

**AN EXPLORATORY STUDY OF MANAGERIAL LEADERSHIP IN MECHANISTIC,
ORGANIC AND VIRTUAL ORGANISATIONS**

by

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**THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
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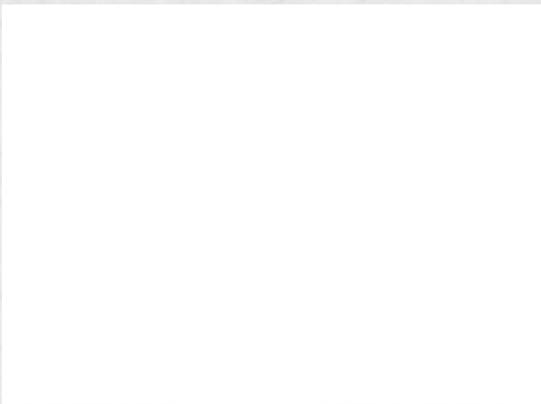


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December 2001

DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously, in its entirety or in part, submitted it at any university for a degree.



ABSTRACT

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AN EXPLORATORY STUDY OF MANAGERIAL LEADERSHIP IN MECHANISTIC, ORGANIC AND VIRTUAL ORGANISATIONS

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Current time pressures, complexity, rapid change, global competition, and the merging of computer and communication technology are facilitating a trend toward the virtual workplace. As the growth in the virtual workplace accelerates, organisations face new challenges to cope with new organisational structures and managerial leadership roles. Of particular relevance to this study is that the new organisational forms necessitate new management structures, which might be different from mechanistic structures. It also implies that the prevalence of managerial leadership in different organisational structures might be different.

Using the Multifactor Leadership Questionnaire (MLQ) of Bass & Avolio (1994) and Organisational Structure Questionnaire of Miller & Dröge (1986), this research attempted to investigate the prevalence of leadership in mechanistic, organic and virtual structures. Hypotheses were tested to determine the relationship between leadership and structure; leadership and environment; and environment and structure.

The data was collected through a field experiment. The study was aimed at middle, senior and top level management. Of the 165 questionnaires sent out, 80 middle level managers, 20 senior level managers and two top level managers completed questionnaires.

The results reflect that both transformational and transactional leadership occur in organic organisations. The results also reflect that both transformational and transactional leadership

occur in virtual organisations. The results of the survey also show that only some of the organic-mechanistic dimensions predicted the prevalence of leadership in these structures. A positive relationship was found between organic and virtual structures. Environment served as a poor predictor for the prevalence of transformational and transactional leadership in a dynamic or stable environment. The results also confirmed that virtual organisations do occur in dynamic environments. However, no relationship was found between environment uncertainty and either mechanistic or organic structure.

Conclusions are drawn from the results obtained and recommendations are made for future research.

OPSOMMING

Julia Muetudhana, MA (University of Stellenbosch)

'N EKSPLOLATIEWE STUDIE VAN BESTUURSLEIERSKAP BINNE MEGANISTIESE, ORGANIESE EN VIRTUELE ORGANISASIES.

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Huidige tydsdruk, kompleksiteit, snelle verandering, globale kompetisie en die samesmelting van rekenaar- en kommunikasietegnologie fasiliteer 'n tendens tot die ontstaan van die virtuele werkplek. Met die versnelling van die groei van die virtuele werkplek kom organisasies voor nuwe uitdagings te staan om nuwe organisatoriese strukture en leierskaprolle te hanteer. Veral relevant met betrekking tot hierdie studie, is die feit dat nuwe organisatoriese vorms nuwe bestuurstrukture wat van meganistiese strukture sou kon verskil, noodsaaklik maak. Dit impliseer ook dat die voorkoms van bestuursleierskap binne verskillende organisatoriese strukture verskillend sou kon wees.

Hierdie studie poog om die Multifaktor Leierskap-vraelys (*Multifactor Leadership Questionnaire (MLQ)*) van Bass en Avolio (1994) en die Organisasoriese Struktuur-vraelys (*Organisational Structure Questionnaire*) van Miller en Dröge (1986) te gebruik om die voorkoms van leierskap binne meganistiese, organiese en virtuele strukture te ondersoek. Hipoteses is getoets om vas te stel wat die verband tussen leierskap, struktuur en omgewing is.

Die inligting is deur middel van 'n veldeksperiment ingesamel. Dit was gemik op bestuurders op middel-, senior en topbestuurdersvlak. Een honderd vyf-en-sestig vraelyste is uitgestuur en 80 middelvlakbestuurders, 20 senior bestuurders en twee topbestuurders het vrealyste voltooi.

Die resultate toon dat beide transformasionale en transaksionele leierskap wel binne organiese organisasies voorkom. Die resultate reflekteer ook dat beide transformasionale en

transaksionele leierskap binne virtuele organisasies voorkom. Daarbenewens toon die resultate van die opname dat slegs sommige van die organies-meganistiese dimensies die voorkoms van leierskap binne hierdie strukture voorspel het. 'n Positiewe verband is tussen organiese en virtuele strukture gevind. Omgewing het as 'n swak voorspeller vir die voorkoms van transformasionele en transaksionele leierskap gedien. Die resultate het ook bevestig dat virtuele organisasies wel binne dinamiese omgewings voorkom. Geen verband kon egter tussen omgewing-onsekerheid en meganistiese of organiese struktuur gevind word nie.

Alfeidings is uit die verkreë resultate gemaak en voorstelle ten opsigte van toekomstige navorsing word aan die hand gedoen.

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CHAPTER 1

INTRODUCTION, RESEARCH PROBLEM, OBJECTIVES AND AN OVERVIEW OF THE STUDY

The purpose of this chapter is to present a reasoned exposition of the necessity and significance of the envisaged research and to provide the research problem and objectives.

1.1 Introduction

The increase in export and import of technology goods, capital and labour across national borders is leading to rapid globalisation of the world economies. As the world of business continues to globalise, organisations are rapidly moving towards business information system processes (Avolio, 2000a). The information system processes result in the convergence of computer networking and telecommunication technologies that are making it possible for groups of companies to coordinate geographically and institutionally distributed capabilities into a single virtual organisation. As the growth in the virtual workplace accelerates, organisations face new challenges to cope with their new organisational structure (Igbaria & Tan, 1998). The virtual organisation results in a new paradigm of work across time and real space that presents a dramatic change in how work is done. It presents new challenges for employees, managers, organisational scholars and traditional organisational forms also known as mechanistic systems.

As a result, virtual work programmes are proliferating rapidly in organisations all over the world. To date, however, there has been relatively little research that can help organisations understand and manage virtual employees. The research that does exist generally focuses on the experiences of virtual workers themselves. For example, research has investigated telecommuters (Shamir & Solomon in Cooper & Rousseau, 1999), the role of communication in predicting the strength of telecommuters' organisational identification (Wiesenfeld, Raghuram & Garud in Cooper & Rousseau, 1999) and the effectiveness of remote workers in virtual organisations (Staples, Hlland & Higgins, 1998). Relatively neglected to date, is the role that managers and supervisors play in the success or failure of a virtual work initiative. The research suggests that these managers play a critical role: they may function as an obstacle to the spread of virtual work and their cooperation is essential if virtual work initiatives are to succeed.

To understand managers' experiences in a virtual context, it is essential to understand how virtual work alters the organisation as a whole. Virtual work has the capacity to change not only the location where work is performed, but also some of the most fundamental aspects of organisations, including organisational forms (Garud & Dunbar in Cooper & Rousseau, 1999). Whereas traditional organisations may be best characterised as hierarchies, virtual organisations may require a different structure and governance system. Although it is becoming increasingly clear that traditional organisational forms may not be well suited to the virtual context, it is not yet clear what form virtual organisations will take. One possibility is that virtual organisations may be changing from hierarchies to network organisations (Cooper & Rousseau, 1999; Cummings & Worley, 2001; Greenberg & Baron, 1997; Hedberg, Dahlgren, Hansson & Olve, 1994).

With uncertainty and change in organisational design, employees are likely to perceive that their organisation's identity is changing. Of particular relevance to this research, is the fact that these new organisational forms necessitate new governance structures, creating ambiguity about the role of managers. Ambiguity or change in the organisational identity and governance structures may threaten managers' identification with the organisation in general and with their managerial role in particular. Departure from the traditional hierarchical organisational form may erode long-standing status structures, the same status structures that privileged managers. With their status eroding, managers may experience some loss of esteem. Furthermore, hierarchical structures conferred power and authority on managers, implicitly rewarding the "command-control" style of management. As organisational forms and governance structures change, power and control may be based on different criteria, thus threatening traditional managers' sense of control over outcomes (Cooper & Rousseau, 1999; Hedberg et al., 1994).

In summary, the research proposes that different organisational structures do require different managerial styles. Research conducted by Collins & Moore (1970) and Kets de Vries & Miller (1984) has shown that small organisations can be influenced dramatically by the personalities of their leaders. Therefore, it is reasonable to expect that in this context their personalities will also have a major impact on structure. The legacy of past theory and research indicates that organisational size, technology and environment can have considerable influence on structure (Burns & Stalker 1961; Lawrence & Lorsch, 1976), Miller & Droge 1986). Researchers argue, from this perspective, that certain preferences, goals and interpersonal styles possessed by chief executive officers (CEOs) that induce them to create a

particular kind of organisation – to select a certain strategy or a certain structure. The argument derived from the research conducted by Miller & Droge (1986), is that those leaders and other contingencies, for example the environment, technology and organisational size, have a considerable influence on structure.

According to Cooper & Rousseau (1999), for many employers the virtual workplace, in which employees operate remotely from each other and from managers, is a reality now, and all indications are that it will become even more prevalent in the future. Despite the rapid increase in the number of organisations that are becoming distributed and network based, little is known about the structure or the leadership performance within these organisations. Since empirical research in the area of virtual organisations and their structure is in its infancy, the next logical step is to develop an understanding of this new form of organisation. This study signifies one such attempt and examines the mechanistic, organic and virtual structures and the prevalence of leadership styles in these organisations.

1.2 The South African context

Of a sample of 27 South African organisations, 60% of organisations are considering using the virtual workplace as a competitive advantage for their business in the next three to five years. Most of these organisations (78%) have also installed enterprise-wide information systems, whereas only 45% have redesigned work, jobs or pay along with these technological installations. In 76% of the cases, the organisations agree that, due to the impact of virtual technologies, the future workplace will need to be more flexible; knowledge-based; require less face-to-face interaction; emphasise more leadership through technology; and make more use of technology to conduct education and training (Wallace, 2000, p.4).

Research conducted by the Center for Work Force in the United States of America, has indicated a 67% failure rate of wide ranging technology installations. These results were based on the return on investment and improvement in productivity. In South Africa, the same trend has been perceived, namely that in some organisations technology that is applied to date still reflects the 1980s (see Figure 1.1) (Wallace, 2000, p. 4).

Figure 1.1 demonstrates how organisational technology has changed over the last few decades and how organisations have responded in embracing these systems by changing the nature of their workplace designs. Research in South Africa indicates that most organisations do not have the

appropriate workplace designs to fully optimise the changes in technology. The research serves as an indication that the virtual organisations in South Africa are still in their infancy, but it also indicates that much of the technology required to make this happen, has been developed and many organisations already have begun the transformation toward virtual operation (Wallace, 2000, p. 5)

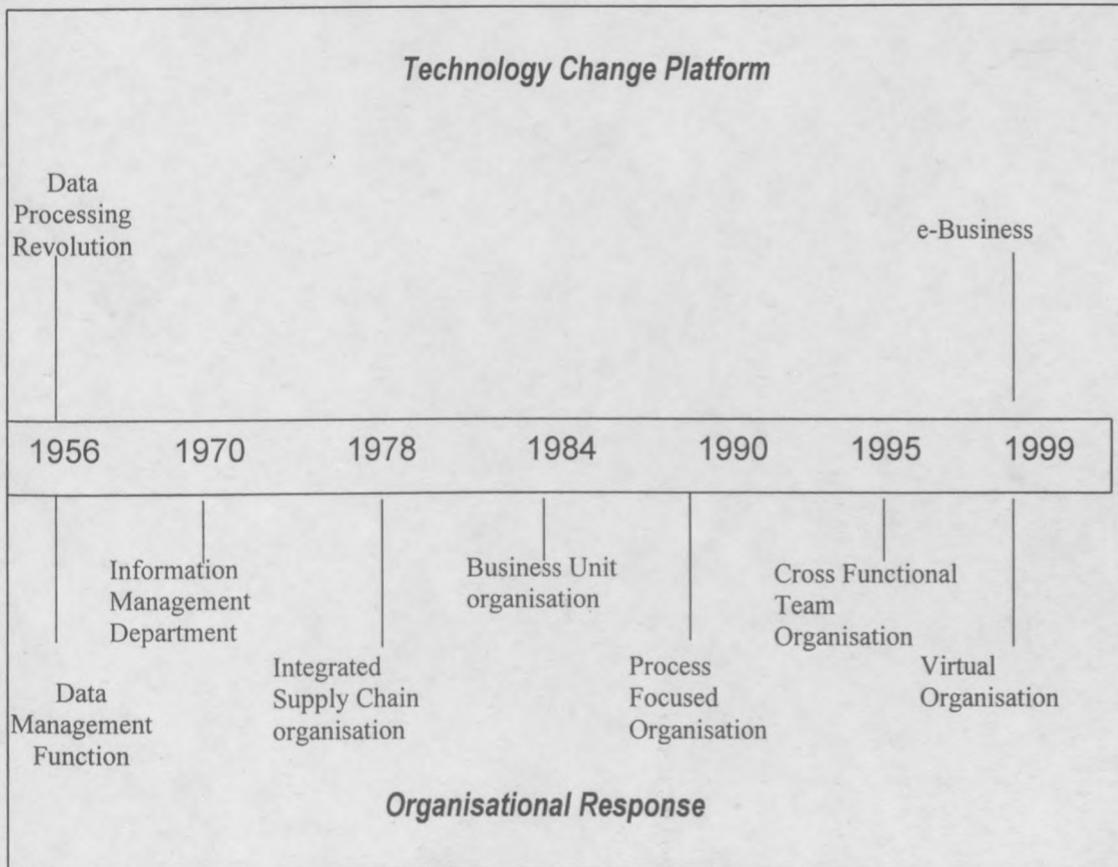


Figure 1.1: Evolution of organisational technology

(Wallace, 2000, p. 6)

1.3 The research problem

Organisations are busy evolving from relatively simple environments with high hierarchical control and orderly working relations, to turbulent environments with linear, flatter and more flexible structures, where workers operate remotely from each other and from managers. These structural changes have significant implications for the type of work performed by managers and professionals. If organisational structures change as a result of virtual organisation, then the skills, practices and attitudes that have been highly valued and effective for managers in a traditional office might be difficult to sustain in a virtual organisation. Managers can no longer supervise and physically monitor employees' performance closely in a traditional manner. Different organisational environments require different managerial leadership styles. If managers cannot adapt to the changes of the environment, they will become extinct or eliminated.

1.3.1 Research objectives

The research objectives were derived from the above-mentioned research problem. The following objectives were formulated:

- The objective of the study was to conduct an empirical investigation to establish whether different organisational structures correlate with different prevalent leadership styles in organisations.
- The study aimed to contribute towards providing more knowledge and insight for human resource management to strategically select appropriate managers and managerial training programmes and to develop leadership potential within organisations.
- The study aimed to as a foundation to construct models for change that could help managers to transform traditional organisations into virtual organisations, where and if appropriate.
- The research was seen as laying the foundation for further research into the linkages of organisational structures, effectiveness and leadership.

