from Dobni 2008

2.2.2.2.3. ***What determines innovative culture?***

Different literatures have different ways of measuring and evaluating organization cultures. Different researchers studied and measured organization culture looking at dimensions, or elements, or norms, or components of organization culture. However they all (Ahmed (1998); Dombrowski et al (2007); Martins and Terblanch (2003); and Andriopoulos (2001)) agreed that dimensions or elements or norms or components of organization culture is an important determinant of innovation in the organization. One way for having a successful innovative organization is to identify (dimensions or elements or norms or components) of culture that encourage innovation and then select the ones that are related to the organization context. If the wrong one exist then no matter the effort individuals trying to promote innovation, few ideas are likely to be generated.

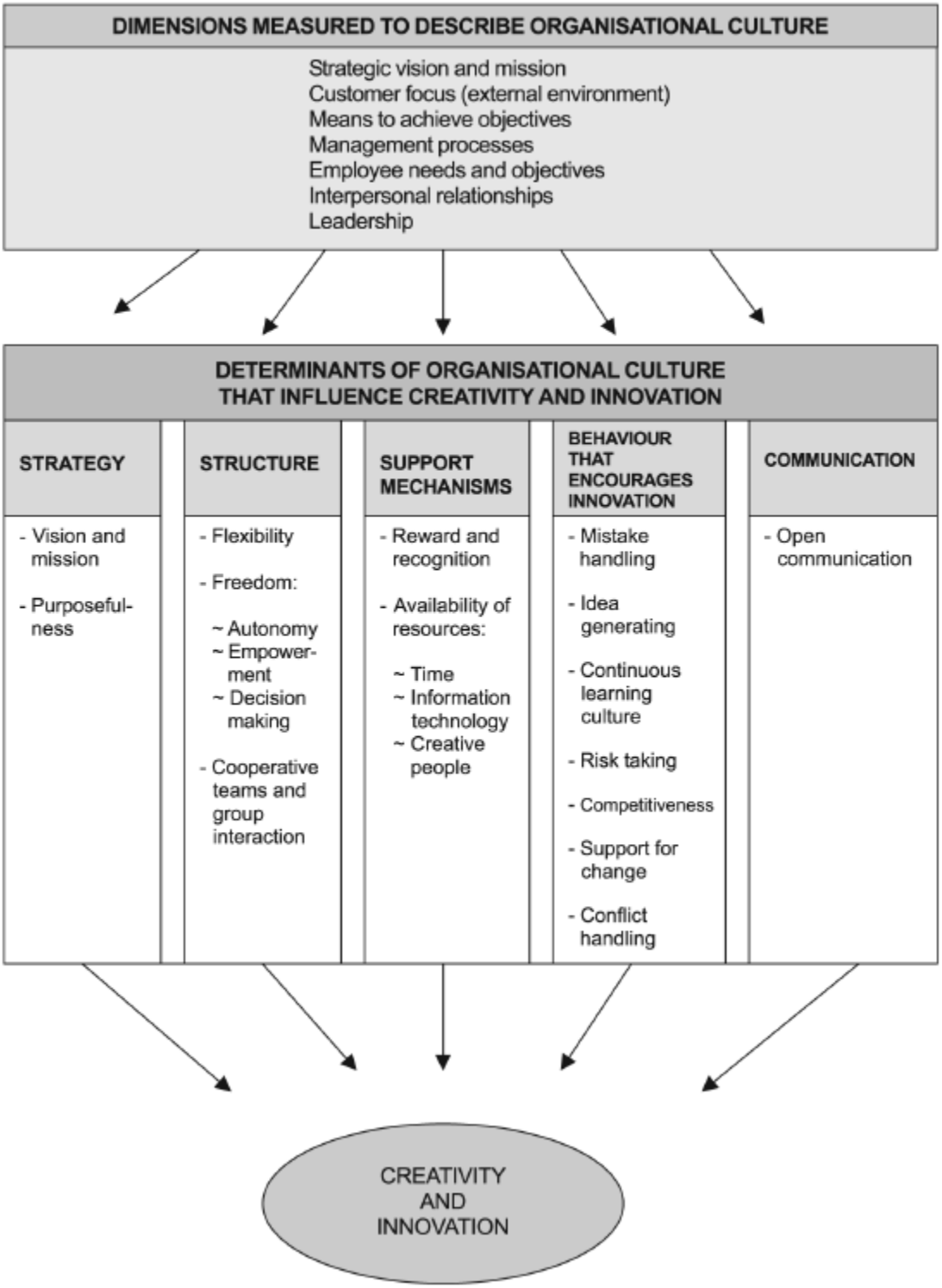
a) Dimensions of innovative culture

Martins and Terblanche (2003) cited Martins' (1987, 1997) dimensions that describe organization culture in Table (2). Martins and Terblanche (2003) claimed that those dimensions have an influence on the degree which creativity and innovation take place in the organization. The influence has impact on the creativity and innovation of five determinants of the organization culture. They are strategy, structure, support mechanism, behaviour that encourages innovation, and communication. Table (3) and figure (4) explains the five determinates of innovative organization culture.

Table (2): Martins' (1987, 1997) dimensions that describe organization culture	
Mission and vision	Organization's mission and vision that is understood by organization individuals and can be transformed into measurable individual and team goals and objectives.
External environment	The degree of focus on external and internal customers and employee's perception of the effectiveness of community involvement.
Means to achieve objectives	The way in which organisational structure and support mechanisms contribute to the effectiveness of the organisation.
Image of the organisation	The image of the organisation to the outside world and whether it is a sought-after employer.
Management processes	The way in which management processes take place in the organization. It includes aspects such as decision making, formulating goals, innovation processes, control processes and communication.
Employee needs and objectives	Integration of employees' needs and objectives with those of the organisation as perceived by employees/ personnel
Interpersonal relationships	The relation between managers and personnel and the management of conflicts
Leadership	Focuses on specific areas that strengthen leadership, as perceived by personnel

Table (3): Determinant of innovative organization culture	
Strategy	Innovative strategy is what promotes innovation and creativity on the organizations products and services. It is showed on the organization's shared vision and mission which focus on the future of the organization. It is also important that the organization members understand and believe on the organization vision and mission. They need also to understand the gap between the current situation and the vision and mission in order to be able to act creatively and innovatively.
Structure	Organization structure that stimulates innovation owns values like flexibility, freedom and cooperative teamwork.
Support Mechanisms	This includes the reward and recognition system and the availability of resources, time, information technology and creative people to complete jobs.
Behaviour that encourages innovation	Innovative behaviour are resulted from organization values and norms that stimulate innovation. Behaviours are like the way individuals handle mistakes which includes rewarding and punishment approaches. Second behaviour is the way the organization supports ideas generation. This also includes fair evaluation of ideas. Third behaviour is organization support for continuous learning by encouraging individuals to exchange information and keeping skills and knowledge up today. Fourth behaviour is risk taking. Fifth behaviour is competitiveness. Sixth behaviour is support for change by creating a vision that emphasises change and looking for new ways of accomplishing jobs. Final behaviour is conflict handling by understanding individuals thinking style and train individuals in process of constructive confrontations.
Communication	Supporting open and transparent communication is important to promote innovation in the organization. This can be done by teaching individuals that disagreements is healthy for it exposes paradoxes, conflicts and dilemmas and it promotes openness in communication. Another important thing that the personnel needs to feel safe while communicating and they are able to trust one another

Figure (5): From Martins and Terblanche (2003)



b)Norms of innovative culture

Organization culture ability to enhance or hider creativity and innovation depend on the norms that are widely held by the organisation (Ahmed, 1998). According to Andriopoulos

(2001) Organization culture is perceived as a set of collective norms, which influence the behaviour of members within the company. These norms should be based upon a common set of values. Organization values and norms should be understood and accepted by every employee in the organization. Ahmed (1998) presented in his literature agreed set of organization norms that promote innovation. Table (4) has list of norms presented by Ahmed (1998) and Andriopoulos (2001).

Table (4): List of innovative culture presented by Ahmed (1998) and Andriopoulos (2001)

Norm	Description	Author
Challenge and belief in action	The degree of which employees are involved in daily operations and the degree of "stretch" required.	Ahmed, 1998
Freedom	The degree to which the individuals are given freedom in defining and executing their own work.	Ahmed, 1998
Support risk taking	Organizations that support risk taking enhance creative achievements.	Ahmed, 1998 and Andriopoulos (2001)
Dynamism and future orientation	The degree to which the organization is active and forward looking. The organization has positive attitude towards change, emphasis on quality and empower people.	Ahmed, 1998
External orientation	The degree to which the organisation is sensitive to customers and external environment by adopting customers perspective and building relationships with all external interfaces(suppliers, distributors)	Ahmed, 1998
Trusts and openness	The degree of emotional safety that employees experience in their working relationships. When there is high trust, new ideas generated easily.	Ahmed, 1998
Debates and participation safety	The degree to which employees feel free to debate issues actively, and the degree to which minority views are expressed readily and listened to with an open mind. Andriopoulos (2001) calls this item Stimulating and ensuring participative safety which is	Ahmed, 1998 and Andriopoulos (2001)

	cited from Anderson et al (1992). He explains that individuals will be more encouraged to think creatively if they feel safe from punishment and criticism.	
Cross-functional interaction and freedom	The degree to which interaction across functions is facilitated and encouraged. Andriopoulos (2001) named this item Open flow of communication. He claims that it is important to encourage creativity by exchanging information	Ahmed (1998) and Andriopoulos (2001)
Myths and stories	The degree to which success stories are designed and celebrated.	Ahmed, 1998
Leadership commitment and involvement	The extent to which leadership exhibits real commitment and leads by example and actions	Ahmed, 1998
Awards and rewards	The manner in which successes (and failures) are celebrated are rewarded.	Ahmed, 1998
Innovation time and training	The amount of time and training employees are given to develop new ideas and new possibilities and the way in which new ideas are received and treated.	Ahmed, 1998
Corporate identification and unity	The degree to which the employees are involved in identifying the companies philosophy, products and customers	Ahmed, 1998
Organisational structure: autonomy and flexibility	The degree to which the structure facilitates innovation activities. Such as minimising bureaucracy and delegating decision making responsibility at lower levels	Ahmed, 1998 and Andriopoulos (2001) cited Amabile (1996)
encourage self-initiated activity	it enhances instinct motivation for the individual owns the problem and the solution.	Andriopoulos (2001)

c) Components of culture:

Ahmed (1998) claims that culture has two components, explicit or implicit. It is important to understand the difference between both components to better analyze and manage the

culture. Explicit component of culture represent the behaviour of people and the work they produce. Implicit component of culture refers to the people's values, beliefs, norms, and premises which determine their behaviour. A really strong organization works on the implicit level and control people's behaviour and beliefs. Strong organization has its employees believe in its products, customers, and process. However, people strong believe on organization norms and behaviour could be an obstacle if the organization is planning to change. A strong organization culture promotes the values and behaviours of accepting change.

d) Elements that help in building innovative culture:

Dombrowski et al (2007) documented in his research the elements of innovative culture. He called them the salient elements and presented them in order of saliency.

Table (5): Elements of innovative culture	
Innovative mission and vision statement.	Organization's mission and vision has to clearly encourage innovation and as the organization grow it becomes more important. It also needs to be supported by management support behaviour that supports innovative ideas, openness and sharing.
Democratic communication	It is about the participation by all employees in decision making, and problem resolution..
Safe spaces	
Flexibility	Open-mindedness and questioning of protocol and procedures
Collaboration	Communication and joint problem-solving across business unites and divisions.
Boundary spanning	Collaboration across various organizational boundaries
Incentives and rewards	
Leadership	Successful innovations need champions who can manage innovation from ideas to successful commercialization.

2.2.2.3. Organization climate

Baer and Frese 2003 discussed in their literature that there are two concepts for definitions of organization climate. One concept is by James (1982) and James, Joyce, and Slocum

(1988) who conceptualized organizational climate as an aggregated psychological climate. Psychological climate defined as peoples aggregated perception towards their working environment. Organization climate is the property of people. Since people differ in their views of their working environment, climate does not exist if people extremely differ in their perception of work environment (cited from Glick, 1988). This view is also supported by Ahmed (1998) who explained that people are active observers of the environment where they work. They shape the environment and they are shaped by the environment. Another organization climate concept by Glick (1985, 1988) who think that climate is an organization's rather that an individual property. He defined organizational climate in (Glick,1985, p. 613) as a broad class of organizational variables like policies and practices that describe the organizational context for individuals' actions'. This concept is also agreed by (Ekvall, 1987 cited by Kwasniewska and Necka (2004) who think that climate exists independently of people's perceptions, and is considered an attribute of the whole organization.

Ekval (1996) described climate as an attribute of the organization feelings and behaviours which characterizes life in the organization. It exists independently in organization members' perception and understandings. Ekval (1996) added that climate is not identical to culture however, it is regarded as aspect of culture.

2.2.2.3.1. ***Organization climate and innovation***

Sharman and Johnson (1997) cited Ekvall (1991) finding that one of the strongest factors influencing people's involvement in idea suggestion is their perception of the working climate. Creativity theory suggests that when a working environment facilitates idea generation, knowledge sharing and creative problem solving, individuals in that environment are more likely to generate creative ideas that involve unique concepts or new applications of existing concepts (DiLiello and Houghton, 2006).