1.4 Structural outline of the thesis

Chapter 1 identifies the objectives of the study and, through the reasoned argument, provides the necessity of the envisaged study.

Chapter 2 provides the literature review based on the relationship between organisational design and transformational and transactional leadership style. Terminology is also clarified. The primary focus is on:

- Defining transactional, transformational and indirect leadership;
- Defining organisational design and structure;
- Defining mechanistic, organic and virtual structure;
- Discussing an integrated model of leadership and structure;

Chapter 3 is focused on a discussion of the research methodology and the measurement instruments.

Chapter 4 reports on the analysis of the research data and the findings.

Chapter 5 provides a summary of the research findings and the recommendations for future research.

CHAPTER 2

ANALYSIS OF LITERATURE REGARDING THE INFLUENCE OF ORGANISATIONAL LEADERSHIP ON ORGANISATIONAL STRUCTURE AND DESIGN

2. Introduction

In this chapter, the specific focus is on transformational leadership theories. Secondly, the chapter conceptually defines organisational structure and design, and distinguishes between mechanistic, organic and virtual structures. Thirdly, it concludes with the integration of these constructs (i.e. leadership and structure).

2.1 Transformational leadership

2.1.1 The development of transformational leadership theories

In order to understand the development of transformational leadership theories, it is essential to focus on the concept of charisma (Durand, 2000). Weber (Bryman, 1992) defined the term charisma as a term which is applied to a particular quality of an individual personality by virtue of which he or she is considered extraordinary, and as if endowed with exceptional powers or qualities. According to House (1977), personal characteristics that contribute to charismatic leadership are a strong need for power, high self-confidence, and a strong conviction in their own beliefs and ideals. House provides the most comprehensive approach to the analysis of charismatic leadership in the context of the formal organisation.

Charismatic leadership theory gradually evolved into the theory of transformational leadership (Durand, 2000). The term transforming leadership originated with Burns (1978). Burns (1978, p.20) describes transforming leadership as a process in which leaders and followers raise one another to higher levels of morality and motivation. According to Burns (Yukl, 1998), transactional leadership involves values, but these values are relevant to the exchange process. They include honesty, fairness, responsibility and reciprocity.

In the mid-1980s, Bass (1985) provided a more expanded and refined version of transformational leadership that was based on, but not fully consistent with the prior works by Burns and House. Like

Burns (1978), Bass draws a distinction between transactional and transformational leadership, but goes further, at the conceptual level, in at least three major respects. First, whereas Burns conceived the two types of leadership as opposite ends of a continuum, Bass views them as separate dimensions. The implication this conception for Bass is that a leader can be both transactional and transformational. Second, Bass seeks to outline the components of the two types of leadership, and as such is concerned with specifying their content more precisely than is done in Burns's theoretical foundations. Third, they differ over the ascription of transformational leadership, for example, Bass expanded on the needs and wants of Maslow's hierarchy needs, while Burns ignored this (Bryman, 1992).

2.1.2 Models of transformational leadership

Tromp (1996) refers to the following models of transformational leadership competencies (Bennis & Nanus and Tichy and Devanna, in Yukl (1998); Conger (1989), Nadler & Tushman (1990) and Bass (1985):

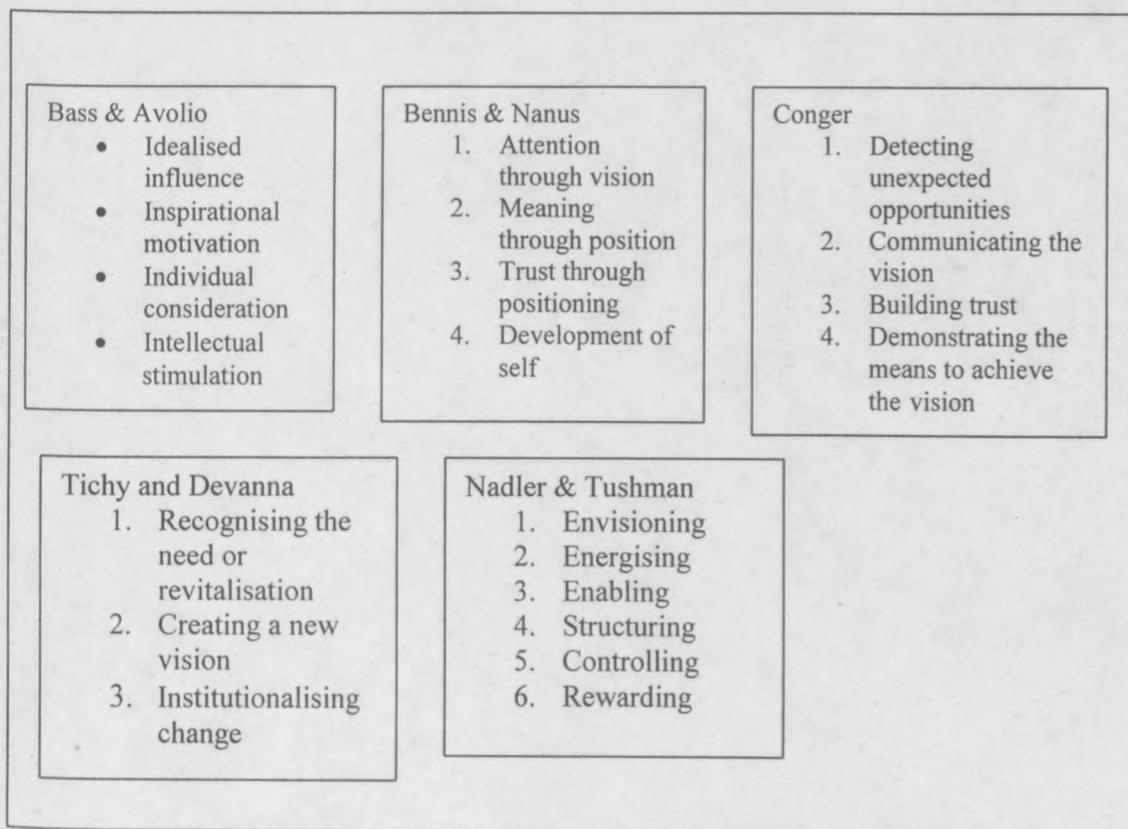


Figure 2. 1: A comparison of five different models of transformational leadership.

Adapted from Durand (2000, p.53).

2.1.3 Tichy and Devanna

The research by Tichy and Davanna reinforces a definition by Bass (1985) that describes transformational leadership as a behavioural process capable of being learned and managed. They

identified processes that occur when leaders transform and revitalise organisations. Transformation can be viewed in three phases: Recognition of the need for change, followed by creation of a new vision and institutionalising change (see Figure 2.1).

Phase one challenges leaders in organisations to recognise threat from the external environment and to persuade people in the organisation to recognise the need for major changes. *In phase two*, it is the task of the leader to create a new vision which is positive and accepted by followers. Followers need to see change as necessary and desirable for the organisation (Durand 2000). *Phase three* entails the implementation of these changes and it requires strategic planning and commitment of key people within the organisation. Often the use of special tasks forces, planning meetings and team-building interventions occur to facilitate the change.

2.1.4 Bennis & Nanus

These researchers identified some common themes in the interview protocols that provide insights about the nature of effective transformational leadership. The transformation process is conveyed through *developing a vision, developing commitment and trust and facilitating organisational learning* (see Figure 2.1)

The purpose of *developing a vision* focuses on followers' values and beliefs which will increase the intensity and commitment towards the attainment of this vision. A transformational leader should have the capacity to communicate the vision to the individuals in the organisation through persuasion and inspiration, and not by edict or coercion. *Trust through positioning* is achieved by transformational leaders who demonstrate commitment to the vision by their behaviour and by the way in which they reinforce the behaviours of followers. Trust is also achieved through the consistency and constancy of leaders with regard to the vision. *Development of self* is characterised by leaders who develop their skills and increase the knowledge gained from experiences of success and failure. They recognise the inevitability about continually gathering information of the changing environment and mistakes are regarded as opportunities to learn.

2.1.5 Conger

Conger's model consists of four stages of transformational leadership. The four stages are as follows: *Detecting unexpected opportunities, communicating the vision, building trust and demonstrating the means to achieve the vision* (see Figure 2.1).

The first stage implies assessment of current constraints from the leader and the opportunities in the external environment. During the *second stage*, the leader articulates the vision to followers in a

meaningful way. During the *third and fourth stages*, the leader builds trust and commitment with followers and demonstrates the means to achieve the vision.

2.1.6 Nadler and Tushman

Nadler and Tushman (1990) distinguished between two types of leadership styles, namely charismatic and instrumental leadership. Charismatic and instrumental leadership each consists of three components. *Charismatic leadership consists of envisioning, energising and enabling. Instrumental leadership consists of structuring, controlling and rewarding* (see Figure 2.1).

The *first component of charismatic leadership* is envisioning. A vision should be seen as realistic and achievable in order to create employee commitment within the organisation. The *second component is energising*. Different leaders use diverse methods to energise their followers, for example personal excitement, confidence in own ability and direct contact with followers. The *third component is enabling*, which entails support from the leader to assist followers facing challenging goals. For leadership to be effective, charismatic leadership should be supplemented with instrumental leadership. Instrumental leadership is based on the expectancy theory of motivation that suggests that individuals will follow behaviours that create valued outcomes. Instrumental leadership style can be divided into three categories: structure, control and reward. *Structure* entails goal setting, setting elevated standards and defining the roles and tasks of subordinates. *Control* consists of systems that are installed to measure, administer and monitor behaviour and implement corrective action, if needed. *Rewarding* includes rewards and punishments that are administered according to the degree to which behaviour is consistent with process of change.

2.1.7 Bass and Avolio's full range leadership model

Factor analytical studies conducted by Bass & Avolio (1994) identified the components of transformational leadership and transactional leadership. Transactional leadership *depends on contingent reward and passive or active forms of management-by-exception*. Transformational leadership is an expansion of transactional leadership and it consists of the following components: *Individual consideration, intellectual stimulation, inspirational motivation and idealised influence*.

Transactional Leadership

Transactional leadership occurs when the leader rewards or disciplines the follower, depending on the adequacy of the follower's performance (Bass & Avolio, 1994). The leader clarifies the performance criteria, in other words what is expected from subordinates, and what they receive in return.

Transactional leadership consists of the two factors: contingent reward and management-by-exception (passive or active).

Transactional leadership factors

Management-by-exception: When practicing management-by-exception, a leader only takes action when things go wrong and standards are not met (Bass & Avolio, 1994). There are two types of management-by-exception, *passive and active*.

Management-by-exception (Passive): The passive form characterises leaders who only take action after deviations and irregularities have occurred. These leaders set standards but wait for deviations to occur, then correct. They wait for problems to arise and they react to mistakes. *Management-by-exception (Active):* The active form characterises a leader who actively seeks deviations from standard procedures and takes action when irregularities occur. These leaders are alert to mistakes and remain alert for infractions of the rules. They teach followers how to correct mistakes. The difference between the two is that, in the active form, the leader searches for deviations, whereas in the passive form the leader waits for problems to materialise and then acts.

Contingent reward: This refers to an exchange process between leaders and followers in which effort by followers is exchanged for specified rewards (Northouse, 1997). These leaders recognise what needs to be accomplished and provide support in exchange for required effort. They give recognition to followers when they perform and meet agreed-upon objectives. They follow up to make sure that the agreement is satisfactorily met. They arrange to provide the resources needed by followers to accomplish their objectives.

Transformational leadership

Bass & Avolio (1994) define transformational leaders as people who have a sense of self-worth which enables them to energise followers to take actions that support a higher purpose rather than their own self-interest, and they are able to create an environment in which people are encouraged to address problems and opportunities. Transformational leadership can be accomplished through four factors: individual consideration, intellectual stimulation, inspirational motivation and idealised influence.

Transformational leader factors

Individualised consideration: This is represented through leaders who provide a supportive climate in which they attend to individual needs of followers, by recognising the differences among people with regard to their strengths and weaknesses, likes and dislikes. Leaders act as mentors, counsellors and

advisors while trying to assist individuals to become fully actualised. The leaders provide appropriate challenges and learning opportunities and they delegate tasks to help develop followers and encourage followers to take initiatives.

Intellectual Stimulations: Transformational leaders stimulate their followers to be innovative and creative and to re-examine assumptions. They encourage them to approach old situations with new tactics and perspectives and they encourage a broad range of interests. They create a holistic picture that is imaginative and they modify the context to support the vision.

Inspirational Motivation: Transformational leaders behave in ways that motivate and inspire those around them by providing meaning and challenge to the work of their followers (Bass & Avolio, 1994). They clarify future states, treating threats as opportunities and clarifying expectations and missions. These leaders align individual and organisational goals by creating a sense of priorities and purpose and by reducing complex matters to key issues, using simple language.

Idealised Influence: This describes leaders who act as strong role models for followers. The leaders are admired, respected and trusted. Followers identify with these leaders and want to emulate them. These leaders demonstrate a high standard of ethical and moral conduct and create a sense of joint mission and ownership. According to Bass & Avolio (1994), these leaders share risks with followers and are consistent rather than arbitrary.

Transformational leaders have positive and direct effects on the development and performance of both their direct followers and work units. Direct leadership is directly in contact with immediate followers.

2.1.8 Indirect leadership

Indirect leadership or "leadership at a distance" is evident when the development and performance of individuals occur when they do not report directly to the focal leader. The purpose of indirect leadership is to suggest that transformational leaders, regardless of their organisational position, can use the Four Is, namely intellectual stimulation, idealised influence, inspirational motivation and individualised consideration, to influence their followers at a distance (Bass & Avolio, 1994). Indirect leadership can occur through intermediaries and mass media.

Indirect leadership through intermediaries

Intermediaries are present for example, when first-line managers directly influence first-line supervisors and the first-line supervisors, in turn, directly interact with the operating employees. The operating employees indirectly manifest the first-line managerial leadership or bypass. According to Bass & Avolio

(1994, p. 30), the number of intermediaries multiply for the leader in larger multilevel hierarchies. Characteristics of such mediated leadership include the following:

1. Leader and followers are less likely to know one another personally;
2. The number of followers per leader can be expanded; this is accompanied by expansion in the number of intermediaries;
3. The interactions are likely to be less spontaneous;
4. Fewer short-term, momentary issues are likely to be involved;
5. Spontaneous action and reaction become difficult, if not impossible;
6. The leader has to consider more factors that are likely to be beyond his or her control.

Indirect leadership via mass media

Indirect leadership can occur through the intermediation of mass media. The leader of a large multinational corporation needs to be able to influence his or her large population of constituents or thousands of employees through the mediation of bulletins, videotapes, or other mass media and staged events. Indirect leadership can be illustrated through the cascading and bypass models (Bass & Avolio, 1994).

Cascading model of indirect leadership

Cascading refers to the modelling of behaviour of leaders at successively lower levels of management. A focal leader at a particular level has influence on followers at lower levels beyond his or her direct followers (Bass & Avolio, 1994). (This model permits the development of strong leaders at lower levels). Figure 2.2 depicts that boss A has a direct or a solid influence with manager B and manager C. The leadership of manager B and C therefore is a manifestation of leadership A. Supervisors D and E represent the direct behaviour of manager B and supervisor F and G represent the direct behaviour of manager C. According to Bass & Avolio (1994), supervisors D, E, F and G are influenced indirectly by boss A, through managers B and C. This indirect leadership of boss A on supervisors D, E, F and G is depicted by dashed lines in Figure 2.2.