According to Ahmed (1998) the climate of the organisation is inferred by its members through the organisations practices, procedures and rewards systems deployed. Ruiz-Moreno *et al* (2008) Organizational climate can be described as the shared perceptions of organizational members who are exposed to the same organizational structure. Montes *et al*

(2003) confirmed that organization climate is an explanatory factor of perceptions of support for innovation. Employee's perceptions of managerial and reward system support and cohesion are positively associated with an innovation-supportive culture.

2.2.2.3.2. *Dimensions of innovative climate*

There is no conflict in the literature about the linkage between organization climate and environment and employee's perception of organization support for innovation. However different studies defined different climate dimensions or factors. Those dimensions were used to study and measure organization's climate. Dimensions are strongly related and they affect each other. Table (6) contains list of different dimensions defined by different authors. There are some shared dimensions like Autonomy, freedom, challenging work environment, rewards and recognition and management support.

Organization cohesion, conflict management and innovation

Montes *et al.* (2003) highlighted in his literature the important of cohesion as a factor of organization support for innovation. He explains that lack of cohesion hinders employees ability to find innovative solutions together. Lack of employees' agreements causes employees to hold by their opinions and arguments which makes hard to reach an agreement between employees. Another argument cited by Montes *et al.* (2003) that healthy disagreement among organization member can reinforce organization ability to innovate, if opinions are expressed and communicated freely. Montes *et al* (2003) concluded that organization ability to innovate depends on how disagreements are managed by the organization. An innovative organizational climate is characterized by strong cohesion, open communication and freedom to express opinions.

Rewarding system

Montes *et al.* (2003) also discussed in his literature how rewarding and recognition system affects positively employees' perception of the organization innovation support

Management support

According to Montes *et al.* (2003) innovation starts with the support of organization's top management, who should promote a working environment that recognize and reward employees for their innovative efforts.

Organization structure

According to Ahmed (1998) innovation is more enhanced in organizations by organic structure rather than mechanistic structure. Organic structure promotes innovation by providing freedom from rules, considering all the views, encouraging face to face communication, breaking down departmental barriers, outward looking, flexibility with changing needs, and it is not hierarchical base and information flows downwards as well as upwards.

On the other hand mechanistic structure hinder innovation for it is hierarchical, bureaucratic, it has many rules and procedures, requires formal reporting, it has little individual freedom of actions, communication is done via written words, departments work separately, decisions are made slowly in long chain, and much of the information flow upward and less information flow downwards.

Resources and skills

Including funds, materials, facilities, technology and information. It also includes adequate time for developing novel work, people with necessary expertise, sufficient funds, material resources, systems and processes for work, relevant information, and the availability of training.

Andriopoulos (2001) cited Amabile (1998) who stressed on the important of adequate time and money for employees to complete their task because they either support or hinder creativity. Further the employees' perception of adequate resources affects their beliefs on the value of the project they handle to the company.(Andriopoulos 2001 cited Amabile 1996)

Table (6): Climate dimensions by different authors	
Author	**Dimensions**
Ahmed (1998) cited four dimensions defined by Scheider et al. (1996)	• *Nature of interpersonal relations* Is there trust or mistrust?; Are relationships reciprocal and based on collaboration, or are they competitive?; Does the organisation socialise newcomers and support them to perform, or does it allow them to achieve and assimilate simply by independent effort?; Do the individuals feel valued by the company? • *Nature of hierarchy* Are decisions made centrally or through consensus and participation?; Is there a spirit of teamwork or is work more or less individualistic?; Are there any special privileges accorded to certain individuals, such as management staff? • *Nature of work* Is work challenging or boring?; Are jobs tightly defined and produce routines or do they provide flexibility?; Are sufficient resources provided to undertake the tasks for which individuals are given responsibility? • *Focus of support and rewards* What aspects of performance are appraised and rewarded?; What projects and actions/behaviours get supported?; Is getting the work done (quantity) or getting the work right (quality) rewarded?; On what basis are people hired?
Amabile (1997) Keys of creative environment	• Organization Encouragement • Supervisory Encouragement • Work group supports • Sufficient Resources • Challenging work • Freedom • Productivity • Organizational impediment • Top management support

Ekvall (1996) identified 10 dimensions of organization climate	• Challenge • Freedom • Idea support • Trust/ Openness • Dynamism and liveliness • Playfulness and Humour • Debates • Conflicts • Risk taking • Idea time.
Koys and DeCotiis (1991) identified 8 dimensions of climate	• Autonomy • Cohesion • Trust • Pressure • Support • Recognition • Fairness • Innovation

2.2.2.4. Culture compared to climate

The concept of organization climate and culture are very close allied and they depend on each other (Ahmed, 1998).

Climate can be seen in the practices and policies of an organization where as culture can be seen in the organization deeply set of beliefs and values that provide norms for behavior (practices and policies) in the organization (Ahmed , 1998; Bastic and Leskovar- Apacapan, 2006 cited Despande and Webster, 1989).

Climate describes how the organization operates its culture, and the structures and processes that facilitate the achievement of the desired behaviors (Bastic, Leskovar- Apacapan 2006 cited Slater and Narver, 1995).

Organizational culture focuses on the shared behavioral expectations and normative beliefs in work units. However climate reflects the shared knowledge and meanings embodied in an organization's culture. It describes the way individuals perceive the personal impact of their work environment on themselves (Sarros, *et a.l* 2008 cited Glisson & James, 2002, p. 788). Baer and Frese 2003 describes in their literature that culture exist in three levels (cited from Schein,1985). At the deepest level are assumptions: basic beliefs about reality and human nature. The second level is constituted of values, or social principles, goals, and standards. On the surface are the visible and tangible results of activity grounded in values and assumptions. Climate is concerned with the surface level.

2.3. Literature Review Summary

The capacity of the organization to innovate is affected by factors such as organization individuals, organization culture and organization climate. Innovation starts with people. They could be professional employees or management. Therefore it is important to keep them motivated to innovate. In addition people are affected by their organization climate. Employees' perception of their organization as supportive for innovation would also affect their innovative behaviour. In the literature there are different characteristics of innovative individuals where found and summarized. Likewise different characteristics of innovative culture and climate also were found it the literature.

It has been found in many literatures that employees' perception of their organization climate as supportive for innovation positively related to employees innovative behaviour. Employees' perception of their management support to innovation is a factor of organization climate.

The study is measuring the candidate's organization employees' perception of their organization climate, is it supporting innovation? Further this research is studying leadership innovative behaviour and how it is related to employees' perception of their organization climate.

CHAPTER 3

Methodology

CHAPTER 3:METHODOLOGY

3.1.Introduction and background

An initial search has been done in the organization's intranet website. It has been found that the organization has already started a research to understand the innovation status in the organization. Questions investigated such as, are we innovative enough and how are we compared to other organizations.

It has been found that this is the first research conducted in the organization. The information collected was from the internet commercial website. There were neither interviews conducted nor surveys completed.

3.2.Study measures

3.2.1. Demographic information

Respondents were asked for information like position in the organization (management or non-management), education level, age range, years of experience, gender and business unit they report to.

3.2.2. Perception of innovative climate

To measure perception of innovative climate, Organization Climate Measure (OCM) questionnaire was used (see appendix E). This questionnaire was embedded in part 2 of the questionnaire distributed to the employees.

OCM is developed by Patterson *et al.* (2005) (see appendix A). The original OCM developed by the author consists of 82 items categorized into 17 scales. The scales in turn are grouped in to four quadrants: human relations, internal process, open system and rational goals. Items marked with * should be reversed before the scale is calculated. OCM response format used was a 4-point Likert scale of definitely false, mostly false, mostly true, and definitely true.

The questionnaire is designed for different levels within the organization, therefore the questionnaire was carefully written using straight forwards sentences. The questionnaire

was distributed to 49 organizations in the UK manufacturing sector. The average number of employees is 256 in each organization. The total number of completed questionnaires received is 6869, with constitute of a 57% of the sample.

For the purpose of this study this instrument was slightly changed to serve the research objectives. This research is concerned with the climate dimensions that support innovation. Therefore out of the 17 scales 14 scales were used. They are autonomy, integration, involvement, supervisory support, training and development, welfare, formalizations, traditions, innovation and flexibility, reflexivity, clarity of organization goals, performance feedback, pressure to produce, and quality. Table (7) shows description of scales used in this questionnaire from Patterson *et al*. (2005).

Another change was undertaken is to minimize the number of items in each scale. People get bored when filling long questionnaire, and they might not complete it or not honestly answer it. Therefore, few items in each scale were deleted.

The final questionnaire contains 55 items. The items were resorted and then sent to the candidate organization employees. The original questionnaire adapted from the author is attached in appendix A and the amended one distributed is attached in appendix B. The questionnaire distributed to employees in the candidate organization questionnaire is attached in appendix E

The questionnaire includes some reversed questions and they are marked with (*). Before loading the scale to the analysis tool (SPSS) the scale was reversed.

Table (7): Description of OCM scales used in this research questionnaire from Patterson *et al.* (2005).

1	Autonomy	Designing jobs in ways which give employees wide scope to enact work
2	Integration	The extent of interdepartmental trust and cooperation
3	Involvement	Employees have considerable influence over decision-making
4	Supervisory Support	The extent to which employees experience support and

		understanding from their immediate supervisor
5	Training	A concern with developing employee skills
6	Welfare	The extent to which the organization values and cares for employees
7	Formalization	A concern with formal rules and procedures
8	Tradition	The extent to which established ways of doing things are valued
9	Innovation and Flexibility	An orientation toward change. The extent of encouragement and support for new ideas and innovative approaches
10	Reflexivity	a concern with reviewing and reflecting upon objectives, strategies, and work processes, in order to adapt to the wider environment
11	Clarity of organizational goals	A concern with clearly defining the goals of the organization
12	Performance feedback	The measurement and feedback of job performance
13	Pressure to produce	The extent of pressure for employees to meet targets
14	Quality	The emphasis given to quality procedures

3.2.3. Leadership innovative behavior

Leadership innovative behaviour measure was used to collect data about the organization's management practices and behaviour that stimulate innovation in the organization. This questionnaire is self developed by the researcher. The questionnaire consists of 9 leadership behaviours which have been extracted from Jong and Hartog (2007). They have extracted the behaviours from Yukl's (2002) taxonomy of managerial practices (see Appendix C). Out of 14 defined behaviours, they found that 13 are related to leadership innovative behaviour. They are Innovative role-modelling, Intellectual stimulation, Stimulating knowledge diffusion, Providing vision, Consulting , Delegating, Support for innovation, Organizing feedback, Recognition, Rewards, Providing resources, Monitoring, Task assignment. Their method in collecting data in their research is by conducted interviews with leaders in knowledge-intensive services (e.g. consultants, researchers, engineers). Their target was to explore what leader's behaviour that could impact co-workers innovative behaviour, particularly idea generation and application. Appendix C include description of the Yukl's (2002) taxonomy of managerial practices as cited by Jong and Hartog (2007).

To satisfy this research objectives, 11 behaviours were used to develop this questionnaire. Some behaviours where combined as one like (recognition and organizing feedback), and (delegating and task assignment). Providing resources and rewards were not used in this research. Using literatures and Jong and Hartog interviews results, the author developed the questionnaire questions (see Attachment D). The response format used is a 5-point Likert scale of strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. Table (8) shows description of the behaviors used in this research. The final questionnaire distributed to employees in the candidate organization is attached in Appendix E.

Table (8): Leadership innovative behaviours

1	Innovative role-modelling	A leader can enhance innovation by being an example of innovative behaviour himself. It implies that a leader acts like an innovative person to motivate others to do the same. Typical behaviours include exploring opportunities, coming up with ideas, championing and putting efforts in the development of new services.
2	Intellectual stimulation & motivation	Intellectual stimulation is leader behaviour that increases co-worker awareness of problems and stimulates rethinking of old ways of doing things. People are expected to make more suggestions if a leader challenges them to do so. Typical practices include asking co-workers to evaluate current practices, asking questions about current practices, make suggestions, teasing co-workers'' thoughts and imagination, etc.
3	Stimulating knowledge diffusion	Stimulating knowledge diffusion is about the leader practices of stimulating the dissemination of information among co-workers. A leader who stimulates open and transparent communication can be expected to have a positive influence on innovative behaviour. Teaching personnel to share knowledge and to inform their colleagues about their work, its progress and any possible problems, is regarded as a necessary condition before people can make suggestions for improvement. Thus, knowledge diffusion can be regarded as a source of opportunity exploration and idea generation.
4	Providing	By formulating a vision, leaders may communicate their ambition and

	vision	provide a general direction for their subordinates, enabling them to focus their innovative efforts. Leader practices include envisioning a future for the service that rests on innovation, and explicitly communicating this to the co-workers.
5	Consulting	Consulting involves efforts by a leader to encourage and facilitate participation by his co-workers in making decisions. Typical practices include checking with people before initiating changes that may affect them, encouraging suggestions before a decision is made and incorporating other's ideas and suggestions in decisions.
6	Delegating & task assignment	Delegating is a type of power-sharing process that occurs when a leader gives a subordinate autonomy to determine independently how to do a job or certain task. There is little or no delegation for someone who must ask his boss what to do whenever there is a problem or something unusual occurs. Most participants mentioned that freedom/autonomy is an enabler of innovative behaviour. Some recommended leader practices included: allowing co-workers to have substantial responsibility and discretion in carrying out work activities and making important decisions themselves.
7	Support for innovation & flexibility	Typical leader practices include acting friendly and being patient and helpful whenever a co-worker comes up with an idea, faces problems in the implementation stage, and so on. The participants perceive such behaviour to be relevant for innovative behaviour, especially the way in which mistakes are handled. This will determine if personnel feels free to act creatively and innovatively. Mistakes should not be used to punish someone, but instead should be presented as a learning opportunity.
8	Monitoring	Ensuring effectiveness and efficiency, checking-up on people, stressing tried and tested routines (negative relations)
9	Recognition and feedback	recognition; Showing appreciation and rewards for innovative performances Feedback: Ensuring feedback on concepts and first trials, providing feedback to employees, asking customers for their opinion.

3.3. Administering the questionnaire

A self-administered questionnaire has been giving to the employees of one of the Oil and Gas producer organizations in United Arab Emirates (UAE). Quantitative research was preferable because it enables the researcher to collect data from as much as employees as possible.

The self-administered questionnaire is divided into three parts.

Part 1 is the demographic information.

Part 2 is the employees' perception of their organizations climate.

Part 3 is the Leadership innovative behaviour.

Non-management employees were asked to complete the questionnaire part 1 and 2. However management employees were asked to complete the questionnaire part 1, 2, and 3.

The data are then to be statistically analyzed to answer research questions. There are two targeting group, management and non-management employees. The groups will be separately analyzed and then the relations between the non-management group on management group is to be analyzed. For questions 1 and 2 both groups answers are to be analyzed together.

3.4. Targeted sample

This research study is focusing on employees who are in professional positions like engineers and targeting management positions in the 4 levels team leaders, division managers, assistant general managers and general manager. The total number of employees representing the study sample is 1397 in the candidate organization. The number of the management employees is 207 and the non-management is 1190. The research is excluding employees who's positions like secretary, technical clerks, and technical assistants. The reason is because the researcher believes that people work in professional management positions are decision makers and more exposed to issues that affects the change and innovation in the organization. Management plays a big role in forming the organization climate. Professional employees are the people who are affected by the organization climate and.

3.5.Data gathering and response rate

An electronic email was sent to all the organization management attaching a Microsoft excel file that has the three parts of the questionnaire. Hard copies of the questionnaire that includes part 1 and 2 were sent to non-management employees. All the candidates were asked to fill it anonymously and then send hard copy to their division secretary. Non-management employees' questionnaires were collected from the division secretaries. However managements preferred to return the questionnaire by electronic email to the researcher. Table (9) show the total number of respondents in the two groups (management and non-management). Out of 207 management employees 81 replied representing 39% response rate. The management group represent 28% out of the total responses. Out of 1190 non-management employees, 209 replied to the questionnaire representing 17.6% response rate. The non-management group represent 72% out of the total responses. The total response rate of management and non-management employees is 20.8% of the total targeted sample.

Table (9): Total number of responses.

	# of responses	Total sample	Responses % of group sample	Responses % of total responses (209)
Management	81	207	39%	28%
Non-management	209	1190	17.6%	72%
Total responses	290	1397	20.8%	

Table (10) shows the distribution of the study sample based on the collected demographic information. The study sample was divided into two groups, management and non-management. In general, the management group is dominated by male, graduate degree, age over 46, more that 20 years of experience managers. The managers responded were mostly reporting to Production business unit followed by Administration business unit. The Non-management group is dominated by male, graduate degree, age range between 25 and 35, and 2 to 7 years of experience. The non-managers responded were mostly reporting to development business unit followed by production business unit.

Table (10): Distribution of responses

M = management, Non-M = non-management

		M	% of M	Non-M	% of Non-M	Total	% of Total
Total #		81		209		290	
Gender	Male	77	95%	168	80%	245	84%
	Female	4	5%	41	20%	45	16%
Highest level of education	High school	2	2.5%	1	0.5%	3	1%
	High Diploma	6	7.4%	17	8.2%	23	8%
	Graduate Degree	54	66.7%	148	71.5%	202	70.1%
	Master	19	23.5%	41	19.8%	60	20.8
	Missing	0	0%	2	0.01%		
Age range	< 25	0	0%	8	3.8%	8	2.8%
	25-35	17	21%	91	43.5%	108	37.2%
	36-46	27	33.3%	62	29.7%	89	30.7%
	>46	37	45.7%	48	23%	85	29.3%
Years of experience	< 1	2	2.5%	29	13.9%	31	10.7%
	2-7	18	22.2%	105	50.5%	123	42.6%
	8-13	23	28.4%	31	14.9%	54	18.7%
	14-19	10	12.3%	18	8.7%	28	9.7%
	>20	28	34.6%	25	12%	53	18.3%
	Missing	0		1	0%		
Business Unit	Administration	20	25.6%	41	19.6%	61	21.3
	Projects & Engineering	11	14.1%	27	13%	38	13.2%
	Drilling support	12	15.4%	35	16.7%	47	16.4%
	Production	26	33.3%	44	21.1%	70	24.4%
	Corporate planning	1	1.3%	6	2.9%	7	2.4%
	Development	5	6.4%	49	23.4%	54	18.8%
	GM	3	3.8%	7	3.3%	10	3.5%
	missing	3	3.8%	0			

CHAPTER 4

Analysis and discussion

CHAPTER 4:ANALYSIS AND DISCUSSION

4.1.Introduction

The analysis and discussion section is divided into two sections and each is answering a research question. Each research question required different type of analysis and on different group of data.

The analysis on the collected data was done using SPSS 17.0. Using SPSS a reliability test was executed for each research question to make sure that the data is reliable. For research question 1 the reliability analysis was conducted on group 1 and 2 all together responses to organization climate measure. For question 2 the reliability analysis was conducted for only group 1 (management group) responses to leadership innovative behaviour. Further, factor analysis test was executed to test questions loading on measured factors.

4.1.1. Reliability test:

According to Field (2005, pp 666-668) the reliability test is to check that the questionnaire items' consistently reflect the construct/factor it is measuring. The measurement for scale reliability is Cronbach's alpha, α. The reliability test is executed on a group of items that contribute to one construct. The value of Cronbach's alpha, α depends on the number items on the construct. Alpha value equal to 0.6 and above is accepted.

4.1.2.Factor analysis test

Blaikie (2003, pp 220-222) explains that factor analysis is to make sure that the questionnaire items contribute to its factor or it might contribute to another factor. It is executed to decide whether to exclude any item from the scale. The relation of any item to a factor is indicated by its factor loading. An accepted factor loading is 0.4 or more (cited from Stevens, 1992). A loading of 0.4 means that 16 percent of the item's variance contributes to the factor.

4.2.RQ1

RQ1: What is the candidate organization employees' perception of the organization climate as supportive for innovation and creativity?

To answer the above question the analysis test is executed over the total responses of both groups. The analysis tests executed were first reliability test then descriptive analysis.

4.2.1. Reliability test

The reliability test was executed for each factor's group of items of the OCM measure. Table (11) presents the results of the reliability test. The factors Autonomy and Formalization were deleted from the scale for the alpha value is less than 0.6 even if one of the items deleted. The factors Involvement, performance feedback, and training were rounded to 0.6. The α Cronbach of both factors won't improve even if one of the item was deleted.

Table (11): Results of OCM reliability test for RQ1

Factors	Cronbach's α	# of items	Action taken to improve Cronbach's α
Autonomy	0.417	4	Deleted from the scale
Integration	0.616	4	
Involvement	0.573	4	Rounded to 0.6
Supervisory Support	0.842	4	
Training	0.593	3	Rounded to 0.6
Welfare	0.726	3	
Formalization	0.389	3	Deleted from the scale
Tradition	0.640	4	
Innovation and Flexibility	0.801	6	
Reflexivity	0.670	5	
Clarity of organization goals	0.743	4	
Performance feedback	0.608	4	
Pressure to produce	0.625	4	
Quality	0.703	3	

4.2.2. Descriptive analysis

The descriptive analysis was conducted for the remaining 12 factors. This section presents the responses of each factor. Appendix F includes tables that show the frequencies of answers for each factor question. The grand mean is calculated by calculating first the mean of each participant's responses for the factor item, then the grand mean of all participants mean for each factor.

4.2.2.1. Integration

The mean value of the 4 items of integration and the grand mean is around the middle, but more towards the true scale. The median value of first 3 items is 3. This means that there are 50% or more of the respondents think there is a strong integration in the organization between the organization's departments. The median value of item 4 is 2, which means that 50 % or more disagree with this statement. This item disagrees with the other 3 items. Item 4 is a reversed item, some respondents might misunderstood the sentence.

Looking at the response rate of each item in appendix F, 55%, 62%, 60% of item 1, 2, and 3 believe on there is a good level of integration in the organization. However 50% of item 4 believe that the organization is lacking integration between the departments. The grand average of integration is 2.6 and most of the respondents mean of integration is between 2 and 2.75.

Table (12): Average of Integration items and grand average of integration

		Grand Average of Integration	Integration 1	Integration 2	Integration 3	Integration 4*
N	Valid	287	290	289	289	289
	Missing	3	0	1	1	1
Mean		2.6185	2.54	2.71	2.66	2.57
Median		2.7500	3.00	3.00	3.00	2.00
Std. Deviation		.57359	.828	.837	.789	.907

Table (13): Integration average distribution		
Average range	**N**	**%**
1.00 – 1.75	27	9.3
2.00 – 2.75	163	56
3.00 – 3.75	94	32
4.00	3	1.0
Total	287	99.0
Missing	3	1.0
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.2. Involvement

The mean value of the four items of involvement and the grand average is in the middle. It due to equivalent number of respondents who agree and disagree to the level of involvement they have in the decisions that affect their work. Analyzing the responses of each item of involvement in appendix F, there is equivalent number of respondents who think that they are involved in decisions that affect them and respondents who think that they are not involved. However for item 4 which is about information sharing between management and employees, 60 % agreed and 40% disagreed with this sentence. This summarizes that half of the employees perceive management share decisions with them however 60% (additional 10%) perceive that management share information with them as well.

Table (14): Average of involvement items and grand average of involvement						
		Grand Average of Involvement	Involvement 1	Involvement 2*	Involvement 3*	Involvement 4
N	Valid	276	288	282	286	288
	Missing	14	2	8	4	2
Mean		2.5290	2.53	2.43	2.53	2.64
Median		2.5000	3.00	2.00	3.00	3.00
Std. Deviation		.58042	.940	.891	.827	.827

Table (15): Involvement average distribution		
Average rang	**N**	**%**
1.00 – 1.75	37	13
2.00 – 2.75	197	68
3.00 – 3.75	70	24
4.00	2	.7
Total	276	95.2
Missing	14	4.8
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.3. Supervisory Support

The mean value for then grand average and each of the four items of supervisory support is 3 and above. The respondents reported high satisfaction of their line manager support. Looking at the response rate of each of the supervisory support items, 80% and more of the respondents reported that they are in harmony with their line managers. Their line managers listen to them and they receive the support from them.

Table (16): Average of supervisory support items and grand average of supervisory support						
		Grand Average of Supervisory Support	Supervisory Support 1	Supervisory Support 2	Supervisory Support 3	Supervisory Support 4
N	Valid	286	288	289	289	287
	Missing	4	2	1	1	3
Mean		3.2072	3.18	3.19	3.32	3.14
Median		3.2500	3.00	3.00	4.00	3.00
Std. Deviation		.66402	.811	.768	.847	.787

Table (17): Supervisory support average distribution		
Average range	**N**	**%**
1.00 – 1.75	14	5
2.00 – 2.75	56	19
3.00 – 3.75	163	56
4.00	53	18.3
Total	286	98.6
Missing	4	1.4
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.4. Training

Looking at the results of each item in training in appendix F, 60% and more of the respondents perceive that they are receiving the training required to complete their jobs and they are encourage by their managers to develop their skills. The grand average is in the middle 2.6 and most of respondents average is between 2 and 2.67.

Table (18): Average of training items and grand average of training					
		Grand Average of Training	Training 1	Training 2*	Training 3
N	Valid	283	285	289	289
	Missing	7	5	1	1
Mean		2.6137	2.67	2.35	2.82
Median		2.6667	3.00	2.00	3.00
Std. Deviation		.65409	.891	.919	.831

Table (19): Training average distribution		
Average rang	**N**	**%**
1.00 – 1.67	33	11
2.00 – 2.67	146	50
3.00 – 3.67	95	33
4.00	9	3.1
Total	283	97.6
Missing	7	2.4
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.5. Organization welfare

For Item 2 and 3 of organization welfare, 60% and more of the respondents expressed that they think the organization cares about them and it is a fair environment. However for item 1 of organization welfare the percentage dropped down to 50% for the amount of attention the organization gives for employees' interests. The grand mean for this factor is 2.7. The distribution of the respondents' average is mostly in the range between 2 and 2.67 and the range between 3 and 3.75.