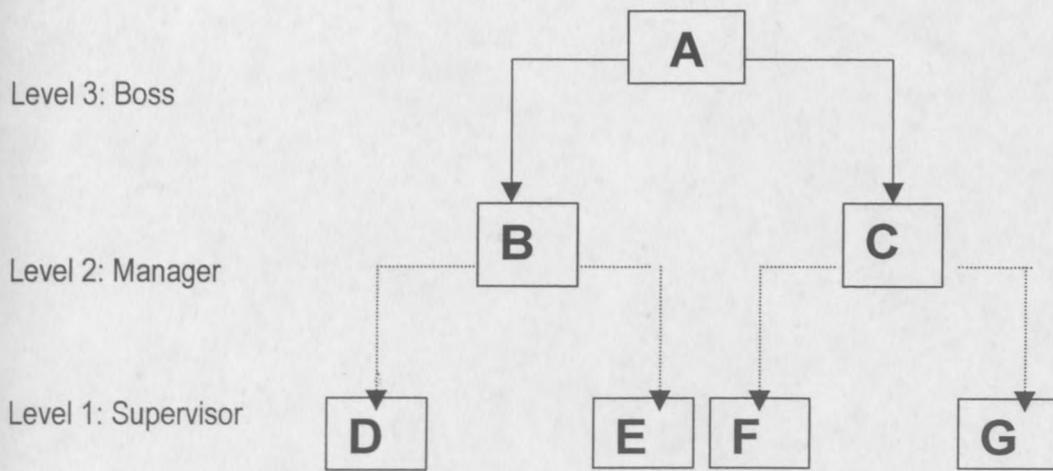


Figure 2.2: Cascading model

Adapted from Bass & Avolio (1994, p. 36).

Bypass model

The bypass model refers to a level of management being skipped in terms of relationship between leaders and followers. In other words, a focal leader's behaviour influences non-immediate subordinates that is indirect leadership without operating through his or her direct followers. The bypass model involves considerable social distance between leaders and followers, explaining dyadic relationships in adaptive and managerial collectives or settings. The bypass model can be expected to operate more frequently when job roles are completely isolated and insulated from continuous technological processes. As depicted in Figure 2.3, boss A exerts indirect leadership with his or her non-immediate followers by forming direct relationships (solid lines) with supervisors D, E, F and G. These relationships are dyadic or one-to-one in nature and different support is given to each supervisor (Bass & Avolio, 1994).

2.1.9 Distributive leadership

Distributive leadership occurs when there is no hierarchy of authority; all important decisions are made collectively and all the leadership responsibilities are shared among the members (Yukl, 1998). These leaders mainly work with self-designed teams or autonomous work groups who make most of the decisions necessary to operate a small business. According to Shipper & Manz (Yukl, 1998), distributive leadership is more complicated in larger organisations that cannot operate effectively as single self-defining teams. To date, little empirical research has been conducted on distributive leadership and the effectiveness of this leadership style in organisations.

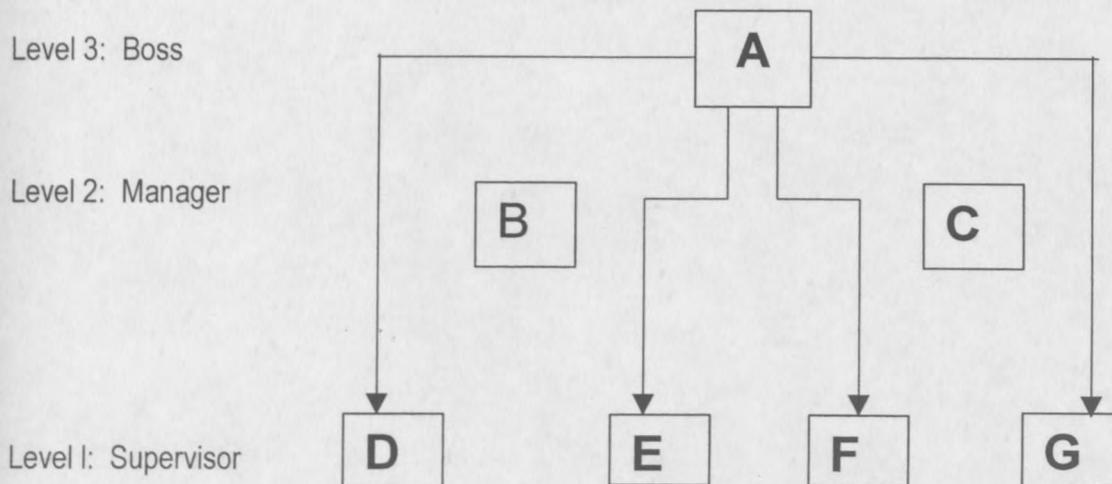


Figure 2.3: Bypass Model

Adapted from Bass & Avolio (1994, p. 34).

2.2 Organisational structure and design

Organisational design is the process of identifying and configuring an organisation's strategy and structure to achieve its mission and goals (Weiss, 2001). Organisational design is about how and why various means are chosen and it requires managers to strike a balance between external pressures from the organisational environment and internal pressures within the organisation.

Organisational structure refers to the formal system of tasks and authority relationships that control how people coordinate their actions and use resources to achieve organisational goals (Jones, 2001). Therefore, structure is the formal plan of how to achieve efficient division of labour and effective coordination of member activities.

Importance of organisational structure

Organisational structures serve three basic functions. First and foremost, structures are intended to produce organisational outputs and to achieve organisational goals. Secondly, structures are designed to minimise, or at least regulate, the influence of individual variations on the organisation. Structures are imposed to ensure that individuals conform to the requirements of organisations and not vice versa. Thirdly, structures are the settings in which power is exercised, in which decisions are made, and organisation activities are carried out. It identifies and defines jobs and formal reporting relationships (Hall, 1982, p. 54). In short, structure serves as a vehicle for coordinating and delegating work to help people implement the organisation's goals and strategies.

2.2.1 Environment and organisation structure

The word environment means the aggregate surrounding things, conditions or influences. The general environment comprises of virtually everything outside the organisation that affects the organisational capacity to obtain resources in a particular environment. Theory and research indicate that organisational size; technology and environment can have considerable influence on structure, under particular conditions (Burn & Stalker, 1961, Lawrence & Lorsch, 1967).

The Burns and Stalker study

Burns and Stalker (1961) were the first to establish the linkage between organisation structure and environment. They found that organisations need different kinds of structure to control activities when they need to adapt and respond to change in the environment (Jones, 2001). They found that companies with a centralised, formalised and standardised way of coordinating and motivating people are characteristic of a mechanistic structure. They concluded that a mechanistic form was appropriate for organisations with a relatively stable environment. The organic form was appropriate for organisations with a dynamic, uncertain environment, where rapid communication and information sharing are often necessary to respond to customer needs and develop new products. According to Jones (2001), Burns and Stalker concluded that organisations should design their structure to match the dynamisms and uncertainty of their environment.

The Lawrence and Lorsch study

Lawrence and Lorsch (1967) investigated the relationship between the structural characteristics of complex organisations and the environmental conditions these organisations face (Naraynan & Nath, 1993). The study by Lawrence and Lorsch showed how companies in different industries differentiate and integrate their structures to successfully fit the characteristics of their industry. They found that the higher the perceived uncertainty of the environment, the more differentiated and integrated the company in the industry became in order to compete in that environment. Also, the lower the perceived uncertainty of the environment, the less differentiated and integrated the company in that industry (i.e., the more standardised, formalised and centralised the company's structure) (Weiss, 2001, p. 322). Figure 2.4 summarises the conclusion from Burns and Stalker's and Lawrence and Lorsch's contingency studies.

Figure 2.4 also explains the relationship between environmental uncertainty and organisational structure. Studies by Lawrence and Lorsch and by Burns and Stalker indicate that organisations should adapt their structure to reflect the degree of uncertainty in their environment. Companies with a mechanistic structure tend to fare best in a stable environment. Those with an organic structure tend to fare best in an unstable, changing environment (Jones, 2001, p. 174).

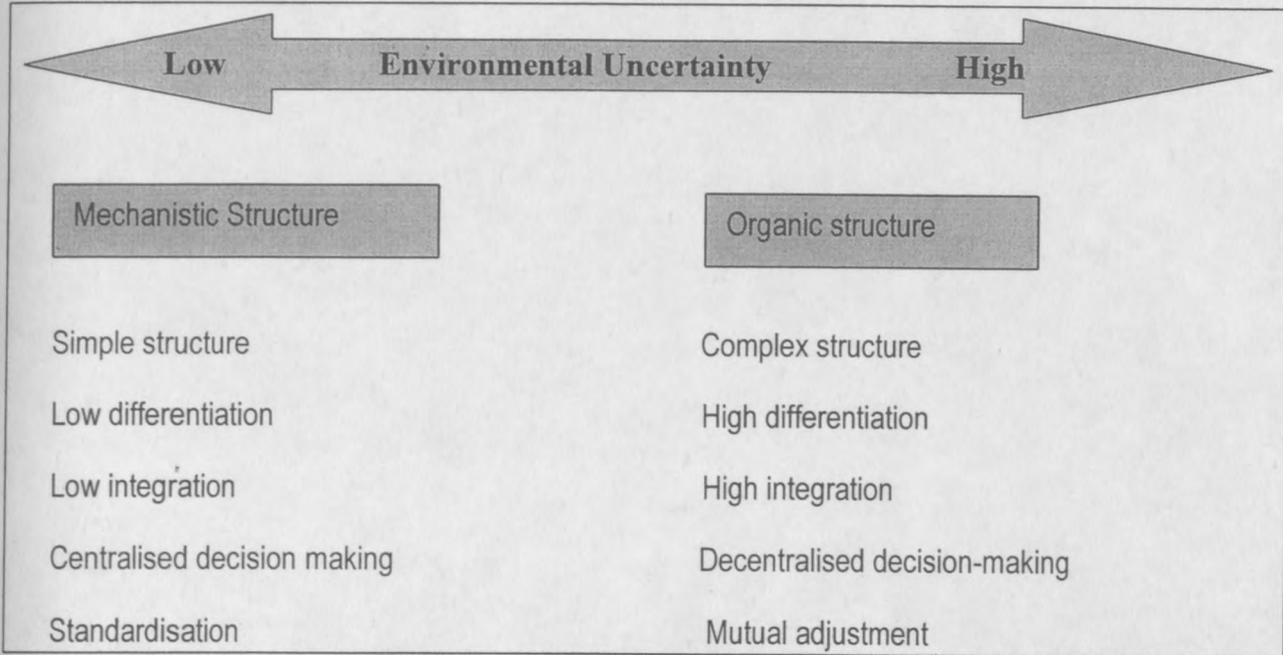


Figure 2.4: The relationship between environmental uncertainty and organisational structure.

Adapted from Jones (2001, p. 174).

2.2.2 Sources of uncertainty in the organisational environment

An organisation is an open system. In order to exist, it must maintain a favourable balance of transactions with its environment and must cope with external threats of many types. All organisations are confronted with uncertainty, and therefore organisations must manage the uncertainties in each of the environmental components they operate. Three factors give rise to environmental uncertainty: dynamism, complexity and the richness of the environment (Jones, 2001).

Environmental dynamism refers to the degree and rate of forces of change in an environment (i.e. stable or unstable). The more stable the environment over time, the easier it is to predict the use of resources to manage in that environment and the more unstable (dynamic) the environment over time, the more difficult it is to predict the use of resources to manage in that environment. *Complexity* refers

to the number of tasks and work activities in the organisation. The degree of complexity depends on the environment; the more the activities required from the environment, the more the structure would be affected. Low complexity requires a simple structure and high complexity requires a more complex structure (Weiss, 2001). Dynamic environments tend to be more complex and stable environments tend to be less complex. *Environmental richness* refers to the obtainable resources in the environment that an organisation is able to apply to succeed. An environment can be rich or poor in terms of the amount and degree of resources essential for the specific industry and company to succeed.

After the process of identifying and analysing the environmental components which effect organisational structure, managing effectively in this environment requires the use of two principles: differentiation and division of labour.

Differentiation is the process by which an organisation allocates people and resources to organisational tasks and establishes authority relationships that allow the organisation to achieve its goals. In short, it is the process of establishing and controlling the division of labour, or the degree of specialisation, in the organisation (Jones, 2001). In a simple organisation where sub-environments of an organisation and tasks are very similar, differentiation is low because the division of labour is low. In a complex organisation where relevant sub-environments are very diverse with respect to task requirements, both the division of labour and differentiation are high.

2.3. Mechanistic organisations versus Organic systems

2.3.1 Mechanistic organisations

2.3.1.1 Organisational dimensions

Organisational dimensions determine how the interdependent components are going to be integrated and differentiated to accomplish organisational goals. There are three principles that organisational leaders and managers can use to design a competitive structure to fit their operating environments.

Hierarchy of authority

The word hierarchy refers to a classification of people according to authority and rank (Jones, 2001). Hierarchy of authority represents the extent to which decision-making processes are prescribed and where formal power resides. This dimension requires managers to ask how flat or tall, how large or

small the structure should be to best accomplish required work and meet market needs (Weiss, 2001). The importance of authority serves as a basis of coordinating interdependent work roles for motivating the acceptance of managerial decisions by subordinates.

Centralisation

Hall (1982) defines centralisation as the level and variety of participation in strategic decisions by groups relative to the number of groups in the organisation. The greater the level of participation by a greater number of groups in an organisation, the *less* the centralisation. When most decisions are made hierarchically, an organisational unit is considered to be centralised; a decentralised unit generally implies that the major source of decision making has been delegated to line managers and subordinate personnel.

Formalisation

According to Gibson, Ivancevich and Donnelly (1997), the dimension of formalisation refers to the extent to which expectations regarding the means and ends of work are specified, written and enforced. Formalisation represents the use of rules in an organisation. Some organisations carefully codify each job, describing the specific details, and then ensure conformity to the job prescriptions. Other organisations have loosely defined jobs and do not carefully control work behaviour. Formalisation or standardisation measures the proportion of codified jobs and the range of variation that is tolerated within the rules defining these jobs. An organisation structure described as highly formalised would be one with rules and procedures to prescribe what each individual should be doing and vice versa. Such organisations have written standard operating procedures, specified directives, and explicit policy organisation.

2.3.1.2 The principles of bureaucracy

The concept bureaucracy originated with Max Weber (1864 - 1920). He developed principles for designing a hierarchy so that it effectively allocates decision-making authority and control over resources. A bureaucracy is a form of organisational structure in which people can be held accountable for their actions because they are required to act in accordance with rules and standard operating procedures. The bureaucratic principles presented in Table 2.1 offer clear prescriptions for how to create and differentiate organisational structure so that task responsibility and decision-making

authority are distributed to maximise organisational effectiveness. Weber argued that these principles underlie effective organisational structure and define a bureaucratic structure.

Table 2.1: The Principles of Bureaucratic Structure

Principle One: A bureaucracy is founded on the concept of rational-legal authority.

Principle Two: Organisational roles are held on the basis of technical competence.

Principle Three: A role's tasks, responsibility and decision-making authority and its relationship to other roles should be clearly specified.

Principle Four: The organisation of roles in a bureaucracy is such that each lower office in the hierarchy is under the control and supervision of a higher office.

Principle Five: Rules, standard operating procedures, and norms should be used to control the behaviour and the relationship between roles in organisation.

Principle Six: Administrative acts, decisions and rules should be formulated and put in writing.

Adapted from Jones (2001, p. 77).

2.3.1.3 Mechanistic systems

Burns and Stalker (1961) conducted a comparative study and concluded that different organisation designs and structures respond to different environments. Mechanistic systems are characterised by reliance on formal regulations, centralised decision making, narrowly defined job responsibilities and a rigid hierarchy of authority. In a mechanistic system, higher-level departments set approved goals and detailed budgets for lower-level departments and issue directives to them. A mechanistic system has as many levels in its hierarchy as necessary to achieve tight control (Hellriegel, Slocum & Woodman, 2001). Tasks and roles are coordinated primarily through standardisation. According to Jones (2001), mechanistic structures are designed to induce people to behave in predictable, accountable ways and behaviour inappropriate to the role is discouraged or prohibited. As a result, mechanistic systems emphasise procedures and rules. Hierarchy of authority is used as the principle of integrating mechanisms both with and between functions. Organisations do not need to use complex integrating mechanisms to prevent miscommunication. The key for using mechanisation is the lack of change. If the environment does not change, a highly mechanistic organisational form can be very efficient. According to Greenberg & Baron (1997) a mechanistic organisation occurs under stable conditions.

2.4 Organic systems

Organic systems stand in sharp contrast to the mechanistic system. Decisions and control are decentralised and shared at all levels of the organisation. Roles are loosely defined and people perform diverse tasks and continually develop skills in new activities. Thus, organic systems seek to maximise satisfaction, flexibility and development. Employees from different functions work to solve problems mutually and become involved in each other's activities. As a result, a high level of integration and joint specialisation is required so that employees can share information and overcome problems caused by differences in subunit orientation. The integration of functions is achieved by means of complex mechanisms like task forces and self-managed teams. Self-managed teams are formal work groups consisting of people who are jointly responsible for ensuring that the team accomplishes its goal and who lead themselves. As discussed earlier, decentralising authority to lower-level employees and placing them in teams reduces the need for direct, personal supervision by managers and organisations become flatter. Coordination is achieved through mutual adjustment as people and functions work out role and responsibility, and as rules and norms emerge from the ongoing interaction of organisational members (Jones, 2001). Thus, organic systems are highly differentiated and consist of mutual adjustment mechanisms for responding to the unpredictable inputs from the environment. According to Greenberg & Baron (1997), organic systems occur under dynamic conditions.

Table 2.2 draws a comparison between mechanistic and organic structures. However, it should be remembered that mechanistic and organic systems are ideal forms of organisations. According to Jones (2001), the most successful organisations are those that have achieved a balance between the two, so that they are simultaneously mechanistic and organic.

Table 2.2: Mechanistic versus organic structure

Mechanistic structures result when an organisation makes these choices:	Organic structures result when an organisation makes these choices:
Individual specialisation Employees work separately and specialise in one clearly defined task.	Joint specialisation Employees work together and coordinate their actions to find the best way of performing a task.
Simple integrating mechanisms Hierarchy of authority is clearly defined and is the major integrating mechanism.	Complex integrating mechanisms Task forces and teams are the major integrating mechanisms.
Centralisation Authority to control tasks is kept at the top of the organisation. Most communication is vertical.	Decentralisation Authority to control tasks is delegated to people at all levels in the organisation. Most communication is lateral.
Standardisation Extensive use is made of rules and SOPs to coordinate tasks, and the work process is predictable	Mutual adjustment Extensive use is made of face-to-face contact to coordinate tasks, and the work process is relatively unpredictable.
Status-conscious informal organisation Employees protect their area of authority and responsibility from others.	Expertise-conscious informal organisation Employees share their skills with others, and authority and responsibility change over time.

Adapted from Jones (2001, p. 54)

2.5 Mintzberg's Framework: Five organisational forms

The mechanistic and organic systems provide a narrow description on how organisations should be developed. Mintzberg (1983) has developed a classification of five different organisational designs that represent an evolution, as well as a general classification of structure. These structures are composed of five basic elements: Operating core, strategic apex, middle line, technostructure, and support staff.

The *operating core* of the organisation encompasses the operators who perform the basic work directly related to the production of products and services, for example, waitresses, teachers and hairdressers. The *strategic apex* is charged with ensuring that the organisation serves its mission in an effective way, and also that it serves the needs of those who control or otherwise have power over the organisation, such as the state, trade union and share holders. The strategic apex is joined to the operating core by the chain of *middle line managers* with formal authority. This chain runs from senior managers to the first-line supervisors, who have direct authority over the operators and embodies the coordinating

mechanism that is called direct supervision. The *technostructures* involve those specialists responsible for standardising various aspects of the organisation's activities. Examples include accountants, auditors and computer system analysts (Greenberg & Baron, 1997). The *support staff* refers to the existence of great numbers of units within the organisation that are specialised and provides support to the organisation outside its operating workflow. Examples include those involved with bookstores, printing services, gardening services, and security services.

Mintzberg (1983) identified five specific organisational structures where the basic elements best fit into these structures.

The *simple structure* is characterised by little or no technostructure, few support systems, a loose division of labour, minimum differentiation among its units, and a small managerial hierarchy. Little of its behaviour is formalised and it makes minimal use of planning, training and liaison devices. It is above all organic. Coordination in the simple structure is effected largely by direct supervision. Specifically, power over all-important decisions tends to be centralised in the hands of the chief executive officer. Thus, the strategic apex emerges as the key part of an operating core. For example, many small organisations consist of simple structures. The simple structure occurs in a simple and dynamic environment.

The *machine bureaucracy* is highly specialised with routine operating tasks and many formalised procedures in the operating core. As a result, decision-making and communication are highly formalised and centralised throughout the organisation, and this results in a sharp distinction between line managers and staff. Large-sized units at the operating level rely on the functional basis for grouping tasks and an elaborative administrative structure. Because the machine bureaucracy depends primarily on the standardisation of its operating work processes for coordination, the technostructure emerges as the key part of the structure. The machine bureaucracy occurs in a simple and stable environment.

The *professional bureaucracy* relies for coordination on the standardisation of skills and its associated design parameter, training. It hires appropriately trained specialist professionals for the operating core and then gives them considerable autonomy over their own work. Control over own work means that the professional works relatively independently from colleagues, but closely with the clients that are served. The structure of these organisations is essentially bureaucratic and its coordination, like that of the machine bureaucracy, is achieved by standards that predetermine what is to be done.

Whereas the machine bureaucracy relies on authority of a hierarchical nature, professional bureaucracy emphasises authority of a professional nature – the power of expertise. The operating core emerges as the key part in the organisation. The professional bureaucracy occurs in a complex, stable environment.

The *divisionalised form* differs from the other four configurations in one important respect. It does not constitute a complete structure from the strategic apex to the operating core, but rather a structure superimposed on others. That is, each division has its own structure. The divisionalised form relies on the market basis for grouping units at the top of the middle line. Divisions are created according to markets served and are then given control over the operating functions required to serve these markets. The dispersion and duplication of the operating functions diminish the interdependence between divisions, so that each can operate as a quasi-autonomous entity, free of the need to coordinate with the others. This, in turn, allows a large number of divisions to be grouped under the headquarters. In other words, the span of control at the strategic apex of the divisionalised form can be broad. This structural arrangement naturally leads to decentralisation from the headquarters: Each division is delegated the powers needed to make the decisions concerning its own operations. Therefore the middle line emerges as the key part in the organisation. The divisionalised form occurs in a relatively simple and stable environment (especially with regard to products and services).

The *adhocracy* has a highly organic structure with little formalisation of behaviour. Jobs are highly specialised, which groups specialists in functional units to organise them in small market-based project teams to do their work in various areas of the organisation. Liaison devices occur frequently to encourage the mutual adjustment that serves as the key coordinating mechanism within and between these teams. These teams consist of a mixture of line managers, staff and operating experts. Innovation does not rely on any form of standardisation for coordination. In other words, it must avoid all the accessories of bureaucratic structure, particularly sharp divisions of labour, extensive unit differentiation, highly formalised behaviours and an emphasis on planning and control systems. Above all, it must remain flexible. The support staff plays a key role in the adhocracy. Adhocracy occurs in a complex and dynamic environment. Table 2.3 provides a summary of the five organisational forms.

Table 2.3: Mintzberg's five organisational forms: a summary.

Design	Key part of control mechanism	Key part of the organisation	Environment	Power
Simple structure	Direct supervision	Strategic apex	Simple and dynamic	Chief executive control
Machine bureaucracy	Standardization of work	Technostructure	Simple and stable	Technocratic and sometimes external control
Professional bureaucracy	Standardisation of skills	Operating core	Complex and stable	Professional operator control
Divisionalised structure	Standardisation of output	Middle line	Relatively simple and stable	Middle-line control
Adhocracy	Mutual adjustment	Support Staff	Complex and dynamic	Expert control

Adapted from Mintzberg (1983, pp. 280-281).

2.6 Virtual Organisations

Each of the great ages has been the forebear to a new social configuration. The great agricultural organisations gave birth to the first hierarchies, while the rise of industrialism brought the large-scale use of bureaucracies. The information age has its emblematic organisation as well as boundary-spanning networks, or virtual organisations (Ahuja & Carley 1998; Lipnack & Stamps 1997; Igbaria & Tan, 1998).

Current time pressures, complexity, rapid change, global competition and the merging of computer and communication technology facilitate a trend toward the virtual workplace. As the growth in the virtual workplace accelerates, organisations face new challenges to cope with new organisational structures (Igbaria & Tan, 1998). Many organisations have responded by adopting decentralised, team-based, and distributed structures (DeSanctis & Jackson, 1994; Drucker, 1988), described in the literature as virtual, network, and cluster organisations (Beyerlein & Johnson, 1994). Advances in communication technologies have enabled organisations to acquire and retain such distributed structures by supporting coordination among people working from different locations. Despite the rapid increase in the number of organisations that are becoming distributed, little is known about the structure or performance of such organisations (Ahuja & Carley, 1998).

A virtual organisation is often defined as one that is interspersed with external ties (Cole & Schnarr, King in Cooper & Rousseau, 1999) managed with an internal structure of virtual teams that are assembled and disassembled according to need (Lipnack & Stamps 1997) and consisting of employees who are frequently physically dispersed from one another (Clancy & Barner, in Cooper & Rousseau, 1999). The result is a "company without walls" (Galbraith in Cooper & Rousseau, 1999) that acts as a "collaborative network of people" working together, regardless of location and who "owns them" (Bleeker in Cooper & Rousseau, 1999). Proponents of this new form extol its benefits in terms of greater adaptability, faster response time, and task specialisation (Cooper & Rousseau, 1999).

The complex organisational structure has also led many researchers and consultants to popularise the idea of the boundaryless organisation. The boundaryless organisation is composed of people who are linked by computers, faxes, computer-aided design systems and video teleconferencing, and who may rarely or never see one another face-to-face. People come and go as their services are needed, but they are not formal members of an organisation, just functional experts who form an alliance with an organisation, fulfil their contractual obligations, and then move on to the next project (Jones, 2001). Thus, the conceptual definition of boundaryless organisations and virtual organisations are the same (Cooper & Rousseau, 1999; Cummings & Worley 2001; Greenberg & Baron, 1997).

Previous research suggests that virtual organisations tend to be non-hierarchical (Beyerlein & Johnson, 1994; Ahuja & Carley, 1998) and decentralized (Baker in Cooper & Rousseau, 1999). For example, Baker (Cooper & Rousseau, 1999) suggests "at least in metaphor, the network organisation is a market mechanism that allocates people and resources to problems and projects in a decentralised manner" (Baker in Cooper & Rousseau, 1999). However, there is little empirical research on the structure of virtual organisations. Further, since the research on virtual organisations is still evolving, the literature still lacks precision on the terminology used to describe them, particularly with respect to structure. For example, the terms decentralised and non-hierarchical are used interchangeably to describe the structure of virtual organisations. The research suggests that structure of virtual organisations needs to be analysed along three distinct dimensions (degree of hierarchy, centralisation and hierarchical levels (Ahuja & Carley, 1998).

Despite the media hyperbole, few pure virtual forms exist today (Dutton, in Cooper & Rousseau, 1999). Instead, aspects of virtuality are evident in many business today. More organisations, for example, are

increasingly forming external relationships with other firms in the form of strategic partnerships, alliances and outsourcing contracts (Mowshowits, Nohria & Berkley in Cooper & Rousseau, 1999). In addition, rapid advancement in telecommunications has enabled more telecommuting and cooperation among physically distributed employees (Barner & King in Cooper & Rousseau, 1999). To the extent that the relationships of a firm take on more and more of these characteristics, the firm is relatively more virtual. Being virtual, therefore, is a matter of degree, and even firms that may not look virtual at the surface are acting virtual in some aspects of their management (Cooper & Rousseau, 1999).

2.6.1 Network-Based Structure

A network structure is a cluster of different organisations whose actions are coordinated through contracts and agreements rather than through a formal hierarchy of authority (Jones, 2001). Network structures are known by a variety of names, including shamrock organisations and virtual, modular or cellular corporations. Less formally they have been described as "pizza structure" spiderwebs, and cluster organisations. According to Cummings & Worley (2001), a network-based structure manages the diverse complex and dynamic relationships among multiple organisations or units, each specialising in a particular business or task. Network structures fit with goals that emphasise organisation specialisation and innovation. Network-based structures also fit well in organisations with worldwide operations.

As shown in Figure 2.5, network structures redraw organisational boundaries and link separate business units to facilitate task interaction. A network structure creates a relationship among organisations that perform different aspects of work. In this way, organisations do the things that they do well. Virtual organisations use strategic alliances; joint ventures, licensing agreements to manufacture and market advanced products; enter new products; enter new international markets; and develop new technologies. Often network structures become very complex as companies may form agreements with a whole range of suppliers, manufacturers, and distributors to outsource many of the value creation activities involved in producing and marketing goods and services (Jones, 2001).

Network structures have the following characteristics: *Vertical desegregation, brokers and coordinating mechanisms* (Cummings & Worley, 2001).

Vertical desegregation: This refers to the breaking up of the organisation's business functions, such as production, marketing and distribution, into separate organisations performing specialised work. This

vertical desegregation saves overhead costs while gathering expertise from different areas. The Internet is an accelerator in the development and numbers of network structures.

Brokers: Network structures, as illustrated in Figure 2.5 often are managed by broker organisations that locate and assemble member organisations. Brokers pull together and align business groups through targeting and subcontracting for targeted services.

Coordinating mechanisms: Network organisations are not controlled by hierarchical arrangements or plans. Coordination of the work in a network falls into three categories: informal relationships, contracts and market mechanisms. Coordination patterns can depend profoundly on interpersonal relationships among individuals who have a well-developed partnership. Conflict is resolved through a reciprocity network. Second, coordination can be achieved through formal contracts, such as ownership control, licensing arrangements, or purchase agreements. Finally, market mechanisms, such as spot payments, performance accountability and information systems, ensure that all parties are aware of each other's activities (Cummings & Worley, 2001).

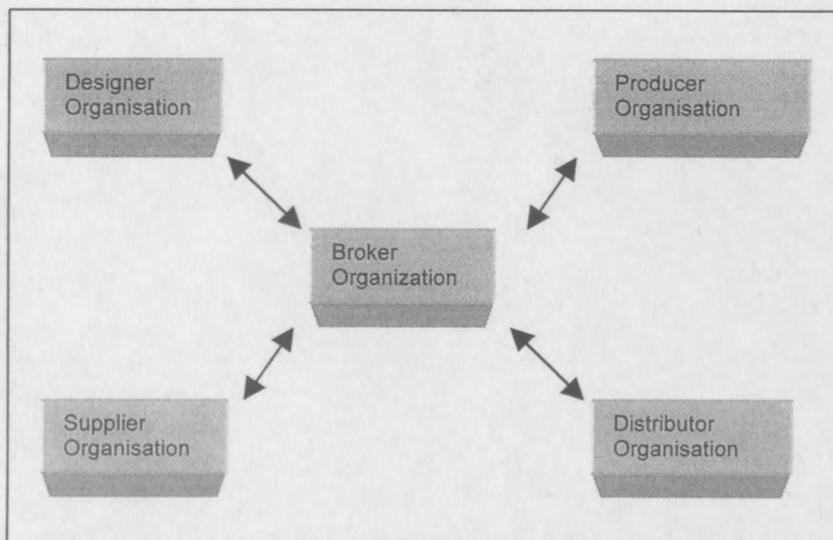


Figure 2.5: Network Structure

Cummings & Worley (2001, p. 294).