Table (20): Average of welfare items and grand average of welfare				
	Grand Average of Welfare	Welfare 1*	Welfare 2	Welfare 3
N Valid	281	287	287	287
Missing	9	3	3	3
Mean	2.7794	2.54	2.97	2.80
Median	2.6667	3.00	3.00	3.00
Std. Deviation	.69661	.918	.844	.836

Table (21): Welfare average distribution		
Average range	**N**	**%**
1.00 – 1.67	29	10
2.00 – 2.67	117	40
3.00 – 3.75	119	41
4.00	16	5.5
Total	281	96.9
Missing	9	3.1
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.6. Tradition

The responses for the tradition items differed from item to item. For item 1 and 4, 67% perceive that the organization's management like to keep to the established and traditional ways of doing things and 72.4% thinks changes in the way things done in the organization happen very slowly. However for item 3 72.4% expressed that management are interested to try new ideas. In item 2 people went on half, 48% expressed that the way the organization does things has never changed very much and the other 50% thinks the opposite.

The grand mean value for this factor is 2.5 which show that the respondents are equally in two opposite opinions.

Table (22): Average of Tradition items and grand average of Tradition						
		Grand Average of Tradition	Tradition 1	Tradition 2	Tradition 3	Tradition 4
N	Valid	278	285	284	290	287
	Missing	12	5	6	0	3
Mean		2.5315	2.79	2.46	1.97	2.92
Median		2.5000	3.00	2.00	2.00	3.00
Std. Deviation		.59719	.856	.891	.868	.822

Table (23): Tradition average distribution		
Average range	**N**	**%**
1.00 – 1.75	35	12
2.00 – 2.75	160	55
3.00 – 3.75	81	28
4.00	2	.7
Total	278	95.9
Missing	12	4.1
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.7. Innovation and flexibility

About 55% to 60% of the responds for this factor agree that the organization is flexible quick to change when needed and this is supported by the management as well. In addition the organization and its members are continuously looking for ways of development and new opportunities in the market place.

Table (24): Average of innovation and flexibility items and the grand average

		Grand Average of Innovation and Flexibility	Innovation and Flexibility 1	Innovation and Flexibility 2	Innovation and Flexibility 3	Innovation and Flexibility 4	Innovation and Flexibility 5	Innovation and Flexibility 6
N	Valid	274	288	287	289	287	290	282
	Missing	16	2	3	1	3	0	8
Mean		2.6198	2.57	2.64	2.53	2.64	2.57	2.66
Median		2.6667	3.00	3.00	3.00	3.00	3.00	3.00
Std. Deviation		.59294	.900	.767	.939	.747	.796	.876

Table (25): Innovation and flexibility average distribution		
Average range	**N**	**%**
1.00 – 1.83	30	10.3
2.00 – 2.83	155	53.4
3.00 – 3.83	87	30
4.00	2	.7
Total	274	94.5
Missing	16	5.5
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.8. Reflexivity

Half of the respondents were positive about the organization reflexivity. 55% to 65% thinks the organization members are flexible to change the way things done in order to improve performance. There is time spent between the organization members to discuss how things are done and how to improve it. The percentage of agreement with the organization reflexivity raised to 70% and 73% when the respondents were asked about the time spent in reviewing and modifying organization's objectives to accommodate the changes required to improve performance.

Table (26): Average of reflexivity items and the grand average

		Average Reflexivity	Reflexivity 1	Reflexivity 2	Reflexivity 3	Reflexivity 4	Reflexivity 5
N	Valid	269	288	286	284	281	285
	Missing	21	2	4	6	9	5
Mean		2.7316	2.59	2.78	2.54	2.90	2.84
Median		2.8000	3.00	3.00	3.00	3.00	3.00
Std. Deviation		.50793	.886	.741	.821	.702	.744

Table (27): Reflexivity average distribution		
Average range	**N**	**%**
1.00 – 1.80	17	6
2.00 – 2.80	149	51.4
3.00 – 3.80	102	35.2
4.00	1	.3
Total	269	92.8
Missing	21	7.2
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.9. Clarity of Organization goals:

The mean of most of the items is around 2.7 and above, which is the middle scale but more towards the True scale. The median of all the items is 3 which equals the mostly true scale. This means than more that 50 % of the respondents agree that the organization's goals are clearly defined to them by the top management. Looking at each item response rate in appendix F more that 62% agreed that the organization goals is clear them. However for item 4 the percentage decreased to 56% which is about how much the organization members are aware about the long-term plan and the organization's future directions.

Table (28): Average of clarity of organization goals items and the grand average

		Grand Average of Clarity of organization goals	Clarity of Organizational goals 1	Clarity of Organizational goals 2	Clarity of Organizational goals 3*	Clarity of Organizational goals 4
N	Valid	285	286	289	290	288
	Missing	5	4	1	0	2
Mean		2.7447	2.79	2.79	2.81	2.59
Median		2.7500	3.00	3.00	3.00	3.00
Std. Deviation		.63006	.785	.842	.847	.879

Table (29): Clarity of organization goals average distribution		
Average range	**N**	**%**
1.00 – 1.75	23	8
2.00 – 2.75	140	48.3
3.00 – 3.75	108	37.2
4.00	14	4.8
Total	285	98.3
Missing	5	1.7
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.10. Performance feedback

In general, more than the half of the respondents expressed that they are receiving feedback from their managers about the performance and quality of their work. Item 3 was a bit different for 53.7% expressed that it is hard for them to measure the quality of their performance themselves. The percentage rose to 70% for respondents who think that their performance is measured in regular bases.

Table (30): Average of Performance feedback items and the grand average						
		Grand Average of Performance feedback	Performance Feedback 1	Performance Feedback 2*	Performance Feedback 3*	Performance Feedback 4
N	Valid	286	288	289	287	290
	Missing	4	2	1	3	0
Mean		2.7255	2.73	2.79	2.47	2.90
Median		2.7500	3.00	3.00	2.00	3.00
Std. Deviation		.58250	.876	.834	.831	.898

Table (31): Performance feedback average distribution		
Average range	**N**	**%**
1.00 – 1.75	18	6.2
2.00 – 2.75	154	53.1
3.00 – 3.75	106	37
4.00	8	2.8
Total	286	98.6
Missing	4	1.4
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.11. Pressure to produce

Most of the respondents expressed that they are having pressure at work. The mean value of this factor is 2.8. 72% expressed that they are under pressure and their management require them to work extremely hard. 67% expressed that they are required to do too much in a day. 41% expressed that the pace of work in the organization is pretty relaxed.

Table (32): Average of pressure to produce items and the grand average					
	Average Pressure to produce	Pressure to Produce 1	Pressure to Produce 2	Pressure to Produce 3	Pressure to Produce 4*
N Valid	284	288	288	290	288
Missing	6	2	2	0	2
Mean	2.8319	2.82	2.97	2.92	2.64
Median	2.7500	3.00	3.00	3.00	3.00
Std. Deviation	.58744	.848	.853	.838	.876

Table (33): Pressure to produce average distribution		
Average range	**N**	**%**
1.00 – 1.75	15	5.2
2.00 – 2.75	132	46
3.00 – 3.75	126	43.4
4.00	11	3.8
Total	284	97.9
Missing	6	2.1
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.2.12. Quality

Most of the respondents expressed their satisfaction with how much the organization cares about the high quality of work produced in the organization. The grand mean for this factor is 3.3 and 54.1% of the respondents average fits between 3 and 3.67.

Table (34): Average of quality items and the grand average					
		Average Quality	Quality 1	Quality 2	Quality 3
N	Valid	285	287	290	288
	Missing	5	3	0	2
Mean		3.2538	3.37	3.06	3.33
Median		3.3333	3.00	3.00	3.00
Std. Deviation		.60765	.721	.804	.773

Table (35): Quality average distribution		
Average range	**N**	**%**
1.00 – 1.67	5	.3
2.00 – 2.67	62	21.3
3.00 – 3.67	157	54.1
4.00	61	21.0
Total	285	98.3
Missing	5	1.7
Total	290	100.0

Note: The N value presents how many respondents average fits between the average ranges

4.2.3. Discussion

In summary the OCM instrument was tested on 20.8% out of the targeted sample. 2 out of the 14 OCM factors did not pass the reliability test. Therefore they were deleted from the scale. The rest were used to analyze employees' perception of innovative organization climate. The instrument include 2 reversed factors namely tradition and pressure to produce. Both are contradicting organization climate support for innovation. Figure (5) compares between the grand mean values for each factor

The respondents from both groups (management and non-management) agreed that this organization's climate is characterized with high supervisory support, and high consideration to the quality and performance of work. Both factors had the highest grand. The mean value for quality is 3.25 and supervisory support is 3.21.

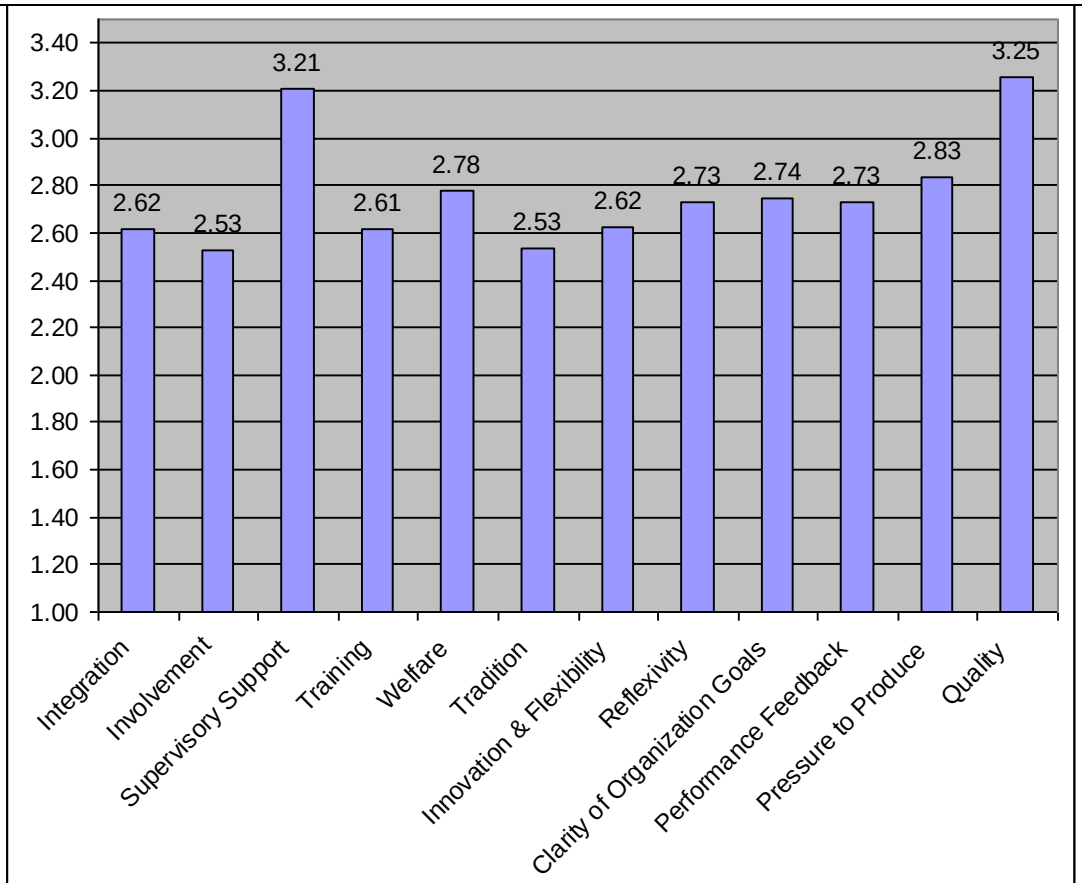
The responses for the two reversed factors varied from item to item. The average for tradition is 2.53 which is between partially true and partially false. The highest percentage of agreement went to item 4 of tradition, where 72% of the respondents agreed that the changes are happening very slowly in the organization. The lowest percentage of agreement was for item 3 of tradition where 27% agreed that the organization's management is not interested in trying our new ideas. 67% agreed that the organization's management like to keep to established tradition ways of doing things. The pressure to produce factor agreed responses also varied from 60% to 70%. The grand mean for pressure to produce is 2.83.

In the other hand involvement, integration, and innovation and flexibility got the lowest grand mean. Those factors are very crucial as a supportive for innovation. Involvement describes how much are the employees involved in decision making. Integration describes the integration between the employees in the same department and in different departments. The percentage of agreement to those factors varied from 50% to 60%.

The percentage of agreement to training, and reflexivity varied from 60% to 70%.

Finally this organization was described by 20% of the sample as high in supervisory support and caring about quality of work produced. It was also described by the sample as high in work pressure and medium as tradition organization. The lowest percentage was given to involvement, followed by integration and innovation and flexibility.

Figure (6): OCM factors means



4.3.RQ2

How Management innovative behavior is is related to employees' perception of their innovative climate?

The initial plan to answer to question was to execute reliability test and factor analysis test for both leadership behavior and perception of organization climate. Further, execute correlation analysis to examine the relation between management innovative behavior and employees' perception towards their organization support to innovation.

4.3.1. Reliability test

The reliability test was executed on the responses of management group on leadership innovative behavior measure and the results are showed bellow in table (36). The reliability test for OCM was already done on Q1 analysis.