2.6.2 Advantages and disadvantages of network structure.

Network structures have a number of advantages and disadvantages. They are highly flexible and adaptable to changing conditions; they allow speeding up of the flow of information and accomplishing work at a faster pace and less expensively. The ability to form partnerships with different organisations permits the creation of a best company to exploit its distinctive competence. These structures can accumulate and supply sufficient resources and expertise for large, complex tasks that single firms cannot perform. Although network structures have several advantages, they also have some drawbacks in certain situations. Due to the different alliances with other organisations, it becomes difficult to invest in the development of human capital inside the company because separate companies have fewer incentives to make such investments. As a result, many opportunities to cut costs and increase quality would be lost (Jones, 2001). Some organisations may not be willing to give up their autonomy to link with other organisations, as a result it becomes difficult to sustain commitment over time.

A study conducted by Ahuja & Carley (1998) on network structures in virtual organisations came to the conclusion that virtual organisations can exhibit considerable hierarchical tendencies (centralisation and multiple levels). This finding appears to contradict the predictions of non-hierarchical and decentralised structures in virtual organisations. Ahuja & Carley's current study is not the only one to detect hierarchy in virtual organisations. Their observation of hierarchy in the Soar group served as a prediction that hierarchical structures are most likely to appear through the evolutionary process of natural selection as size and complexity of the organisation grows. Collectively, these studies suggest that claims regarding the lack of hierarchy in virtual organisations may need to be revisited. Their results suggest that virtual organisations may well be non-hierarchical and decentralised from an authority standpoint. From a communication standpoint however, they may still be hierarchical and somewhat centralised (Ahuja & Carley, 1998).

Figure 2.6 illustrates that mechanistic and organic structures range along the same continuum and the virtual structure is regarded as a separate dimension. Thus, it is possible for an organisation to either have a high or low virtual structure and a high organic structure. Likewise, an organisation may have a high mechanistic structure linked with a high or low virtual structure.

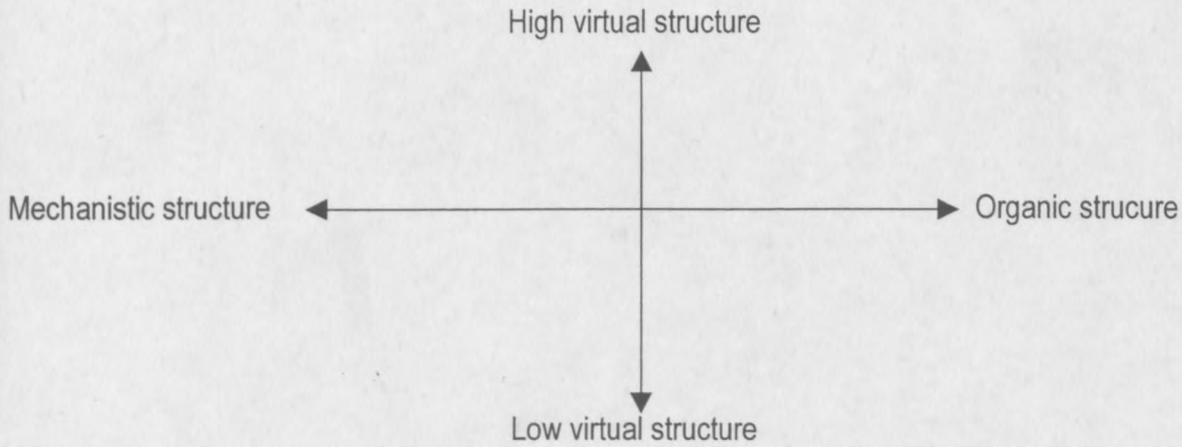


Figure 2.6: A model of organisational structural forms

2.7 Stable and dynamic environment and leadership

Research indicates that a leader oriented toward contingent approval searches for homogeneity, regularity, standardisation, safety, and consolidation (Roueche, Baker & Rose, 1989). Howell (1992) proposed a list of environmental and organisational conditions likely to affect the emergence of transactional leadership as an exchange relationship and of transformational leadership as charismatic, inspirational and intellectually stimulating (see Table 2.4). Howell further proposed that a stable environment would generate high frequencies of transactional leadership and an unstable environment high frequencies of transformational leadership.

According to Bass (1998, p. 88), organisations and agencies that are functioning in stable environments can afford to depend on their managers to provide the necessary, day-to-day, leadership. If the technology, workforce and environment are stable as well, then things are likely to move along quite well with managers who simply promise and deliver rewards to employees for carrying out assignments. Moreover, in a stable organisation, even active management-by-exception can be quite effective if the manager monitors employee performance and takes corrective action as needed. Rules and regulations for getting things done, when clearly understood and accepted by the employees, can eliminate the need for leadership under some circumstances. Transactional leadership is likely to emerge and be relatively effective when leaders face a stable and predictable environment.

According to Bass (1998, p.88), organisations that are faced with a turbulent environment when its products and services are born, live and die within the span of a few years. When its current technology

becomes obsolete, a rigid organisational structure of rules, regulations, job specifications, and passive management-by-exception becomes inappropriate. In a turbulent environment, transformational leadership needs to be fostered at all levels in the organisation. In order to succeed, the organisation needs to have the flexibility to forecast and meet new demands and changes as they occur and only transformational leadership can enable the firm to do so. Problems, rapid changes and uncertainties call for flexibility in the organisation, with determined leaders who can inspire employees to participate enthusiastically in team efforts and share in organisational goals. Under these circumstances, transformational leadership is likely to emerge in organisations and be effective when leaders face an unstable, uncertain, turbulent environment.

2.8 Organisational structure and leadership

Mechanistic systems are characterised by centralisation, hierarchy of authority and highly standardised rules. As a result, mechanistic organisations emphasise legitimate power and respect for rules and traditions, rather than influence based on exchange or inspiration (Yukl, 1998). Transactional leadership is viewed as an exchange of rewards for compliance. This leadership style is structured, concerned only with efficient ideas and what will work, thus using the power of position to reinforce behaviour (Roueche et al., 1989). Quinn & Hall (Roueche, et al., 1989) indicate that a leader oriented toward contingent approval searches for homogeneity, regularity, standardisation, safety, and consolidation. According to Bass (1998), managing by exception would be easier to pursue in mechanistic organisations. Mechanistic organisations discourage change and inhibit individual differences, motives and attitudes, thus making managing-by-exception easier to accomplish in this type of organisation. Therefore, transactional leaders will be more prevalent and effective in mechanistic organisations than in organic and virtual organisations.

Virtual organisations are dynamic entities, which are not controlled by hierarchal arrangements and where individuals are physically separated from each other. Thus, virtual organisations are open to more variations and experimentation, with attendant greater risk-taking, fitting better the prescription of transformational leadership. Transformational leadership, as its name implies, indicates a process that changes and transforms individuals and organisations (Northhouse, 1997). Through the use of transformational behaviours (for example: charisma and inspirational motivation) leaders can influence and develop others from a distance, whether they are superiors, direct followers or colleagues. Therefore, transformational leadership behaviours and their influence can be both direct and indirect

whether top-down, bottom-up, or horizontal (Bass & Avolio, 1994). Transformational leaders do not make use of coercive power but they depend on charisma, intellectual stimulation and reference power to encourage personal development and to achieve organisational goals (Roueche et al., 1989). According to Bass (1998), transformational leadership and contingent reward will emerge more frequently in organic organisations (see Table 2.4). Thus, transformational leaders will be more prevalent and effective in an organic and a virtual organisation than in a mechanistic organisation.

2.9 An integrated model of organisational design and leadership

Many complex factors and variables go into the design of an optimal organisation structure. Figure 2.7 visually summarises what has been discussed in this chapter. The environment, which consists of environmental dynamism, complexity and environmental richness, determines the type of structure that the organisation needs to survive. These structural designs can be classified in three models: mechanistic, organic and virtual. Mechanistic and organic structures range along a continuum and the virtual structure is regarded as a separate dimension. The environment has a moderating effect on the relationship between organisational structure and organisational effectiveness. As a result, mechanistic structure will be more effective in a stable environment, and organic and virtual structure will be more effective in a dynamic environment.

The relationship between the external environment and leadership style also determines leadership effectiveness. In a more stable environment, a more transactional leader would be more effective, while in a more dynamic environment a transformational leader would be more successful.

At the same time, leaders become very instrumental in bringing about these changes within the environment to influence organisational design. Organisational design is reciprocal, in other words, it also has the ability to influence leadership style. A more mechanistic structure tends to be more tolerant towards transactional leadership and an organic and virtual structure tends to be more tolerant towards transformational leadership. Thus, managerial leadership style plays a key role in organisational design. Regardless of the specific configuration of structural design and integration strategies, the overriding purpose of organisational design is to channel the behaviour of leaders, individuals and groups into patterns that contribute to effective organisation performance (Gibson et al., 1997).

Table 2.4: The likelihood of exchange and charismatic leadership emergence under different environmental and organisational conditions.

<i>Situational Conditions</i>	<i>Likelihood</i>	
	<i>Exchange leadership</i>	<i>Charismatic leadership</i>
<i>Environmental Conditions</i>		
Stable	High	Low
Unstable	Low	High
<i>Organisational Conditions</i>		
Mechanistic	High	Low
Organic	Low	High
Hierarchy of authority	High	Low
Dispersed authority	Low	High
Centralised decision making	High	Low
Decentralised decision making	Low	High
Vertical communication	High	Low
Lateral communication	Low	High
<i>Task Characteristics</i>		
Standardised, routine	High	Low
Complex	Low	High
Well-defined performance	High	Low
Poorly defined performance	Low	High

Adapted from Bass (1998, p. 50).

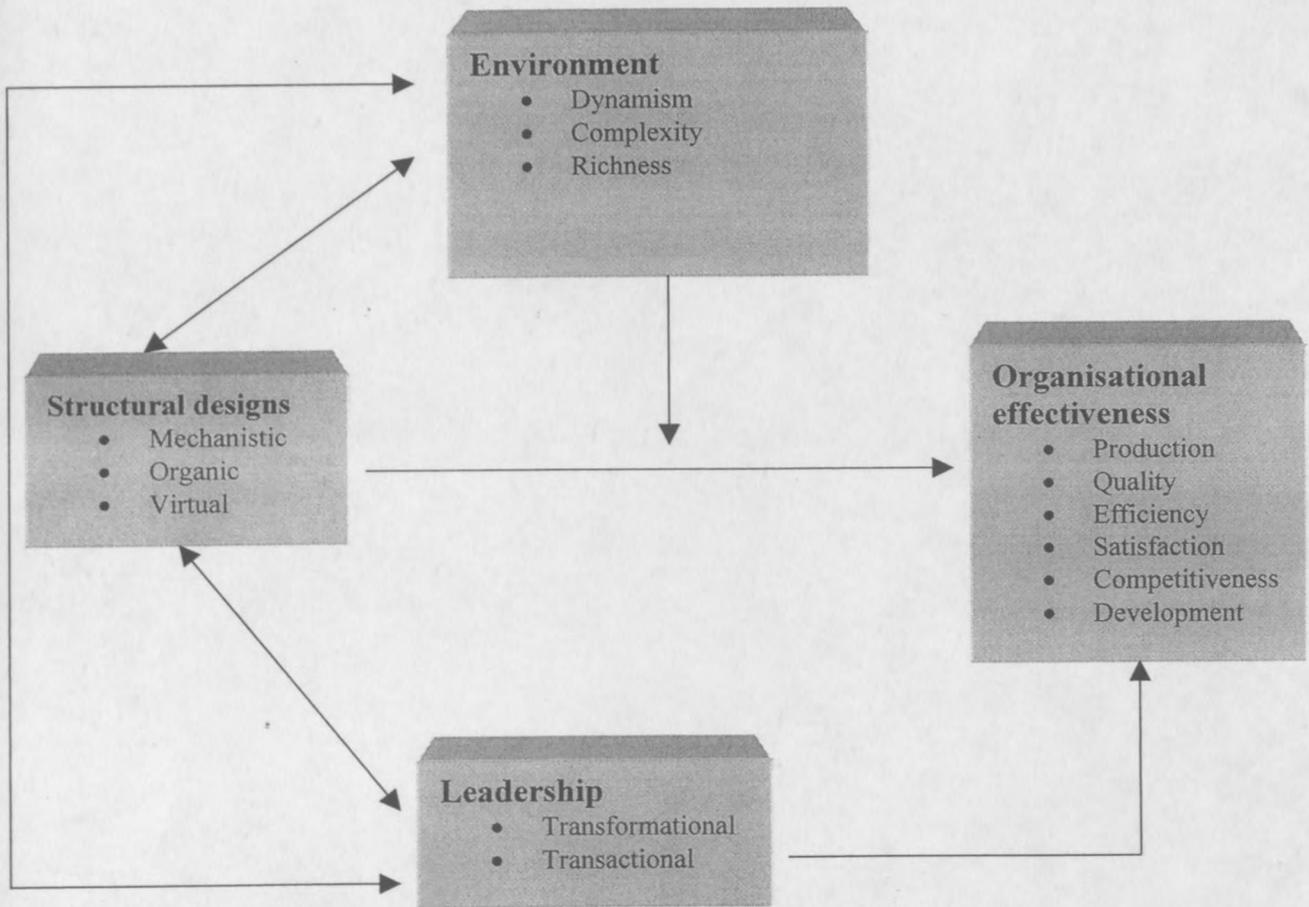


Figure 2.7: An integrated model of organisational design and leadership

Adapted from Gibson et al. (1997, p. 395)

and Robbins (2001, p. 437)

2.10 Conclusion

The overview of the literature provides a brief description of various transformational leadership theories and organisational design and structures and it integrates leadership and organisational structure. Chapter 3 states the specific hypotheses that have been derived from the literature study. It will describe the sample of the study and the data used in this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The preceding chapter laid the foundation for the research methodology by means of the literature study. This chapter gives a synopsis of the research method and the hypotheses that were formulated from the literature study.

3.2 Hypotheses

Leadership and organic-mechanistic structure

Hypothesis 1: A significant negative relationship exists between transformational leadership and an organic-mechanistic structure.

Hypothesis 2: A significant positive relationship exists between transactional leadership and an organic-mechanistic structure.'

Leadership and virtual structure

Hypothesis 3: A significant positive relationship exists between transformational leadership and a virtual structure.

Hypothesis 4: A significant negative relationship exists between transactional leadership and a virtual structure.

Organic-mechanistic structure and virtual structure

Hypothesis 5: A significant negative relationship exists between an organic-mechanistic structure and a virtual structure.

Environment and leadership

Hypothesis 6: A significant positive relationship exists between transformational leadership and environmental uncertainty.

Hypothesis 7: A significant negative relationship exists between transactional leadership and environmental uncertainty.

Environment and organic-mechanistic structure

Hypothesis 8: A significant negative relationship exists between organic-mechanistic structure and environmental uncertainty.

Environment and virtual structure

Hypothesis 9: A significant positive relationship exists between virtual structure and environmental uncertainty.

3.3 Research Design

Field experiment research was conducted, based on ex post facto correlation methods. Correlation studies use measures of association (or correlation) to assess the relationship between two variables (X and Y) within a single group of participants whose responses have not been influenced by the researcher (Furlong & Lovelace, 2000). In this research the investigation was based on how leadership correlates with organisational structure.

3.3.1 Measuring Instruments

The **Multifactor Leadership Questionnaire (MLQ)** (Form 5-45) was used to measure various aspects of transformational and transactional leadership. The MLQ scales measure separate dimensions of transformational and transactional leadership that are based on factor analyses (Yukl, 1998). Hartog & Van Muijen (1997) tested the *reliability* and *internal validity* of the scales and their findings were as follows: Transformational leadership had a high alpha total of 0.95; the alpha for the transactional leadership total was 0.60. Reliabilities for dimensions of transformational and transactional leadership were: charisma ($\alpha = 0.93$), inspiration ($\alpha = 0.72$), intellectual stimulation ($\alpha = 0.81$), individual consideration ($\alpha = 0.75$). The reliabilities of the transactional scales were: contingent reward ($\alpha = 0.78$), active management-by-exception ($\alpha = 0.78$), passive management-by-exception ($\alpha = 0.58$) (Hartog & Van Muijen, 1997).

A questionnaire was developed to measure the major dimensions of organisational structure of mechanistic, organic and virtual organisations. The questionnaire was primarily based on the empirical research conducted by Ahuja & Carley (1998) on network structures in virtual organisations, as well the organisational structure questionnaire of Miller & Dröge (1986).

The **organisational structure questionnaire** was divided into four sections. Section one measured the uncertainty of the external environment. Section two measured the structuring of activities (including formalisation); section three measured concentration of authority (which included centralisation of decision-making power) and the fourth section of structure measured the integration through the use of liaison devices such as task forces, committees and integrative personnel (Miller &

Dröge 1986). A questionnaire was developed to measure the dimensions of a virtual structure, namely, lateral communication, physical dispersion, network structure and self-managed teams.

The reliability and internal validity of the subscales of the **Organisational Structure Questionnaire** were tested by Miller & Dröge (1986). The Cronbach alphas of the different dimensions were as follows: environmental uncertainty: ($\alpha = 0.74$), centralisation: ($\alpha = 0.82$); formalisation ($\alpha = 0.65$); structural liaison devices ($\alpha = 0.85$) and process liaison ($\alpha = 0.74$).

3.4 Sample

Organisations in Namibia and South Africa that primarily operate in the following industries were selected: Communication, transport, financial services, information technology, manufacturing and local government. The sample used for this study consisted of 102 middle, senior and top level managers with significant work experience (mean age of 37,6 years). The description of the sample is presented in the following tables.

Table 3.1 Countries

COUNTRY	Frequency	Percentage
South Africa	61	59.8
Namibia	41	40.2
Total	102	100.0

Table 3.2 Gender

GENDER	Frequency	Percentage
Male	69	67.6
Female	33	32.4
Total	102	100.0

Table 3.3 Ethnic group

ETHNIC	Frequency	Percentage
African	33	32.4
Asian	2	2.0
Coloured	12	11.8
White	55	53.9
White	55	53.9
Total	102	100.0
Total	102	100.0

Table 3.4 Industries

INDUSTRIES	Frequency	Percentage
Communication	12	11.8
Transport	15	14.7
Financial Services	13	12.7
Information Technology	2	2.0
Manufacturing	11	10.8
Local Government	6	5.9
Banking Services	32	31.4
Any other	11	10.8
Total	102	100.0

Table 3.5 Job level

JOB LEVEL	Frequency	Percentage
Middle level management	80	78.4
Senior level management	20	19.6
Top level management	2	2.0
Total	102	100.0

3.5 Data Processing procedures

The Statistical Package for the Social Sciences (SPSS) was used in the statistical analysis of the data collected from the different companies concerned.

The Pearson product moment correlation coefficient was determined for all the hypotheses. A standard multiple regression proved to be the most appropriate statistical technique for assessing the degree to which one continuous variable (the dependent variable) is related to another a set of continuous variables (the independent variables) (Tabachnick & Fidell, 1989). According to Tabachnick & Fidell (1989, p. 150) unless there is a good reason to use some other technique, standard multiple regression is recommended.

3.6 Conclusion

The next chapter details the results obtained from this research after the statistical analyses were conducted.

CHAPTER 4

RESULTS OF THE RESEARCH

4.1 Introduction

This chapter reports on the analysis of the research results. An overview of the descriptive statistics is given, and the reliability of the measuring instruments and the testing results of the formulated hypotheses will also be discussed.

4.2 Descriptive statistics

The statistical analysis was completed with the assistance of the statistical programme SPSS. The first phase of the statistical analysis was to calculate the descriptive statistics of the Multifactor Leadership Questionnaire (MLQ) and Organisational Structure Questionnaire variables. Table 4.1 lists the abbreviated variable names used throughout this chapter. Descriptive statistics were obtained in order to summarise the data used in the study.

Table 4.1 List of variables used in the statistical analysis along with abbreviations for computer use

Variable	Abbreviation
Leadership	Lea
Transformational leadership	Transfor
Transactional leadership	Transac
Organic-mechanistic structure	Mechan
Environment uncertainty	Env
Centralisation	Cent
Formalisation	Form
Specialisation	Spec
Structural liaison	Struc
Process liaison	Proc
Control	Cont
Communication	Comm
Physical Proximity	Phy
Network structure	Net
Self-managed team	Team

Virtual structure

Virtual

4.3 Item and reliability analysis of the measurement instruments

A measurement scale that has been constructed for empirical research requires having reliability and validity or otherwise the research outcomes are of no value. In short, reliability describes consistency. Over a variety of conditions, approximately the same results should be obtained (Nunnally, 1978). The items of the Multifactor Leadership Questionnaire (MLQ) and Organisational Structure Questionnaire were subjected to a reliability analysis.

The SPSS programme was executed to determine the reliability of the questionnaires. The internal consistency of the items of the Leadership and Organisational Structure Questionnaire was calculated with the use of Chronbach's coefficient alpha (also referred to as coefficient alpha or α). According to the SPSS Users Guide, Chronbach's coefficient alpha is based on the average correlation of items within a test, if those terms are standardised. If the items are not standardised, it is based on the average covariation among items. The alpha coefficients of the items of the questionnaires are presented in the following tables.

Table 4.2 Reliability analysis for transformational leadership

Item-total Statistics					
	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
LEA_2	71.9902	495.4355	.6058	.4751	.9561
LEA_5	72.2843	502.1065	.4826	.4899	.9578
LEA_6	71.9804	493.4056	.5984	.5039	.9563
LEA_7	71.6078	494.1813	.6640	.5826	.9553
LEA_8	72.1078	485.5823	.6729	.6189	.9553
LEA_11	71.5000	487.1832	.7830	.7764	.9539
LEA_12	71.6765	497.3101	.6588	.6978	.9554
LEA_13	72.6569	482.8613	.7473	.6532	.9542
LEA_16	71.9804	479.8016	.7270	.6629	.9545
LEA_17	71.9314	477.4903	.7523	.6949	.9542
LEA_19	71.8824	477.5306	.8133	.7648	.9533
LEA_21	71.7549	487.5334	.7036	.6400	.9548
LEA_23	71.5294	499.6377	.5793	.5287	.9564
LEA_24	71.7941	478.5612	.8104	.7292	.9533
LEA_26	72.3824	484.1395	.7332	.6437	.9544
LEA_27	72.2059	480.9176	.7997	.7491	.9535
LEA_29	72.3333	484.3036	.7655	.7940	.9540
LEA_28	72.3431	477.3563	.7738	.7864	.9538
LEA_30	71.9118	482.8139	.7877	.7340	.9537
LEA_32	71.4902	489.2227	.7362	.6655	.9544
Reliability Coefficients	20 items				

Alpha = .9569 Standardised item alpha = .9570

Table 4.3 Reliability analysis for transactional leadership

Item-total Statistics					
	Scale mean if Item Deleted	Scale variance if item deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
LEA_1	35.6863	38.5937	.3085	.3795	.3480
LEA_3	36.7157	46.4233	-.0661	.3573	.4729
LEA_4	35.9706	40.6031	.2250	.2756	.3791
LEA_9	35.6176	38.6147	.3280	.4334	.3431
LEA_10	36.9412	51.5609	-.2839	.5700	.5357
LEA_14	36.1471	38.8197	.2856	.4258	.3554
LEA_15	36.4510	39.4778	.3073	.1995	.3532
LEA_18	37.0294	48.1476	-.1308	.4074	.4812
LEA_20	36.0392	40.3945	.2770	.2622	.3651
LEA_22	36.1373	42.8127	.1379	.2433	.4076
LEA_25	36.1667	39.1502	.3205	.3079	.3481
LEA_31	35.4902	40.2722	.2343	.4790	.3755

Reliability Coefficients 12 items
Alpha = .4242 Standardised item alpha = .4230

**Table 4.4 Reliability analysis for organisational structure questionnaire:
Environmental uncertainty**

Item-total statistics					
	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
ENV_A	15.9020	27.1388	.5793	.3461	.7274
ENV_B	16.7549	26.9789	.5463	.3014	.7392
ENV_C	16.0392	29.7014	.4914	.2461	.7561
ENV_E	15.8627	25.2483	.6104	.3813	.7162
ENV_D	16.3039	29.2235	.5365	.2897	.7427

Reliability Coefficients 5 items
Alpha = .7780 Standardised item alpha = .7780

**Table 4.5 Reliability analysis for organisational structure questionnaire:
Centralisation**

Item-total Statistics					
	Scale Mean if Item Deleted	Scale Variance If Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CENT_A	33.5122	38.8455	.3573	.1856	.8831
CENT_B	33.8293	38.5878	.4393	.4094	.8763
CENT_C	33.8659	37.1546	.6524	.4985	.8632
CENT_D	34.4024	35.9225	.6907	.6100	.8599
CENT_E	34.4634	35.4122	.6928	.5737	.8593
CENT_F	34.1341	36.7102	.6339	.4491	.8638
CENT_G	33.6951	38.3133	.4761	.4354	.8739
CENT_H	34.0610	36.6506	.6617	.4833	.8622
CENT_I	34.2561	36.0200	.7002	.5763	.8594
CENT_J	34.2805	36.8463	.5750	.4948	.8677
CENT_K	34.8659	36.0682	.6058	.5840	.8657

Reliability Coefficients 11 items
Alpha = .8776 Standardised item alpha = .8794

**Table 4.6 Reliability analysis for organisational structure questionnaire:
Formalisation**

Item-total statistics				
	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Squared Multiple Correlation	Alpha if Item Deleted
FORM_A	13.5349	6.5105	.1511	.4459
FORM_B	12.1977	4.7252	.1804	.4450
FORM_C	11.4419	4.5083	.2695	.3893
FORM_D_1	13.5581	6.0378	.1320	.4374
FORM_D_2	13.5814	6.3168	.1970	.4335
FORM_D_3	13.5698	6.3186	.2271	.4319
FORM_D_4	13.6047	6.1477	.2800	.4188
FORM_D_5	13.6279	6.0482	.3053	.4111
FORM_D_6	13.6047	6.0066	.3880	.4028
FORM_E_1	13.6628	5.7555	.4355	.3811
FORM_E_2	13.7326	5.6335	.4141	.3745
FORM_E_3	13.6395	5.9274	-.0575	.5559

Reliability Coefficients 12 items
Alpha = .4496 Standardised item alpha = .6973

**Table 4.7 Reliability analysis for organisational structure questionnaire:
Specialisation**

Item-total Statistics				
	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item Total Correlation	Alpha if item Deleted
SPEC_A	11.9700	17.1001	.5504	.9024
SPEC_B	12.0400	16.1600	.7540	.8956
SPEC_C	12.1100	15.7959	.7833	.8940
SPEC_D	12.0100	16.6969	.6222	.9000
SPEC_E	12.0500	16.0884	.7628	.8952
SPEC_F	12.0300	16.5951	.6267	.8998
SPEC_G	11.9900	16.9595	.5648	.9018
SPEC_I	11.9400	17.3095	.5353	.9030
SPEC_K	12.0400	16.7863	.5531	.9021
SPEC_M	12.1000	16.1313	.6916	.8973
SPEC_N	11.9600	17.0287	.5973	.9012
SPEC_H	12.0200	16.8481	.5579	.9020
SPEC_J	12.0400	16.2004	.7408	.8960
SPEC_L	12.1500	16.1086	.6592	.8985
SPEC_O	11.9600	17.4327	.4472	.9051
SPEC_P	12.0400	16.9075	.2537	.9225

Reliability Coefficients 16 items
Alpha = .9067 Standardised item alpha = .9161

**Table 4.8 Reliability analysis for organisational structure questionnaire:
Structural liaison**

Item-total Statistics					
	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
STRUC_A	18.3333	47.1947	.7603	.6621	.8799
STRUC_B	18.5000	47.1634	.6729	.6635	.8915
STRUC_C	18.5490	46.4283	.6808	.6232	.8906
STRUC_D	18.2745	43.9437	.8350	.7317	.8670
STRUC_E	18.1667	45.7640	.6917	.8089	.8892
STRUC_F	18.2255	44.1170	.7505	.8157	.8801

Reliability Coefficients 6 items
Alpha = .9007 Standardised item alpha = .9019

**Table 4.9 Reliability analysis for organisational structure questionnaire:
Process liaison**

Item-total Statistics					
	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
PROC_A	11.3725	20.1371	.7069	.5386	.7914
PROC_B	11.8824	20.1246	.6173	.4632	.8245
PROC_C	11.3235	17.2903	.7108	.5583	.7859
PROC_D	11.3627	18.3325	.6866	.5338	.7955
Reliability Coefficients 4 items					
Alpha = .8420 Standardised item alpha = .8446					

**Table 4.10 Reliability analysis for organisational structure questionnaire:
Control**

Item-total Statistics					
	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CONT_A	19.9802	29.7396	.6922	.4888	.8868
CONT_B	19.4257	48.2869	.6950	.5111	.8864
CONT_C	19.8515	46.2677	.7238	.5432	.8822
CONT_D	20.1386	48.0406	.7117	.6021	.8840
CONT_E	19.9307	46.0851	.8164	.7054	.8686
CONT_F	19.9307	43.8251	.7385	.5632	.8815
Reliability Coefficients 6 items					
Alpha = .8994 Standardised item alpha = .9008					

**Table 4.11 Reliability analysis for organisational structure questionnaire:
Virtual organisation.**

Item-total Statistics					
	Scale Mean If Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
COMM_A	40.1569	79.3217	.2663	.2485	.6396
COMM_B	42.5588	91.8925	-.2436	.2983	.7021
COMM_C	41.8627	73.4463	.3958	.4748	.6191
COMM_D	42.6961	71.2632	.4405	.4761	.6105
COMM_E	40.9608	76.8697	.3149	.470	.6325
COMM_G	41.5686	70.9408	.4193	.3224	.6134
COMM_G	42.8824	74.9365	.3881	.3304	.6218
COMM_H	42.6373	69.6988	.5455	.4118	.5946
PHY_A	42.5294	84.9645	-.0128	.0781	.6805
PHY_B	42.4706	76.8853	.2986	.2256	.6347
PHY_C	41.4216	77.2760	.2625	.3426	.6400
NETW_A	44.7647	84.6768	.1741	.3591	.6507
NETW_C	44.5294	85.3209	.2089	.2214	.6508
NETW_B	44.4804	86.8461	.0312	.1929	.6579
TEAM_A	41.5392	74.6470	.3835	.4354	.6220
TEAM_B	41.6176	76.5751	.2657	.4507	.6398

Reliability Coefficients 16 items
Alpha = .6548 Standardised item alpha = .6412

Nunnally (1978) suggests that only item-total correlation of 0.20 and larger is acceptable and also suggests that items that do not comply with this norm should be eliminated. Table 4.2 to Table 4.11 show exactly which items do and which items do not comply with the criterion.