The factors support for innovation and flexibility, consulting and monitoring were deleted from the scale for the alpha value is less than 0.6 and it won't improve even if one item was deleted. Factors innovation role-modelling, stimulating knowledge diffusion, and recognition and feedback alpha value was rounded to 0.6. Item 2 of delegating and task assignment was deleted to improve the value of alpha. The reliability test ended with having 6 out of 8 factors and 22 out of 34 items.

Table (36): Results of Leadership innovation behaviour reliability test for RQ2

Factors	Cronbach's α	# of items	Action taken to improve Cronbach's α
Innovative role-modelling	0.593	4	Rounded to 0.6
Intellectual stimulation and motivation	0.699	4	
Stimulating knowledge diffusion	0.585	3	Rounded to 0.6
Providing vision	0.778	4	
Consulting	0.562	4	Deleted from the scale because it is less than 0.6
Delegating and task	0.644	4	0.702 if item 2 deleted

assignment			
Support for innovation and flexibility	0.532	4	Deleted from the scale because it is less than 0.6
Monitoring	0.562	3	Deleted from the scale because it is less than 0.6
Recognition and feedback	0.594	4	Rounded to 0.6

4.3.2. Factor analysis

The factor analysis was conducted for both the leadership innovative behaviour and organization climate scale. The leadership innovative behaviour questionnaire is developed by the research, therefore it is important to conduct the factor analysis. The factor analysis was conducted using varimax method which rotated component matrix. This matrix table shows the loading of each item in each factor. The accepted loading factor is 0.4 and more.

4.3.2.1. Organization climate factor analysis:

The organization climate scale includes 14 factors. Two were deleted in the reliability test, which remained 12 factors. Organization climate is divided into four quadrants, human relations, internal process, open system and rational goals. Each quadrant contains group of factors. Factor analysis test was executed for each quadrant separately. The results of the factor analysis are discussed bellow

a) Human Relations quadrant's factor analysis

The varimax factor analysis was first executed for human relations quadrant's factors, integration, involvement, supervisory support, and welfare. The results are shown in table (37).

The loading of the 4 items of integration were on factor two. The loading of the 4 items of supervisory support were on factor one and welfare items were on factor three. The loading of involvement items were on factor 4 except item 4, which loaded on factor 2. Therefore, item 4 of involvement joined integration factor as item 5. The reassignment of items to the four factors of human relations is showed in table (37).

Table (37): Human relations quadrant's factor analysis

Rotated Component Matrix[a]

	Component				
	1	2	3	4	Re-assignment of items
Integration 1	.246	**.440**	-.001	-.158	Integration 1
Integration 2	.156	**.766**	.145	.001	Integration 2
Integration 3	.160	**.772**	.108	.149	Integration 3
Integration 4*	.011	**.410**	.284	.387	Integration 4*
Involvement 1	.018	.391	.247	**.408**	Involvement 1
Involvement 2*	.070	-.057	.130	**.777**	Involvement 2*
Involvement 3*	.075	.085	-.016	**.803**	Involvement 3*
Involvement 4	.103	**.670**	.336	.173	Integration 5
Supervisory Support 1	**.786**	.194	.131	.111	Supervisory Support 1
Supervisory Support 2	**.688**	.339	.000	-.099	Supervisory Support 2
Supervisory Support 3	**.862**	-.014	.134	.132	Supervisory Support 3
Supervisory Support 4	**.794**	.145	.250	.073	Supervisory Support 4
Welfare 1*	.103	-.022	**.786**	.233	Welfare 1*
Welfare 2	.192	.293	**.755**	-.022	Welfare 2
Welfare 3	.192	.332	**.714**	.060	Welfare 3

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

b) Open Systems quadrant's factor analysis

The second factor analysis was executed on the open system quadrant's factors, innovation and flexibility and reflexivity. The Formalization which joined Tradition factor in the internal process quadrant was deleted in the reliability test. Therefore the researcher decided to add the Tradition factor as solo factor to the factor analysis of Open system quadrant. The result is showed in table (38).

The first four items of innovation and flexibility had loading on factor 1. However items 5 and 6 of innovation and flexibility had loading on factor 2. Items 2, 4 and 5 of reflexivity have loading on factor 2. However items 1 and 3 of reflexivity have loading on factor 1. All tradition items had loading on factor 3.

Factor 1 was named innovation and flexibility, factor 2 was named reflexivity, and factor 3 was named tradition. The new assignment of items to open system quadrant factors is showed in table (38).

Table (38): Open Systems factor analysis

Rotated Component Matrix[a]

	Component			
	1	2	3	Re-assignment of items
Innovation and Flexibility 1	**0.72**	.143	-.074	Innovation and Flexibility 1
Innovation and Flexibility 2	**0.62**	.232	-.322	Innovation and Flexibility 2
Innovation and Flexibility 3	**0.71**	.302	-.153	Innovation and Flexibility 3
Innovation and Flexibility 4	**0.7**	.168	.046	Innovation and Flexibility 4
Innovation and Flexibility 5	.267	**0.66**	-.030	Reflexivity 1
Innovation and Flexibility 6	.438	**0.55**	-.177	Reflexivity 2
Reflexivity 1	**0.7**	.265	-.137	Innovation and Flexibility 5
Reflexivity 2	.338	**0.56**	-.256	Reflexivity 3
Reflexivity 3	**0.48**	.457	-.241	Innovation and Flexibility 6
Reflexivity 4	.083	**0.53**	.107	Reflexivity 4
Reflexivity 5	.122	**0.63**	-.096	Reflexivity 5
Tradition 1	-.092	-.026	**0.7**	Tradition 1
Tradition 2	-.070	-.072	**0.74**	Tradition 2
Tradition 3	-.105	-.437	**0.58**	Tradition 3
Tradition 4	-.467	.275	**0.53**	Tradition 4

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

c) Rational Goals quadrant's factor analysis

The last factor analysis was executed on the rational goals factors. The results are showed in table (39). The items 1, 2 and 4 of clarity of organization goals have the loading on factor 1. However item 3 of clarity of organization goals had loading of factor 4. Items 1, 2, and 4 of performance feedback have the loading on factor 2 except item 3 which has loading to factor4. Pressure to produce items 1, 2, and 3 had the loading to factor 3 except item 4 which has the loading on factor 4. Quality items have the loading on factor 1.

Factor 1 was named clarity of organization goals, factor 2 was named Performance feedback and factor 3 was named Pressure to produce. Factor 4 was deleted and as a result the items had loading on factor 4 were deleted as well.

The re-assignment of factor items is shown in table (39).

Table (39): Rational Goals quadrant's factor analysis

Rotated Component Matrix[a]

	Component				
	1	2	3	4	Re-assignment of items
Clarity of Organizational goals 1	**.590**	.387	-.108	.154	Clarity of Organizational goals 1
Clarity of Organizational goals 2	**.565**	.405	-.108	.006	Clarity of Organizational goals 2
Clarity of Organizational goals 3*	.423	.145	-.196	**.606**	deleted
Clarity of Organizational goals 4	**.689**	.195	-.112	.125	Clarity of Organizational goals 3
Performance Feedback 1	.322	**.726**	-.012	-.043	Performance Feedback 1
Performance Feedback 2*	.100	**.730**	-.108	.219	Performance Feedback 2*
Performance Feedback 3*	.088	.091	-.182	**.737**	deleted
Performance Feedback 4	.231	**.635**	.127	.080	Performance Feedback 3
Pressure to Produce 1	-.096	.168	**.685**	-.106	Pressure to Produce 1
Pressure to Produce 2	.231	-.218	**.716**	-.018	Pressure to Produce 2
Pressure to Produce 3	.033	-.030	**.758**	-.097	Pressure to Produce 3
Pressure to Produce 4*	-.190	.074	.535	**.622**	deleted
Quality 1	**.681**	.258	.115	-.100	Clarity of Organizational goals 4
Quality 2	**.664**	.280	.113	.083	Clarity of Organizational goals 5
Quality 3	**.710**	-.100	.128	.092	Clarity of Organizational goals 6

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

After the factor analysis test 3 items were deleted and 1 factor was deleted.

4.3.2.2. Leadership innovative behaviour factor analysis:

The varimax factor analysis was executed for the leadership innovative behaviour passed items on reliability test. The results are showed in table (40). Delegating and task assignment providing vision items had the load in specific factor. However the load of the rest of the items was distributed among different factors.

Table (40): Results of factor analysis test executed on leadership innovative behaviour items

Rotated Component Matrixa

	Component					
	1	2	3	4	5	6
Delegating & task assignment 1	.142	.014	-.005	**.739**	.079	-.082
Delegating & task assignment 3	.068	.243	.182	**.769**	.229	-.059
Delegating & task assignment 4	.078	.078	.166	**.752**	-.040	.337
Innovation role-modelling 1	**.631**	.181	.178	.195	.070	.037
Innovation role-modelling 2	.195	-.012	.386	.237	**.526**	.460
Innovation role-modelling 3	.221	.188	.125	.020	.027	***.791***
Innovation role-modelling 4	.074	-.053	**.791**	.100	.120	.042
Intellectual stimulation & motivation 1	**.596**	-.188	.348	.201	.319	.215
Intellectual stimulation & motivation 2	.305	.232	**.433**	.281	.368	.030
Intellectual stimulation & motivation 3	**.691**	.193	.243	.024	-.179	.325
Intellectual stimulation & motivation 4	.083	.376	**.658**	.019	.115	.254
Providing vision 1	**.716**	.399	.206	-.094	-.025	.109
Providing vision 2	.226	**.825**	.130	.130	.045	.078
Providing vision 3	.251	**.782**	.042	.055	.175	.010
Providing vision 4	.027	**.530**	.509	.191	-.158	.313
Recognition and feedback 1	.103	.091	.027	.038	**.831**	.033
Recognition and feedback 2	**.710**	.214	-.211	.016	.169	.268
Recognition and feedback 3	.040	.379	.266	.162	**.522**	-.235
Recognition and feedback 4	.239	**.537**	-.039	.127	.414	.273
Stimulating knowledge diffusion 1	**.673**	.063	-.072	.156	.288	-.102
Stimulating knowledge diffusion 2	**.512**	.229	.520	.206	-.003	-.278
Stimulating knowledge diffusion 3	.394	.368	.217	.229	.295	.158

4.3.3. Summary and change on the research question 2 analysis plan

In summary the reliability test for organization climate was executed in research question 1. It ended up with deleting 2 factors out of 14 factors. The factor analysis test was executed in research question 2. The loading of all quality items were on clarity of organization goals. Therefore quality was deleted. In addition 3 items were deleted for they do not have loading in a specific factor. 5 items had loading on different factor than their original factors. In general organization climate measure ended after the reliability and factor test with accepted number of factors and items which had loading on those factors.

However, the reliability test in leadership innovative behaviour ended with having 6 out of 8 factors and 22 out of 34 items. Further the factor analysis test was executed on the remaining items. Out of 6 factors 2 passed and out of 22 items only 6 passed the test. The leadership innovative behaviour measure did not have enough items and factors to do the correlation test.

The researcher had to change the research question analysis plan. Since the correlation plan is not possible, the researcher decided to execute descriptive analysis on leadership innovative behaviour factors. Then compare it with organization climate descriptive analysis executed in research question 1.

4.3.4. Descriptive analysis

The descriptive analysis was conducted on the 6 factors that passed the reliability test. They are innovation role-modelling, intellectual stimulation and motivation, stimulating knowledge diffusion, providing vision, delegating and task assignment, recognition and feedback. This section presents the responses of each factor. Appendix G includes tables that show the frequencies of answers for each factor question.

4.3.4.1. Innovative role-modeling

Approximately 92 % of the management respondents expressed that they are acting as innovative role-model in their day to day activities (Appendix G). This is by continuous exploration for innovative ways to do things in order to improve performance. As shown in table (41) the mean value of the 4 items is more than 4, which is more than agree. There is

one exception for question 3. 89% agreed to this question and 11% chose not to agree or disagree to this question. Question 3 was about challenging the accepted practices of doing things in the organization. The same percentage agreed for the rest of the innovation role-modeling questions. However when they were asked to challenge the accepted practices in the organization they to positioned themselves in a neutral position

Table (41): Average of innovative role-modeling items

		Innovation role-modelling 1	Innovation role-modelling 2	Innovation role-modelling 3	Innovation role-modelling 4
N	Valid	81	81	81	81
	Missing	0	0	0	0
Mean		4.64	4.31	4.16	4.65

4.3.4.2. Intellectual stimulation and motivation

As shown in table (42) the mean value for all of the intellectual stimulation is more than 4 which is more than agree. This is due to that more that 85% agreed to all this factor items (Appendix G).

Table (42): Average of intellectual stimulation and motivation items

		Intellectual stimulation & motivation 1	Intellectual stimulation & motivation 2	Intellectual stimulation & motivation 3	Intellectual stimulation & motivation 4
N	Valid	81	81	81	81
	Missing	0	0	0	0
Mean		4.35	4.15	4.14	4.16

4.3.4.3. Stimulating knowledge diffusion

As in table (43) the mean value for stimulating knowledge diffusion items is more than 4 except for question 2 which is 3.86. This was due to that 24 % of the respondents chose not to agree or disagree to this question (Appendix G). The question is about organizing a session after each project to share lessons learned and best practices.