According to Table 4.3 there are three items that do not comply with the critical cut-off point proposed by Nunnally (1978). In Table 4.6 there are five items and in Table 4.11 two items that do not comply with the criterion. If these items should be deleted; the alpha coefficients would definitely increase as is clearly shown in the respective Tables. In Tables 4.2, 4.4, 4.5, 4.7, 4.8, 4.9 and 4.10, all items comply with the critical cut-off point.

Even though there are items that do not comply with the conditions acceptable in reliability analysis, it was not intended, in this study, to develop measuring instruments. The process of reliability analysis was therefore not taken any further. These limitations, however, were taken into consideration during interpretation of the results.

4.4 The relationship between transformational leadership and organic-mechanistic structure

Table 4.12. Correlation between transformational leadership and dimensions of organisational structure

Correlations

		RANSFO	ENV	CENT	FORM	SPEC	STRUC	PROC	CONT	PHY	NET	TEAM	COMM	VIRTUA	MECHA
TRANSF	Pearson Corr	1.000	.054	.174*	.134	.208*	.449*	.481*	.282*	.050	.038	.162	.204*	.199*	-.454*
	Sig. (1-tailed)		.295	.040	.090	.018	.000	.000	.002	.310	.351	.052	.020	.023	.000
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
ENV	Pearson Corr	.054	1.000	-.006	.014	.086	.180*	.072	.292*	.294*	.304*	.147	.184*	.318*	-.135
	Sig. (1-tailed)	.295		.476	.444	.194	.035	.235	.001	.001	.001	.071	.032	.001	.087
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CENT	Pearson Corr	.174*	-.006	1.000	-.132	-.139	.112	.036	-.191*	.018	-.065	-.079	-.021	-.055	.135
	Sig. (1-tailed)	.040	.476		.093	.082	.131	.359	.028	.430	.257	.214	.417	.293	.088
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
FORM	Pearson Corr	.134	.014	-.132	1.000	.495*	.327*	.353*	.336*	-.055	.140	.096	.108	.095	-.317*
	Sig. (1-tailed)	.090	.444	.093		.000	.000	.000	.000	.291	.081	.168	.140	.171	.001
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
SPEC	Pearson Corr	.208*	.086	-.139	.495*	1.000	.226*	.279*	.500*	.076	.375*	.084	.112	.177*	-.266*
	Sig. (1-tailed)	.018	.194	.082	.000		.011	.002	.000	.223	.000	.199	.130	.038	.003
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
STRUC	Pearson Corr	.449*	.180*	.112	.327*	.226*	1.000	.778*	.461*	.140	.138	.318*	.242*	.351*	-.908*
	Sig. (1-tailed)	.000	.035	.131	.000	.011		.000	.000	.081	.083	.001	.007	.000	.000
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PROC	Pearson Corr	.481*	.072	.036	.353*	.279*	.778*	1.000	.492*	.095	.152	.248*	.298*	.319*	-.930*
	Sig. (1-tailed)	.000	.235	.359	.000	.002	.000		.000	.171	.064	.006	.001	.001	.000
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CONT	Pearson Corr	.282*	.292*	-.191*	.336*	.500*	.461*	.492*	1.000	.073	.414*	.310*	.242*	.359*	-.532*
	Sig. (1-tailed)	.002	.001	.028	.000	.000	.000	.000		.232	.000	.001	.007	.000	.000
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PHY	Pearson Corr	.050	.294*	.018	-.055	.076	.140	.095	.073	1.000	.082	.339*	.132	.656*	-.127
	Sig. (1-tailed)	.310	.001	.430	.291	.223	.081	.171	.232		.207	.000	.092	.000	.102
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
NET	Pearson Corr	.038	.304*	-.065	.140	.375*	.138	.152	.414*	.082	1.000	.086	.149	.284*	-.161
	Sig. (1-tailed)	.351	.001	.257	.081	.000	.083	.064	.000	.207		.194	.067	.002	.053
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
TEAM	Pearson Corr	.162	.147	-.079	.096	.084	.318*	.248*	.310*	.339*	.086	1.000	.241*	.800*	-.315*
	Sig. (1-tailed)	.052	.071	.214	.168	.199	.001	.006	.001	.000	.194		.007	.000	.001
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
COMM	Pearson Corr	.204*	.184*	-.021	.108	.112	.242*	.298*	.242*	.132	.149	.241*	1.000	.617*	-.289*
	Sig. (1-tailed)	.020	.032	.417	.140	.130	.007	.001	.007	.092	.067	.007		.000	.002
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
VIRTUA	Pearson Corr	.199*	.318*	-.055	.095	.177*	.351*	.319*	.359*	.656*	.284*	.800*	.617*	1.000	-.367*
	Sig. (1-tailed)	.023	.001	.293	.171	.038	.000	.001	.000	.000	.002	.000	.000		.000
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
MECHA	Pearson Corr	-.454*	-.135	.135	-.317*	-.266*	-.908*	-.930*	-.532*	-.127	-.161	-.315*	-.289*	-.367*	1.000
	Sig. (1-tailed)	.000	.087	.088	.001	.003	.000	.000	.000	.102	.053	.001	.002	.000	
	N	102	102	102	102	102	102	102	102	102	102	102	102	102	102

*Correlation is significant at the 0.05 level (1-tailed).

**Correlation is significant at the 0.01 level (1-tailed).

The Pearson product-moment correlation coefficients between transformational leadership and the dimensions of organisational structure are shown in Table 4.12. The relationship between transformational leadership and organic-mechanistic structure is also displayed. An organic-mechanistic structure is proposed as lying on the same continuum with the organic and mechanistic structures as the opposite ends of the continuum. An organisation with a highly mechanistic structure is proposed to have a high level of centralisation and formalisation, as well a low level of structural and process liaison.

Table 4.12. indicates that a significant negative relationship exists between transformational leadership and organic-mechanistic structures ($r = -0.45$, $p < 0.01$). Thus, Hypothesis 1 was confirmed. It means that transformational leadership is more prevalent in organisations with an organic structure.

Table 4.13: Standard multiple regression of centralisation, formalisation, structural liaison and process liaison on transformational leadership

Variables	Transfor	Cent	Form	Struc	Process	B	β	sr^2 (unique)
Cent	0.17*					1.14	0.14	
Form	0.13	-0.13				-0.63	-0.03	
Struc	0.45**	0.11	0.33**			0.57	0.16	
Proc	0.48**	0.04	0.35**	0.78**		1.20*	0.36	0.05
						Intercept=5.223		
Means	15.00	3.40	1.25	3.67	3.83			
Standard deviations	4.71	0.57	0.21	1.34	1.42		$R^2 = 0.27$	
						Adjusted	$R^2 = 0.24$	
							$R = 0.52^{**}$	

* $p < 0.05$

** $p < 0.01$

To determine the relative importance of each of the dimensions of organisational structure, a standard multiple regression (Tabachnick & Fidell, 1989) was performed between transformational leadership as the dependent variable and centralisation, formalisation, structural liaison and process liaison as the independent variables.

Table 4.13 displays the correlations between the variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semipartial correlations (sr^2) and the

R, R^2 and the adjusted R^2 . (See Table 4.12 and Annexure 3 a). The multiple regression coefficient (R) was significantly different from zero, $F(4,97) = 8.799$, $p < .001$. Only one of the independent variables contributed significantly to the prediction of transformational leadership, namely process liaison ($sr^2 = 0.05$). Thus, the amount of R^2 attributable to unique sources is 5%. Centralisation, formalisation, structural liaison and process liaison in combination contributed another 22% to the variance in transformational leadership. Altogether, 27% of the variance in transformational leadership was predicted by the four independent variables.

Although the correlation between transformational leadership and centralisation ($r = 0.17$, $p < 0,05$) and structural liaison ($r = 0.45$, $p < 0,01$) were significant, centralisation and structural liaison did not contribute significantly to the regression. Thus, transformational leadership can be predicted by only taking into account the scores gained on process liaison. Apparently the relationship between transformational leadership, centralisation and structural liaison is an indirect result of the relationship between transformational leadership and process liaison.

4.5 The relationship between transactional leadership and organic-mechanistic structure

The Pearson product-moment correlation coefficients between transactional leadership and the dimensions of organisational structure are shown in Table 4.14. The relationship between transactional leadership and organic-mechanistic structure is also displayed.

Table 4.14 indicates that a significant negative relationship exists between transactional leadership and organic-mechanistic structure ($r = - 0.43$, $p < 0.01$). Thus, Hypothesis 2 was rejected. It means that transactional leadership is unexpectedly more prevalent in an organisation with an organic structure, and not a mechanistic structure. Although a non-significant relationship was found between management-by-exception and organic-mechanistic structure, a significantly negative relationship was found between contingent reward and organic-mechanistic structure ($r = - 0.47$, $p < 0.01$) (See Annexure 2).

Table 4.14. Correlation between transactional leadership and dimensions of organisational structure**Correlations**

	RANSA	ENV	CENT	FORM	SPEC	STRUC	PROC	CONT	PHY	NET	TEAM	COMM	IRTUA	MECHA
TRANS, Pearson Cor	1.000	.105	.040	.104	.249*	.368*	.451*	.410*	.040	.261*	.138	.368*	.280*	-.427*
Sig. (1-tailed)		.147	.345	.149	.006	.000	.000	.000	.344	.004	.083	.000	.002	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
ENV, Pearson Cor	.105	1.000	-.006	.014	.086	.180*	.072	.292*	.294*	.304*	.147	.184*	.318*	-.135
Sig. (1-tailed)	.147		.476	.444	.194	.035	.235	.001	.001	.001	.071	.032	.001	.087
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CENT, Pearson Cor	.040	-.006	1.000	-.132	-.139	.112	.036	-.191*	.018	-.065	-.079	-.021	-.055	.135
Sig. (1-tailed)	.345	.476		.093	.082	.131	.359	.028	.430	.257	.214	.417	.293	.088
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
FORM, Pearson Cor	.104	.014	-.132	1.000	.495*	.327*	.353*	.336*	-.055	.140	.096	.108	.095	-.317*
Sig. (1-tailed)	.149	.444	.093		.000	.000	.000	.000	.291	.081	.168	.140	.171	.001
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
SPEC, Pearson Cor	.249*	.086	-.139	.495*	1.000	.226*	.279*	.500*	.076	.375*	.084	.112	.177*	-.266*
Sig. (1-tailed)	.006	.194	.082	.000		.011	.002	.000	.223	.000	.199	.130	.038	.003
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
STRUC, Pearson Cor	.368*	.180*	.112	.327*	.226*	1.000	.778*	.461*	.140	.138	.318*	.242*	.351*	-.908*
Sig. (1-tailed)	.000	.035	.131	.000	.011		.000	.000	.081	.083	.001	.007	.000	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PROC, Pearson Cor	.451*	.072	.036	.353*	.279*	.778*	1.000	.492*	.095	.152	.248*	.298*	.319*	-.930*
Sig. (1-tailed)	.000	.235	.359	.000	.002	.000		.000	.171	.064	.006	.001	.001	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CONT, Pearson Cor	.410*	.292*	-.191*	.336*	.500*	.461*	.492*	1.000	.073	.414*	.310*	.242*	.359*	-.532*
Sig. (1-tailed)	.000	.001	.028	.000	.000	.000	.000		.232	.000	.001	.007	.000	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PHY, Pearson Cor	.040	.294*	.018	-.055	.076	.140	.095	.073	1.000	.082	.339*	.132	.656*	-.127
Sig. (1-tailed)	.344	.001	.430	.291	.223	.081	.171	.232		.207	.000	.092	.000	.102
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
NET, Pearson Cor	.261*	.304*	-.065	.140	.375*	.138	.152	.414*	.082	1.000	.086	.149	.284*	-.161
Sig. (1-tailed)	.004	.001	.257	.081	.000	.083	.064	.000	.207		.194	.067	.002	.053
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
TEAM, Pearson Cor	.138	.147	-.079	.096	.084	.318*	.248*	.310*	.339*	.086	1.000	.241*	.800*	-.315*
Sig. (1-tailed)	.083	.071	.214	.168	.199	.001	.006	.001	.000	.194		.007	.000	.001
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
COMM, Pearson Cor	.368*	.184*	-.021	.108	.112	.242*	.298*	.242*	.132	.149	.241*	1.000	.617*	-.289*
Sig. (1-tailed)	.000	.032	.417	.140	.130	.007	.001	.007	.092	.067	.007		.000	.002
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
IRTUA, Pearson Cor	.280*	.318*	-.055	.095	.177*	.351*	.319*	.359*	.656*	.284*	.800*	.617*	1.000	-.367*
Sig. (1-tailed)	.002	.001	.293	.171	.038	.000	.001	.000	.000	.002	.000	.000		.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102
MECHA, Pearson Cor	-.427*	-.135	.135	-.317*	-.266*	-.908*	-.930*	-.532*	-.127	-.161	-.315*	-.289*	-.367*	1.000
Sig. (1-tailed)	.000	.087	.088	.001	.003	.000	.000	.000	.102	.053	.001	.002	.000	
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102

**Correlation is significant at the 0.01 level (1-tailed).

*Correlation is significant at the 0.05 level (1-tailed).

Table 4.15: Standard multiple regression of centralisation, formalisation, structural liaison and process liaison on transactional leadership

Variables	Transac	Cent	Form	Struc	Process	B	β	sr ² (unique)
Cent	0.04					0.02	0.10	
Form	0.10	-0.13				-0.42	-0.06	
Struc	0.37**	0.11	0.33**			0.05	0.05	
Proc	0.45**	0.04	0.35**	0.78**		0.41**	0.43	0.07
						Intercept = 5.437		
Means	6.75	3.40	1.25	3.67	3.83			
Standard deviations	1.34	0.57	0.21	1.34	1.42	R ² = 0.21		
						Adjusted R ² = 0.18		
						R = 0.46**		

*p < 0.05

**p < 0.01

Table 4.15 displays the results of a standard multiple regression of centralisation, formalisation, structural liaison and process liaison as the independent variables on transactional leadership as the dependent variable. (See Table 4.14 and Annexure 3 b).

The multiple regression coefficient (R) was significantly different from zero, $F(4,97) = 6.357$, $p < .001$. Only one of the independent variables contributed significantly to the prediction of transactional leadership, namely process liaison ($sr^2 = 0.07$). Thus, the amount of R^2 attributable to unique sources is 7%. Centralisation, formalisation, structural liaison and process liaison in combination contributed another 14% to the variance in transactional leadership. Altogether, 21% of the variance in transactional leadership was predicted by the four independent variables.

Although the correlation between transactional leadership and structural liaison ($r = 0.37$, $p < 0,01$) was significant, structural liaison did not contribute significantly to the regression. Thus, transactional leadership can be predicted by only taking into account the scores gained on process liaison. Apparently the relationship between transactional leadership and structural liaison is an indirect result of the relationship between transactional leadership and process liaison.