Table (43): Average of stimulating knowledge diffusion items

		Stimulating knowledge diffusion 1	Stimulating knowledge diffusion 2	Stimulating knowledge diffusion 3
N	Valid	81	81	81
	Missing	0	0	0
Mean		4.35	3.86	4.27

4.3.4.4. Providing vision

The mean value for the providing vision factor is 3.9 to 4.21. As presented in appendix G between 74% to 82% of the respondents agreed to the providing vision statements.

Table (44): Average of providing vision items

		Providing vision 1	Providing vision 2	Providing vision 3	Providing vision 4
N	Valid	81	81	81	81
	Missing	0	0	0	0
Mean		4.21	3.91	3.98	4.06

4.3.4.5. Delegating and task assignment

The mean value of the delegating and task assignment items were 3.9 and above (table 45). The percentage of respondents who agreed to statement 1 was the highest. As in appendix G, 92% agreed that they delegate responsibility and ownership of tasks to their co-workers. Statement 4 had the lowest percentage of agreement among the other statement. It was due to the increasing percentage of Neither agree nor disagree respondents. 16% answered Neither agree nor disagree and 77.8% agreed to the statement (appendix G).

Table (45): Average of delegating and task assignment items

		Delegating & task assignment 1	Delegating & task assignment 2	Delegating & task assignment 3	Delegating & task assignment 4
N	Valid	81	81	81	81
	Missing	0	0	0	0
Mean		4.38	4.14	4.06	3.90

4.3.4.6. Recognition and feedback

As in table (46) the mean value for recognition and feedback was all above 4. 80% and above of the respondents agreed to 4 statements of recognition and feedback (Appendix G).

Table (46): Average of recognition and feedback items

		Recognition and feedback 1	Recognition and feedback 2	Recognition and feedback 3	Recognition and feedback 4
N	Valid	81	81	81	81
	Missing	0	0	0	0
Mean		4.64	4.42	4.00	4.25

4.3.5. Discussion

Research question 2 is to analysing how leadership innovative behaviour is compared with employees' perception of innovative organization climate. Employees need to feel that innovation and creativity is valued by the organization. This can be expressed by the practices at the management level (DiLiello and Houghton, 2006). Practices and behaviours that are directly influence employees' innovation efforts in generating and implementing ideas. The behaviours analysed in this study are innovation role-modelling, stimulating knowledge diffusion, intellectual stimulation, providing vision, delegation and task assignment and recognition and feedback.

In general, about 80% and above of the participants agreed to the leadership innovative behaviour statements. There is a high percentage of management who expressed that they are practicing innovative behaviours. High percentage of innovative behaviour is expected to be followed by high perception of innovative climate.

Comparing organization climate measure responses with leadership innovative behaviour responses, the following results have been found. Employees described their management as highly supportive to innovation. However there were some factors from both sides that contradict each other. Employees perceived the organization as medium in involvement however the management described themselves as high in delegation and task assignment. The organization employees perceived the organization as medium in integration however

the management described themselves as high in stimulating knowledge diffusion. There is a small gap between providing vision factor of leadership behaviour and clarity of organization goals. 74% to 82% of the respondents agreed to the providing vision statements and 55% to 65% agreed to clarity of organization goals.

CHAPTER 5

Conclusion and recommendation

CHAPTER 5:CONCLUSION AND RECOMMENDATIONS

This research concluded that there is gap in the organization climate that has to be filled. Employees went in two points in regards to involvement, integration, innovation and flexibility. There should be more investigation for the causes. Is there certain divisions who are not satisfied, or is age group or difference between management and non-management group. In addition employees expressed that they are faces with pressure at work. Moreover employees expressed that this organization is very attached to the tradition way of doing things.

Management group described themselves as high in innovative behavior. It is common behavior that individuals rate themselves with the best rate. Innovative behavior could not be related to employees' perception of innovative behavior. Management response doesn't explain non-management response.

5.1.Research limitations

This research is studying only one organization of oil and gas industry in UAE. The findings of this research could be similar to other organizations but not essentially exact. Additional study could be conducted to compare between different organizations in the same sector.

The finding of this research is only representing 20% of the sample. Therefore the findings are not necessarily representing the organization opinion.

5.2.Future researches

Future researches could test and compare more that one organization in the same sector. In addition the correlation between the organization climate factors can be tested.

CHAPTER 6

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CHAPTER 6:REFERENCES

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CHAPTER 7

Appendix

CHAPTER 7:APPENDIX

Appendix A: Original OCM questionnaire adapted from Patterson *et al.* (2005)

1	Autonomy
1	Management let people make their own decisions much of the time
2	Management trust people to take work-related decisions without getting permission first
3	People at the top tightly control the work of those below them*
4	Management keep too tight a reign on the way things are done around here*
5	It's important to check things first with the boss before taking a decision*
2	Integration
6	People are suspicious of other departments*
7	There is very little conflict between departments here
8	People in different departments are prepared to share information
9	Collaboration between departments is very effective
10	There is very little respect between some of the departments here*
3	Involvement
11	Management involve people when decisions are made that affect them
12	Changes are made without talking to the people involved in them*
13	People don't have any say in decisions which affect their work*
14	People feel decisions are frequently made over their heads*
15	Information is widely shared
16	There are often breakdowns in communication here*
4	Supervisory Support
17	Supervisors here are really good at understanding peoples' problems
18	Supervisors show that they have confidence in those they manage
19	Supervisors here are friendly and easy to approach
20	Supervisors can be relied upon to give good guidance to people
21	Supervisors show an understanding of the people who work for them
5	Training & development
22	People are not properly trained when there is a new machine or bit of equipment*
23	People receive enough training when it comes to using new equipment

24	The company only gives people the minimum amount of training they need to do their job*
25	People are strongly encouraged to develop their skills
6	Welfare
26	This company pays little attention to the interests of employees*
27	This company tries to look after its employees
28	This company cares about its employees
29	This company tries to be fair in its actions towards employees
7	Formalization *
30	It is considered extremely important here to follow the rules
31	People can ignore formal procedures and rules if it helps get the job done*
32	Everything has to be done by the book
33	Its not necessary to follow procedures to the letter around here*
34	Nobody gets too upset if people break the rules around here*
8	Tradition *
35	Senior management like to keep to established, traditional ways of doing things
36	The way this organization does things has never changed very much
37	Management are not interested in trying out new ideas
38	Changes in the way things are done here happen very slowly
9	Innovation & Flexibility
39	New ideas are readily accepted here
40	This company is quick to respond when changes need to be made
41	Management here are quick to spot the need to do things differently
42	This organization is very flexible; it can quickly change procedures to meet new conditions and solve problems as they arise
43	Assistance in developing new ideas is readily available
44	People in this organization are always searching for new ways of looking at problems
10	Outward Focus
45	This organization is quite inward looking; it does not concern itself with what is happening in the market place*
46	Ways of improving service to the customer are not given much thought*
47	Customer needs are not considered top priority here*

48	This company is slow to respond to the needs of the customer*
49	This organization is continually looking for new opportunities in the market place
11	Reflexivity
50	In this organization, the way people work together is readily changed in order to improve performance
51	The methods used by this organization to get the job done are often discussed
52	There are regular discussions as to whether people in the organization are working effectively together
53	In this organization, objectives are modified in light of changing circumstances
54	In this organization, time is taken to review organizational objectives
12	Clarity of Organizational Goals
55	People have a good understanding of what the organization is trying to do
56	The future direction of the company is clearly communicated to everyone
57	People aren't clear about the aims of the company*
58	Everyone who works here is well aware of the long-term plans and direction of this company
59	There is a strong sense of where the company is going
13	Efficiency
60	Time and money could be saved if work were better organized*
61	Things could be done much more efficiently, if people stopped to think*
62	Poor scheduling and planning often result in targets not being met*
63	Productivity could be improved if jobs were organized and planned better*
14	Effort
64	People here always want to perform to the best of their ability
65	People are enthusiastic about their work
66	People here get by with doing as little as possible*
67	People are prepared to make a special effort to do a good job
68	People here don't put more effort into their work than they have to*
15	Performance Feedback
69	People usually receive feedback on the quality of work they have done
70	People don't have any idea how well they are doing their job*
71	In general, it is hard for someone to measure the quality of their performance*

72	People's performance is measured on a regular basis
73	The way people do their jobs is rarely assessed*
16	Pressure to Produce
74	People are expected to do too much in a day
75	In general, peoples' workloads are not particularly demanding*
76	Management require people to work extremely hard
77	People here are under pressure to meet targets
78	The pace of work here is pretty relaxed*
17	Quality
79	This company is always looking to achieve the highest standards of quality
80	Quality is taken very seriously here
81	People believe the company's success depends on high-quality work
82	This company does not have much of a reputation for top-quality products*

Appendix B: Organization climate measure questionnaire after being modified by this research author

Autonomy	
1	Management let employees' make their own decisions most of the time
2	Management trust employees' to take work-related decisions without getting permission first
3	Management tightly control the work of done by their employees
4	It's important to check things first with the team leader before taking a decision
Integration	
5	There is very little conflict between different departments here
6	Employees in different departments are prepared to share information with each other to improve work performance and effectiveness *
7	Collaboration between departments is very effective
8	There is very little respect and confidence between some of the departments here
Involvement	
9	Management involve employees when decisions are needed to be made that affect them
10	Changes are made without talking to the employees involved in them
11	People don't have any say in decisions which affect their work
12	Information is widely shared between the management and employees
Supervisory Support	
13	My team leader is really good at understanding employees' problems
14	My team leader shows that he/she has confidence in those he/she manages
15	My team leader is friendly and easy to approach
16	My team leader can be relied upon to give good guidance to employees
Training	
17	Employees receive enough training when it comes to using new equipment *
18	The company only gives employees the minimum amount of training they need to do their job
19	Employees are strongly encouraged to develop their skills *
Welfare	
20	ADMA-OPCO pays little attention to the interests of employees

21	ADMA-OPCO cares about its employees *
22	ADMA-OPCO tries to be fair in its actions towards employees
Formalization	
23	It is considered extremely important in ADMA-OPCO to follow the rules
24	Employees can ignore formal procedures and rules if it helps get the job done
25	It is not necessary to follow procedures to the letter in ADMA-OPCO
Tradition	
26	Senior management like to keep to established, traditional ways of doing things *
27	The way this organization does things has never changed very much
28	Management are not interested in trying out new ideas
29	Changes in the way things are done here happen very slowly *
Innovation and Flexibility	
30	This company is quick to respond when changes need to be made
31	Management here are quick to spot the need to do things differently *
32	This organization is very flexible; it can quickly change procedures to meet new conditions and solve problems as they arise
33	Assistance in developing new ideas is readily available
34	Employees in this organization are always searching for new ways of looking at problems
35	This organization is continually looking for new opportunities in the market place *
Reflexivity	
36	In this organization, the way employees work together is easily changed in order to improve performance
37	The methods used by this organization to get the job done are often discussed
38	There are regular discussions as to whether employees in the organization are working effectively together
39	In this organization, objectives are modified in light of changing circumstances *
40	In this organization, time is taken to review organizational objectives *
Clarity of organization goals	
41	Employees have a good understanding of what the organization is trying to do
42	The future direction of the company is clearly communicated to everyone *
43	Employees aren’t clear about the aims of the company *

44	Everyone who works here is well aware of the long-term plans and direction of this company
Performance feedback	
45	Employees usually receive feedback on the quality of work they have done
46	Employees don't have any idea how well they are doing their job
47	In general, it is hard for someone to measure the quality of their performance
48	Employees' performance is measured on a regular basis
Pressure to produce	
49	Employees are expected to do too much in a day
50	Management require employees to work extremely hard
51	Employees here are under pressure to meet targets*
52	The pace of work here is pretty relaxed
Quality	
53	This company is always looking to achieve the highest standards of quality
54	Quality is taken very seriously here
55	Employees believe the company's success depends on high-quality work

Appendix C: Yukl's (2002) taxonomy of managerial practices as cited by Jong and Hartog (2007).

Behaviour		Consists of
1	Planning and organizing	Determining long-term objectives and strategies, determining how to use personnel and resources
2	Problem solving	Identifying work-related problems, analysing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions to resolve important problems or crises
3	Clarifying roles and objectives	Assigning tasks, providing direction in how to do the work, and communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations
4	Informing	Disseminating relevant information to people who need it to do their work, providing written materials and documents, and answering requests for technical information
5	Monitoring	Managing on effectiveness and efficiency, stressing tried and tested routines
6	Motivating and inspiring	Using influence techniques that appeal to emotion or logic to generate enthusiasm for the work, commitment to task objectives, and compliance with requests for cooperation, assistance and support
7	Consulting	Checking with people before initiating changes that may affect them, incorporating their ideas and suggestions in decisions
8	Delegating	Giving subordinates autonomy to determine independently how to do a job
9	Supporting	Acting friendly and considerate, being patient and helpful, listening to complaints and problems, and looking out for someone’s interests
10	Developing and mentoring	Providing coaching and helpful career advice, and doing things to facilitate a person’s skill acquisition, professional development, and career advancement
11	Managing conflict and team building	Facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification with the work unit
12	Networking	Socializing informally, developing contacts with people who are a source of information and support, and maintaining contacts through periodic

		interaction
13	Recognition	Showing praise/express appreciation for someone's contributions and special efforts
14	Rewards	Providing or recommending tangible rewards, such as a pay increase or promotion for effective performance, significant achievements, and demonstrated competence

Appendix D: Leadership innovative behaviour questionnaire.

1- Innovative role-modeling	
1	I am always looking for ways to do things better and improve results
2	I like to explore issues or ideas from alternative perspectives before I make decisions or solve problems
3	I like to challenge accepted practices/procedures of doing the job
4	I enjoy learning new ways of doing things
2- Intellectual stimulation & motivation	
5	I always ask my co-workers to make suggestions in our meetings (daily, weekly, monthly)
6	By using caching techniques (asking open questions and exploring alternatives) I facilitate the opportunity for my team to look at how things might be done differently
7	I ask my co-worker to evaluate current practices and think of alternatives to improve performance and output quality
8	I encourage my team when they are planning tasks or projects to think outside the day to day structures of current processes and systems
3- Stimulating knowledge diffusion	
9	I encourage my co-workers to share information of their assigned tasks with other within the team who are not involved in the same task.
10	I organize an informal session after each project to share and discuss outputs (best practices, lessons learned, development areas)
11	I encourage my co-workers to share information (e.g. best practices, lessons learned) and material with other related departments/functions
4- Providing vision	
12	I communicate this companies ambition to innovate to my co-workers, and provide general direction to know what kind of innovative ideas is expected from them
13	I communicate to my co-workers this companies vision and what are areas of opportunities the company is seeking to
14	My team understand and are aligned to the company's vision and challenges
15	I encourage my team to continually focus on future goals of this company
5- Consulting	
16	I involve my co-workers when decisions to be made that could affect them

17	I always try to include one or more employees in determining what to do and how to do it.
18	I do not consider suggestions made by my employees as I do not have the time for them.
19	I ask for employee ideas and input on upcoming plans and projects.
6- Delegating & task assignment	
20	I delegate responsibility and ownership of tasks to my co-workers
21	My co-workers know what is expected from them in their individual roles
22	I allow my employees to determine what needs to be done and how to do it.
23	I allow my co-workers to have substantial responsibility and discretion in carrying out work activities and making important decisions themselves.
7- Support for innovation & flexibility	
24	I act friendly, helpful and in patient whenever one of my co-workers comes with an idea or face problem in the implementation of an idea
25	I act friendly and patiently with mistakes done by co-workers in the implementation stage and use them as learning opportunity.
26	When one of my workers comes with an innovative idea, I am flexible to change the way we work for the purpose of improving performance and quality.
27	I seek top management support to implement ideas generated by my co-workers
8- Monitoring	
28	I continuously ask my co-workers for the progress of the work and the quality of the output
29	I have my eye open on my co-workers do the job, which how effective and efficient they do the job
30	I meet with my co-workers in daily bases to check how the job is done
9 - Recognition and feedback	
31	I express satisfaction when co-workers meet expectations
32	I openly praise the people who report to me for their innovative performance or significant achievement or effort
33	I give my team regular informal feedback on their performance
34	I discuss performance and conduct the required performance reviews

Appendix E: Questionnaire distributed to the employees of management and non-management group.

Innovation in Oil and Gas Industry

The target of this questionnaire is to analyze employees perception of their organization's innovative environment. This questionnaire is important to help understand how much your organization's environment is supporting and encouraging you to innovate.

The questionnaire has three Sections. **Section A** is about your demographic information for the purpose of understanding your background. **Section B** is about your perception of your organization's innovative environment. **Section C** is about your leadership innovative behavior

Confidentiality note: The questionnaire is completely anonymous. The collected questionnaire data will be used solely by the researcher for the purpose of innovation climate study and will not be shared with any other party or affect the employee status in the company.

Please read the questions carefully and choose the most appropriate answers. Your participation is highly appreciated and it will contribute to a much more effective study of innovation in the Oil and Gas industry.

Upon completion of the questionnaire please forwards a hard or soft copy to Ms. Ameena her address information is given below. Your cooperation is highly appreciated.. If you have any queries about this questionnaire please call me at my extension number below.

Regards and Thanks
Ameena Al Marzouqi
Ext: 65261
Office location: 8E-35

Section A: Demographic Information

For each question please choose the answer that is the most appropriate for you.

1. Your current position level in the organization

Assistant General Manager | Division Manager | Team Leader

2. Highest level of education

High School | High Diploma | Graduate Degree | Masters and above

3. Age range

Less than 25 | 25-35 years | 36-46 years | above 47 years

4. Number of years worked in the current organization

On year or Less | 2-7 years | 8-13 years | 14-19 years | 20 years and more

5. Gender

Male | Female

6. To which Business Unit are you reporting

Administration | Projects & Engineering | Drilling & Support
Production | Corporate Planning | Development
GM

Section B: Innovative Organization Environment

Please read each sentence and rate how true is the sentence. The choices you have ranges from definitely false to definitely true

Note: Please not that the intentions of the words bellow
Management = team leaders, division managers, AGMs, GM.
Employees = yourself and your colleague.

1 = Definitely false, 2 = Partially False, 3 = Partially True, 4 = Definitely True

		1	2	3	4
1	Management let employees' make their own decisions most of the time				
2	There is very little conflict between different departments here				
3	Management involve employees when decisions are needed to be made that affect them				
4	My team leader is really good at understanding employees' problems				
5	Employees receive enough training when it comes to using new equipment				
6	ADMA-OPCO pays little attention to the interests of employees				
7	It is considered extremely important in ADMA-OPCO to follow the rules				
8	Senior management like to keep to established, traditional ways of doing things				
9	This company is quick to respond when changes need to be made				
10	In this organization, the way employees work together is easily changed in order to improve performance				
11	Employees have a good understanding of what the organization is trying to do				
12	Employees usually receive feedback on the quality of work they have done				
13	Employees are expected to do too much in a day				
14	This company is always looking to achieve the highest standards of quality				
15	Management trust employees' to take work-related decisions without getting permission first				
16	Employees in different departments are prepared to share information with each other to improve work performance and effectiveness				
17	Changes are made without talking to the employees involved in them				
18	My team leader shows that he/she has confidence in those he/she manages				
19	The company only gives employees the minimum amount of training they need to do their job				
20	ADMA-OPCO cares about its employees				
21	Employees can ignore formal procedures and rules if it helps get the job done				
22	The way this organization does things has never changed very much				
23	Management here are quick to spot the need to do things differently				
24	The methods used by this organization to get the job done are often discussed				
25	The future direction of the company is clearly communicated to everyone				
26	Employees don't have any idea how well they are doing their job				
27	Management require employees to work extremely hard				

28	Quality is taken very seriously here				
29	Management tightly control the work of done by their employees				
30	Collaboration between departments is very effective				
31	People don't have any say in decisions which affect their work				
32	My team leader is friendly and easy to approach				
33	Employees are strongly encouraged to develop their skills				
34	ADMA-OPCO tries to be fair in its actions towards employees				
35	It's not necessary to follow procedures to the letter in ADMA-OPCO				
36	Management are not interested in trying out new ideas				
		1	**2**	**3**	**4**
37	This organization is very flexible; it can quickly change procedures to meet new conditions and solve problems as they arise				
38	There are regular discussions as to whether employees in the organization are working effectively together				
39	Employees aren't clear about the aims of the company				
40	In general, it is hard for someone to measure the quality of their performance				
41	Employees here are under pressure to meet targets				
42	It's important to check things first with the team leader before taking a decision				
43	There is very little respect and confidence between some of the departments here				
44	Information is widely shared between the management and employees				
45	My team leader can be relied upon to give good guidance to employees				
46	Changes in the way things are done here happen very slowly				
47	Assistance in developing new ideas is readily available				
48	In this organization, objectives are modified in light of changing circumstances				
49	Everyone who works here is well aware of the long-term plans and direction of this company				
50	Employees' performance is measured on a regular basis				
51	The pace of work here is pretty relaxed				
52	Employees in this organization are always searching for new ways of looking at problems				
53	In this organization, time is taken to review organizational objectives				
54	This organization is continually looking for new opportunities in the market place				
55	Employees believe the company's success depends on high-quality work				

Section C: Leadership Innovative behaviour

Please read each sentence and rate how true is the sentence. The choices you have ranges from Strongly Disagree to Strongly agree

Note: Please not that the intentions of the words bellow
Co-workers = employees who report to you

1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree

		1	2	3	4	5
1	I am always looking for ways to do things better and improve results					
2	I always ask my co-workers to make suggestions in our meetings (daily, weekly, monthly)					
3	I encourage my co-workers to share information of their assigned tasks with other people within the team who are not involved in the same task.					
4	I communicate this company's ambition to innovate to my co-workers, and provide general direction so that they know what kind of innovative ideas are expected from them					
5	I involve my co-workers when decisions to be made that could affect them					
6	I delegate responsibility and ownership of tasks to my co-workers					
7	I am friendly, helpful and patient whenever one of my co-workers comes with an idea or faces a problem in the implementation of an idea					
8	I continuously ask my co-workers about the progress of the work and the quality of the output					
9	I express satisfaction when co-workers meet expectations					
10	I like to explore issues or ideas from alternative perspectives before I make decisions or solve problems					
11	By using caching techniques (asking open questions and exploring alternatives) I facilitate the opportunity for my team to look at how things might be done differently					
12	I organize an informal session after each project to share and discuss outputs (best practices, lessons learned, development areas)					
13	I communicate to my co-workers this company's vision and the areas of opportunities the company is seeking to develop ?					
14	I always try to include one or more employees in determining what to do and how to do it.					
15	My co-workers know what is expected from them in their individual roles					
16	I am friendly and patient when mistakes are made by co-workers in the implementation stage and use them as learning opportunity.					
17	I monitor how effective and efficient my co-workers are as they do their job					
18	I openly praise the people who report to me for their innovative performance or significant achievement or effort					
19	I like to challenge accepted practices/procedures of doing the job					

20	I ask my co-worker to evaluate current practices and think of alternatives to improve performance and output quality					
21	I encourage my co-workers to share information (e.g best practices, lessons learned) and material with other related departments/functions					
22	My team understand and are aligned to the company's vision and challenges					
23	I ensure I make time to consider and discuss suggestions made by my co-workers					
24	I allow my employees to determine what needs to be done and how to do it.					
		1	**2**	**3**	**4**	**5**
25	When one of my workers comes with an innovative idea, I am flexible to change the way we work for the purpose of improving performance and quality.					
26	I meet with my co-workers on a daily basis to check how the work is being done					
27	I give my team regular informal feedback on their performance					
28	I enjoy learning new ways of doing things					
29	I encourage my team when they are planning tasks or projects to think outside the day to day structures/ procedures/ rules of current processes and systems					
30	I encourage my team to continually focus on the future goals of this company					
31	I ask for employee ideas and input on upcoming plans and projects.					
32	I allow my co-workers to have substantial responsibility and discretion in carrying out work activities and making important decisions themselves.					
33	I seek top management support to implement ideas generated by my co-workers					
34	I discuss performance and conduct the required performance reviews					

Appendix F: Organization climate measure descriptive analysis

Integration

Integration 1

		N	%	Cumulative %
Valid	DF	33	11.4	
	MF	96	33.1	44.5
	MT	131	45.2	
	DT	30	10.3	55.5
	Total	290	100.0	

Integration 2

		N	%	Cumulative %
Valid	DF	24	8.3	
	MF	84	29.0	37.4
	MT	134	46.2	
	DT	47	16.2	62.4
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Integration 3

		N	%	Cumulative %
Valid	DF	21	7.2	
	MF	93	32.1	39.4
	MT	139	47.9	
	DT	36	12.4	60.3
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Integration 4*

		N	%	Cumulative %
Valid	DT	31	10.7	
	MT	114	39.3	50.2
	MF	92	31.7	
	DF	52	17.9	49.6
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Involvement

Involvement 1

		N	%	Cumulative %
Valid	DF	49	16.9	
	MF	78	26.9	44.1
	MT	119	41.0	
	DT	42	14.5	55.5
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Involvement 2*

		N	%	Cumulative %
Valid	DT	40	13.8	
	MT	119	41.0	56.4
	MF	86	29.7	.0
	DF	37	12.8	42.5
	Total	282	97.2	
Missing	System	8	2.8	
	Total	290	100.0	

Involvement 3*

		N	%	Cumulative %
Valid	DT	30	10.3	
	MT	105	36.2	47.2
	MF	119	41.0	
	DF	32	11.0	52.0

Involvement 4

		N	%	Cumulative %
Valid	DF	27	9.3	
	MF	87	30.0	39.6
	MT	136	46.9	
	DT	38	13.1	60.0
	Total	288	99.3	

	Total	286	98.6	
Missing	System	4	1.4	
	Total	290	100.0	

Missing	System	2	.7	
	Total	290	100.0	

Supervisory Support

Supervisory Support 1

		N	%	Cumulative %
Valid	DF	9	3.1	
	MF	46	15.9	19.1
	MT	117	40.3	
	DT	116	40.0	80.3
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Supervisory Support 2

		N	%	Cumulative %
Valid	DF	12	4.1	
	MF	27	9.3	13.5
	MT	145	50.0	
	DT	105	36.2	86.2
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Supervisory Support 3

		N	%	Cumulative %
Valid	DF	15	5.2	
	MF	27	9.3	14.5
	MT	98	33.8	
	DT	149	51.4	85.2
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Supervisory Support 4

		N	%	Cumulative %
Valid	DF	12	4.1	
	MF	35	12.1	16.4
	MT	140	48.3	
	DT	100	34.5	82.8
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Training

Training 1

		N	%	Cumulative %
Valid	DF	34	11.7	
	MF	74	25.5	37.9
	MT	130	44.8	
	DT	47	16.2	61.0
	Total	285	98.3	
Missing	System	5	1.7	
	Total	290	100.0	

Training 2*

		N	%	Cumulative %
Valid	DT	54	18.6	
	MT	116	40.0	58.8
	MF	84	29.0	
	DF	35	12.1	41.1
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Training 3

		N	%	Cumulative %
Valid	DF	18	6.2	
	MF	76	26.2	32.5

	MT	135	46.6	
	DT	60	20.7	67.3
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Welfare

Welfare 1*

		N	%	Cumulative %
Valid	DT	37	12.8	
	MT	105	36.2	49.5
	MF	97	33.4	
	DF	48	16.6	50.0
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Welfare 2

		N	%	Cumulative %
Valid	DF	20	6.9	
	MF	46	15.9	23.0
	MT	143	49.3	
	DT	78	26.9	76.2
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Welfare 3

		N	%	Cumulative %
Valid	DF	23	7.9	
	MF	65	22.4	30.7
	MT	145	50.0	
	DT	54	18.6	68.6
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Tradition

Tradition 1

		N	%	Cumulative %
Valid	DF	25	8.6	
	MF	66	22.8	32.0
	MT	139	47.9	
	DT	55	19.0	67.0
	Total	285	98.3	
Missing	System	5	1.7	
	Total	290	100.0	

Tradition 2

		N	%	Cumulative %
Valid	DF	43	14.8	
	MF	101	34.8	50.7
	MT	106	36.6	
	DT	34	11.7	48.3
	Total	284	97.9	
Missing	System	6	2.1	
	Total	290	100.0	

Tradition 3

		N	%	Cumulative %
Valid	DF	102	35.2	
	MF	108	37.2	72.4

Tradition 4

		N	%	Cumulative %
Valid	DF	16	5.5	
	MF	61	21.0	26.8

	MT	68	23.4	
	DT	12	4.1	27.5
	Total	290	100.0	

	MT	140	48.3	
	DT	70	24.1	72.4
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Innovation and flexibility

Innovation and Flexibility 1

		N	%	Cumulative %
Valid	DF	39	13.4	
	MF	88	30.3	44.1
	MT	119	41.0	
	DT	42	14.5	55.5
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Innovation and Flexibility 2

		N	%	Cumulative %
Valid	DF	20	6.9	
	MF	94	32.4	39.7
	MT	142	49.0	
	DT	31	10.7	59.7
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Innovation and Flexibility 3

		N	%	Cumulative %
Valid	DF	48	16.6	
	MF	84	29.0	45.7
	MT	114	39.3	
	DT	43	14.8	54.1
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Innovation and Flexibility 4

		N	%	Cumulative %
Valid	DF	18	6.2	
	MF	95	32.8	39.4
	MT	145	50.0	
	DT	29	10.0	60.0
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Innovation and Flexibility 5

		N	%	Cumulative %
Valid	DF	30	10.3	
	MF	92	31.7	42.1
	MT	142	49.0	
	DT	26	9.0	58.0
	Total	290	100.0	

Innovation and Flexibility 6

		N	%	Cumulative %
Valid	DF	31	10.7	
	MF	80	27.6	39.4
	MT	126	43.4	
	DT	45	15.5	58.9
	Total	282	97.2	
Missing	System	8	2.8	
	Total	290	100.0	

Reflexivity

Reflexivity 1

		N	%	Cumulative %
Valid	DF	38	13.1	
	MF	81	27.9	41.3

Reflexivity 2

		N	%	Cumulative %
Valid	DF	10	3.4	
	MF	86	29.7	33.6

	MT	129	44.5	
	DT	40	13.8	58.3
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

	MT	146	50.3	
	DT	44	15.2	65.5
	Total	286	98.6	
Missing	System	4	1.4	
	Total	290	100.0	

Reflexivity 3

		N	%	Cumulative %
Valid	DF	32	11.0	
	MF	95	32.8	44.7
	MT	129	44.5	
	DT	28	9.7	54.2
	Total	284	97.9	
Missing	System	6	2.1	
	Total	290	100.0	

Reflexivity 4

		N	%	Cumulative %
Valid	DF	9	3.1	
	MF	58	20.0	23.8
	MT	167	57.6	
	DT	47	16.2	73.8
	Total	281	96.9	
Missing	System	9	3.1	
	Total	290	100.0	

Reflexivity 5

		N	%	Cumulative %
Valid	DF	12	4.1	
	MF	70	24.1	28.8
	MT	156	53.8	
	DT	47	16.2	70.0
	Total	285	98.3	
Missing	System	5	1.7	
	Total	290	100.0	

Clarity of organization goals

Clarity of Organizational goals 1

		N	%	Cumulative %
Valid	DF	14	4.8	
	MF	82	28.3	33.6
	MT	140	48.3	
	DT	50	17.2	65.5
	Total	286	98.6	
Missing	System	4	1.4	
	Total	290	100.0	

Clarity of Organizational goals 2

		N	%	Cumulative %
Valid	DF	20	6.9	
	MF	79	27.2	34.3
	MT	132	45.5	
	DT	58	20.0	65.5
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Clarity of Organizational goals 3*

		N	%	Cumulative %
Valid	DT	14	4.8	
	MT	95	32.8	37.6
	MF	114	39.3	

Clarity of Organizational goals 4

		N	%	Cumulative %
Valid	DF	34	11.7	
	MF	92	31.7	43.8
	MT	120	41.4	

	DF	67	23.1	62.4
	Total	290	100.0	

	DT	42	14.5	55.9
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Performance feedback

Performance Feedback 1

		N	%	Cumulative %
Valid	DF	26	9.0	
	MF	81	27.9	37.2
	MT	125	43.1	
	DT	56	19.3	62.4
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Performance Feedback 2*

		N	%	Cumulative %
Valid	DT	11	3.8	
	MT	104	35.9	39.8
	MF	109	37.6	
	DF	65	22.4	60.0
	Total	289	99.7	
Missing	System	1	.3	
	Total	290	100.0	

Performance Feedback 3*

		N	%	Cumulative %
Valid	DT	30	10.3	
	MT	124	42.8	53.7
	MF	100	34.5	
	DF	33	11.4	45.9
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Performance Feedback 4

		N	%	Cumulative %
Valid	DF	23	7.9	
	MF	64	22.1	30.0
	MT	123	42.4	
	DT	80	27.6	70.0
	Total	290	100.0	

Pressure to Produce

Pressure to Produce 1

		N	%	Cumulative %
Valid	DF	20	6.9	
	MF	74	25.5	32.6
	MT	132	45.5	
	DT	62	21.4	66.9
	Total	288	99.3	.0
Missing	System	2	.7	
	Total	290	100.0	

Pressure to Produce 2

		N	%	Cumulative %
Valid	DF	15	5.2	
	MF	64	22.1	27.4
	MT	124	42.8	
	DT	85	29.3	72.1
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Pressure to Produce 3

		N	%	Cumulative %
Valid	DF	17	5.9	
	MF	63	21.7	27.6
	MT	136	46.9	
	DT	74	25.5	72.4

Pressure to Produce 4*

		N	%	Cumulative %
Valid	DT	31	10.7	
	MT	87	30.0	41.0
	MF	124	42.8	
	DF	46	15.9	58.7

	Total	290	100.0	

	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Quality

Quality 1

		N	%	Cumulative %
Valid	DF	3	1.0	
	MF	32	11.0	12.2
	MT	109	37.6	
	DT	143	49.3	86.9
	Total	287	99.0	
Missing	System	3	1.0	
	Total	290	100.0	

Quality 2

		N	%	Cumulative %
Valid	DF	11	3.8	
	MF	52	17.9	21.7
	MT	135	46.6	
	DT	92	31.7	78.3
	Total	290	100.0	

Quality 3

		N	%	Cumulative %
Valid	DF	8	2.8	
	MF	30	10.3	13.2
	MT	110	37.9	
	DT	140	48.3	86.2
	Total	288	99.3	
Missing	System	2	.7	
	Total	290	100.0	

Appendix G: Leadership innovative behaviour descriptive analysis.

Innovation role-modelling

Innovation role-modelling 1

		N	%	Cumulative %
Valid	NN	1	1.2	1.2
	A	27	33.3	
	SA	53	65.4	98.7
	Total	81	100.0	

Innovation role-modelling 2

		N	%	Cumulative %
Valid	NN	6	7.4	7.4
	A	44	54.3	
	SA	31	38.3	92.6
	Total	81	100.0	

Innovation role-modelling 3

		N	%	Cumulative %
Valid	D	2	2.5	2.5
	NN	7	8.6	11.1
	A	48	59.3	
	SA	24	29.6	88.9
	Total	81	100.0	

Innovation role-modelling 4

		N	%	Cumulative %
Valid	NN	2	2.5	2.5
	A	24	29.6	
	SA	55	67.9	97.5
	Total	81	100.0	

Intellectual stimulation and motivation

Intellectual stimulation & motivation 1

		N	%	Cumulative %
Valid	NN	2	2.5	2.5
	A	49	60.5	
	SA	30	37.0	97.5
	Total	81	100.0	

Intellectual stimulation & motivation 2

		N	%	Cumulative %
Valid	D	2	2.5	2.5
	NN	8	9.9	12.3
	A	47	58.0	
	SA	24	29.6	87.6
	Total	81	100.0	

Intellectual stimulation & motivation 3

		N	%	Cumulative %
Valid	SD	1	1.2	1.2
	NN	11	13.6	14.8
	A	44	54.3	
	SA	25	30.9	85.2

Intellectual stimulation & motivation 4

		N	%	Cumulative %
Valid	NN	9	11.1	11.1
	A	50	61.7	
	SA	22	27.2	88.9
	Total	81	100.0	

Total	81	100.0	

Stimulating knowledge diffusion

Stimulating knowledge diffusion 1

		N	%	Cumulative %
Valid	NN	9	11.1	11.1
	A	35	43.2	
	SA	37	45.7	88.9
	Total	81	100.0	

Stimulating knowledge diffusion 2

		N	%	Cumulative %
Valid	SD	1	1.2	
	D	3	3.7	4.9
	NN	20	24.7	24.7
	A	39	48.1	
	SA	18	22.2	70.3
	Total	81	100.0	

Stimulating knowledge diffusion 3

		N	%	Cumulative %
Valid	NN	11	13.6	13.6
	A	37	45.7	
	SA	33	40.7	86.4
	Total	81	100.0	

Providing vision

Providing vision 1

		N	%	Cumulative %
Valid	D	1	1.2	1.2
	NN	13	16.0	16.0
	A	35	43.2	
	SA	32	39.5	82.7
	Total	81	100.0	

Providing vision 2

		N	%	Cumulative %
Valid	D	4	4.9	4.9
	NN	17	21.0	21.0
	A	42	51.9	
	SA	18	22.2	74.1
	Total	81	100.0	

Providing vision 3

		N	%	Cumulative %
Valid	D	3	3.7	3.7
	NN	13	16.0	16.0
	A	48	59.3	
	SA	17	21.0	80.3
	Total	81	100.0	

Providing vision 4

		N	%	Cumulative %
Valid	D	2	2.5	2.5
	NN	15	18.5	18.5
	A	40	49.4	
	SA	24	29.6	79.0
	Total	81	100.0	

Delegating and task assignment

Delegating & task assignment 1

		N	%	Cumulative %
Valid	SD	1	.3	
	NN	5	1.7	
	A	36	12.4	
	SA	39	13.4	
	Total	81	100	

Delegating & task assignment 2

		N	%	Cumulative %
Valid	NN	13	16.0	16.0
	A	44	54.3	70.4
	SA	24	29.6	100.0
	Total	81	100.0	

Delegating & task assignment 3

		N	%	Cumulative %
Valid	D	3	3.7	3.7
	NN	10	12.3	16.0
	A	47	58.0	74.1
	SA	21	25.9	100.0
	Total	81	100.0	

Delegating & task assignment 4

		N	%	Cumulative %
Valid	D	5	6.2	6.2
	NN	13	16.0	22.2
	A	48	59.3	81.5
	SA	15	18.5	100.0
	Total	81	100.0	

Recognition and feedback

Recognition and feedback 1

		N	%	Cumulative %
Valid	A	29	35.8	
	SA	52	64.2	100.0
	Total	81	100.0	

Recognition and feedback 2

		N	%	Cumulative %
Valid	SD	1	1.2	1.2
	NN	3	3.7	3.7
	A	37	45.7	
	SA	40	49.4	95.1
	Total	81	100.0	

Recognition and feedback 3

		Frequency	Valid Percent	Cumulative Percent
Valid	D	3	3.7	3.7
	NN	12	14.8	14.8
	A	48	59.3	
	SA	18	22.2	81.5
	Total	81	100.0	

Recognition and feedback 4

		N	%	Cumulative %
Valid	NN	3	3.7	3.7
	A	55	67.9	
	SA	23	28.4	96.3
	Total	81	100.0	