4.6 The relationship between transformational leadership and virtual structure

The Pearson product-moment correlation coefficient between transformational leadership and virtual structure is shown in Table 4.12.

Table 4.12. indicates that a significant positive relationship exists between transformational leadership and virtual structure ($r = 0.20$, $p < 0.05$). Thus, Hypothesis 3 was confirmed. It means that transformational leadership is more prevalent in an organisation with a virtual structure.

4.7 The relationship between transactional leadership and virtual structure

The Pearson product-moment correlation coefficient between transactional leadership and virtual structure is shown in Table 4.14.

Table 4.14 indicates that a significant positive relationship exists between transactional leadership and virtual structure ($r = 0.28$, $p < 0.05$). Thus, Hypothesis 4 was rejected. It means that transactional leadership is more prevalent in an organisation with a virtual structure. While a significant positive relationship was found between contingent reward and virtual structure ($r = 0.29$, $p < 0.01$), no significant relationship was found between management-by-exception and virtual structure. (See Annexure 2).

4.8 The relationship between organic-mechanistic structure and virtual structure

The Pearson product-moment correlation coefficient between virtual structure and organic-mechanistic structure is shown in Table 4.14.

Table 4.14 indicates that a significant negative relationship exists between virtual structure and organic-mechanistic structure ($r = -0.37$, $p < 0.01$). Thus, Hypothesis 5 was confirmed. It means that the virtual structure consists more of an organic structure than a mechanistic structure.

Table 4.16: Standard multiple regression of centralisation, formalisation, structural liaison and process liaison on virtual structure

Variables	Virtual	Cent	Form	Struc	Process	B	β	sr ² (unique)
Cent	-0.06					-0.43	-0.10	
Form	0.10	-0.13				-0.64	-0.05	
Struc	0.35**	0.11	0.33**			0.53	0.29	
Proc	0.32**	0.04	0.35**	0.78**		0.21	0.12	
						Intercept = 10.351		
Means	10.8	3.40	1.25	3.67	3.83			
Standard deviations	2.48	0.57	0.21	1.34	1.42			R ² = 0.14
						Adjusted	R ² = 0.10	
								R = 0.37**

*p < 0.05

**p < 0.01

Table 4.17 displays the results of a standard multiple regression of centralisation, formalisation, structural liaison and process liaison as the independent variables on virtual structure as the dependent variable (See Table 4.14 and Annexure 3 c).

The multiple regression coefficient (R) was significantly different from zero, $F(4,97) = 3.905$, $p < 0.01$. None of the independent variables contributed significantly to the prediction of virtual structure. Altogether, 14% of the variance in virtual structure was predicted by the four independent variables by centralisation, formalisation, structural liaison and process liaison.

Although the correlation between virtual structure and structural liaison ($r = 0.35$, $p < 0,01$) and process liaison ($r = 0.32$, $p < 0,01$) were significant, structural and process liaison did not contribute significantly to the regression.

4.9 The relationship between environment and leadership

The Pearson product-moment correlation coefficient between transformational leadership and environmental uncertainty is displayed in Table 4.12.

Table 4.12 indicates that no significant relationship exists between transformational leadership and environmental uncertainty. Thus, Hypothesis 6, namely that a significant positive relationship exists between transformational leadership and environmental uncertainty was rejected. Furthermore, no

significant relationship was found between transformational leadership and any of the dimensions of transformational leadership, namely individual consideration, intellectual stimulation, inspirational motivation and idealised influence.

The Pearson product-moment correlation coefficient between transactional leadership and environmental uncertainty is displayed in Table 4.14.

Table 4.14 indicates that no significant relationship exists between transactional leadership and environmental uncertainty. Thus, Hypothesis 7, namely that a significant negative relationship exists between transactional leadership and environmental uncertainty, was rejected. In addition, no significant relationship was found between transactional leadership and any of the dimensions of transactional leadership, namely contingent reward and management-by-exception.

4.10 The relationship between environment and organic-mechanistic structure

The Pearson product-moment correlation coefficient between organic-mechanistic structure and environmental uncertainty is displayed in Table 4.14.

Table 4.14 indicates that no significant relationship exists between organic-mechanistic structure and environmental uncertainty. Thus, Hypothesis 8, namely that a significant negative relationship exists between organic-mechanistic structure and environmental uncertainty, was rejected.

4.11 The relationship between environment and virtual structure

The relationship between environmental uncertainty and the virtual structure is displayed in Table 4.14

Table 4.14 indicates that a significant positive relationship exists between environmental uncertainty and virtual structure ($r = 0.32$, $p < 0.01$). Thus, Hypothesis 9 was confirmed. It means that a virtual structure is more prevalent in a dynamic environment.

4.12 Summary of results

The study indicated that the reliability of the Multifactor Leadership Questionnaire (MLQ) and the Organisational Structure Questionnaire was adequate for the purpose of this study.

The results indicate that a significant negative relationship exists between transformational leadership and organic-mechanistic structure ($r = -0.45$, $p < 0.01$). It means that transformational leadership is more prevalent in an organisation with an organic structure. These results support Hypothesis 1. The standard multiple regression results indicate that only process liaison ($sr^2 = 0.05$), contributed significantly ($p < 0.05$) to the prediction of transformational leadership in organisations.

Contrary to the literature, the results of this study indicate that a significant negative relationship exists between transactional leadership and organic-mechanistic structure ($r = -0.43$, $p < 0.01$). It means that transactional leadership occurs more readily in an organic structure. Thus, Hypothesis 2 was rejected.

Based on the results of the study, a significant positive relationship exists between transformational leadership and virtual structure ($r = 0.20$, $p < 0.05$). Thus, Hypothesis 3 was confirmed.

The results indicated that a significant positive relationship exists between transactional leadership and a virtual structure ($r = 0.28$, $p < 0.05$). Thus, Hypothesis 4 was rejected.

A significant negative relationship between virtual structure and organic-mechanistic structure ($r = -0.37$, $p < 0.01$) was found. Thus, the results supported Hypothesis 5.

No significant relationship was reported between transformational leadership and environmental uncertainty. Thus, Hypothesis 6 was rejected.

No significant relationship was found between transactional leadership and environmental uncertainty. Thus, Hypothesis 7 was rejected.

No significant relationship was found between organic-mechanistic structure and environmental uncertainty. Thus, Hypothesis 8 was rejected.

The results indicate that a positive relationship exists between environmental uncertainty and virtual structure ($r = 0.32$, $p < 0.01$). Thus, Hypothesis 9 was confirmed.

4.13 Conclusion

The purpose of this chapter was to report and to provide a summary of the results achieved in this study. Even though all hypotheses were not supported by the results, the objective of this study, in some ways more than in others, have been met.

The next chapter will discuss the general conclusions drawn from the research and will also offer certain recommendations regarding future research on this topic.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will firstly discuss the general conclusions derived from the results obtained in this study. Secondly, certain recommendations for future research will be identified.

5.2 General conclusions

The research investigated the prevalence of transformational and transactional leadership in organic-, mechanistic and virtual structures. The research also attempted to investigate the dimensions of virtual structure and its relationship to organic and mechanistic structures, and the relationship between leadership, organic, mechanistic and virtual structures with environmental uncertainty. Given the results of this study as presented in the preceding chapter, the following conclusions are made:

5.2.1 Reliability analysis

The results showed that some of the reliabilities of the measuring instruments were high and some were low. The reliabilities were acceptable for the exploratory research purpose for which the scales were used in this study. The Multifactor Leadership Questionnaire (MLQ) as developed by Bass (1985) revealed low reliability for the transactional leadership scale. The items on transactional leadership could be further refined to capture the nature of the components more clearly. The reliability of the Miller and Dröge (1986) questionnaire has been tested before and has been found reliable and valid for classifying the different organisational structure scales. The Organisational Structure Questionnaire displayed acceptable reliability coefficients for the purpose of this study. The virtual structure subscale in the organisational structure questionnaire was developed for this study and indicated an acceptable Chronbach's alpha for an exploratory study, according to Nunnally (1978). The study indicated that the reliabilities of the leadership and organisational structure questionnaires were adequate for the purpose of this study and it varied from average to high along the critical cut-off point as proposed by Nunnally (1978).

5.2.2 Leadership and organic-mechanistic structure

A significant negative relationship exists between transformational leadership and organic-mechanistic structure. The results indicate that transformational leadership is more prevalent in an organisation with an organic structure.

These findings regarding the relationship between transformational leadership and organic structure were supported by the findings of several researchers (Bass, 1998 and Howell, 1992). Moreover, these results are confirmed by the integrated model of organisational design and leadership adapted from Gibson et al. (1997) and Robbins (2001) in that an organic structure tends to be more tolerant toward transformational leadership. According to Bass (1998), transformational leadership will emerge more frequently in organic organisations (see Table 2.4 and Annexure 2). Thus, transformational leaders will be more prevalent and effective in an organic organisation than in a mechanistic organisation.

A significant negative relationship exists between transactional leadership and organic-mechanistic structure. The results indicate that transactional leadership occurs more frequently in an organic structure.

These empirical findings are incongruent to the literature study, that suggests that a transactional leader will be more effective in a mechanistic organisation (Bass, 1998; Howell, 1992; Roueche et al., 1989). Mechanistic systems are characterised by centralisation, hierarchy of authority and highly standardised rules. As a result, mechanistic organisations emphasise legitimate power and respect for rules and traditions, rather than influence based on exchange or inspiration (Yukl, 1998). Transactional leadership is viewed as an exchange of rewards for compliance. This leadership style is structured, concerned only with efficient ideas and what will work, thus using the power of position as reinforcement (Roueche et al., 1989). Quinn & Hall (Roueche et al., 1989) indicate that a leader oriented toward contingent approval searches for homogeneity, regularity, standardisation, safety and consolidation. According to Bass (1998), managing by exception would be easier to pursue in mechanistic organisations. Mechanistic organisations discourage change and inhibit individual differences, motives and attitudes, thus making managing-by-exception easier to accomplish in this type of organisation and contingent reward will emerge more frequently in organic organisations. The study supports Bass's (1998) proposition that contingent reward orientation is more prevalent in organic organisations (see Annexure 2).

5.2.3 Leadership and virtual structure

A significant positive relationship exists between transformational leadership and a virtual structure. A significant positive relationship between transactional leadership and a virtual structure was also found. Virtual organisations are dynamic entities, which are not controlled by hierarchal arrangements and where individuals are physically separated from each other. Thus, virtual organisations are open to more variations and experimentation which attends greater risk-taking, fitting better the prescription of transformational leadership. Transformational leadership, as its name implies, indicates a process that changes and transforms individuals and organisations (Northouse, 1997). Through the use of transformational behaviours (for example: charisma and inspirational motivation) leaders can influence and develop others from a distance whether they are superiors, direct followers or colleagues. Therefore, transformational leadership behaviours and its influence can be both direct and indirect, whether top-down, bottom-up, or horizontal (Bass & Avolio, 1994). Transformational leaders do not make use of coercive power, but depend on charisma, intellectual stimulation and reference power to encourage personal development and to achieve organisational goals (Roueche et al., 1989). It appears that transformational leadership and contingent reward orientation will emerge more frequently in virtual organisations (see Annexure 2). Thus, transformational leaders and contingent reward orientation will be more prevalent and effective in an organic and a virtual organisation than in a mechanistic organisation.

5.2.4 Organic-mechanistic structure and virtual structure

A significant negative relationship between virtual structure and organic-mechanistic structure was found. This finding supports the notion that virtual structures share some characteristics of organic structures (Cooper & Rousseau, 1999).

5.2.5 Environment and leadership

No significant relationship was found between transformational and transactional leadership, and environmental uncertainty. Empirical research conducted by Miller & Dröge (1986) also found that environmental uncertainty served as a poor predictor of leadership. Howell (Bass, 1998) proposed a list of environmental and organisational conditions likely to affect the emergence of transactional leadership as an exchange relationship and of transformational leadership as charismatic, inspirational and intellectually stimulating (see Table 2.4). Howell proposed further that a stable environment would generate high frequencies of transactional leadership and an unstable environment high frequencies of transformational leadership.

According to Bass (1998, p. 88), organisations and agencies that are functioning in stable environments can afford to depend on their managers to provide the necessary day-to-day leadership. If the technology, workforce and environment are stable as well, things are likely to move along quite well with managers who simply make promises and deliver rewards to employees for carrying out assignments. Moreover, in a stable organisation, even active management-by-exception can be quite effective if the manager monitors employee performance and takes corrective action as needed. Rules and regulations for getting things done, when clearly understood and accepted by the employees, can eliminate the need for leadership under some circumstances. Transactional leadership is likely to emerge and be relatively effective when leaders face a stable and predictable environment.

According to Bass (1998, p.88), organisations that are faced with a turbulent environment when its products and services are created, live and die within the span of a few years. When its current technology becomes obsolete, a rigid organisational structure of rules, regulations, job specifications, and passive management-by-exception becomes inappropriate. Transformational leadership needs to be fostered at all levels in the organisation within a turbulent environment. In order to succeed, the organisation needs to have the flexibility to forecast and meet new demands and changes as they occur and only transformational leadership can enable the firm to do so. Problems, rapid change and uncertainties call for flexibility in the organisation, with determined leaders who can inspire employees to participate enthusiastically in team efforts and share in organisational goals. Under these circumstances, transformational leadership is likely to emerge in organisations and be effective when leaders face an unstable, uncertain, turbulent environment.

5.2.6 Environment and organic-mechanistic structure

No significant relationship was found between organic-mechanistic structure and environmental uncertainty. Contrary to the literature, environmental uncertainty served as poor predictor for organic-mechanistic structure (Miller & Dröge 1986; Mintzberg, 1983).

5.2.7 Environment and virtual structure

The results indicate that a significant positive relationship exists between environmental uncertainty and virtual structure. These results are supported by the integrated model of organisational design and leadership (Gibson et al., 1997; Robbins, 2001) that a virtual structure will be more effective in a dynamic environment.

5.3 Future research recommendations

Given the literature study and results of this study, the following research recommendations are made:

- Extensive research has been conducted on direct leadership that focuses on the interaction relationship between immediate followers and leaders, at various organisational levels and in a multitude of organisational settings. Research on indirect leadership and its effects on individuals not directly reporting to the focal leader is limited. More models should be developed around distance and distributive leadership and how these leaders contribute to organisational structure and individual performance.
- An extensive empirical study on mechanistic, organic and virtual structure and leadership over a longitudinal period in the South African context still needs to be conducted, which may provide managers with sufficient knowledge on how to transform traditional organisations into virtual organisations.
- A more modern measuring instrument for mechanistic and organic structures should be developed to supplement the Organisational Structure Questionnaire of Miller & Dröge (1986).
- Further validation and refinement of the virtual structure questionnaire which was developed in this study is needed.
- More research needs to be conducted to evaluate the conditions under which leadership determines organisational structure, apart from the more traditional contingency variables and the existing models of organisational design and leadership (Burns & Stalker, 1961; Gibson et al., 1997; Lawrence and Lorsch, 1967; Robbins 2001). In this regard, the integrated model of leadership and organisational design developed in this study (see Figure 2.7) can be used as a point of departure for identifying more valid intervening and moderating variables.

5.4 Conclusion

The most significant feature of this study is that it was an attempt to combine leadership, structure and environment. These fields, as the researcher tried to illustrate, are by no means incompatible, but represent an integrated way of understanding the functioning and structuring of leadership and organisations.

The area of empirical investigation into leadership and organisational structure is still in its infancy, and this study raises more questions than it answers. For example: Should transformational and transactional leadership be viewed as separate dimensions or as one dimension? The argument for this disposition is that both dimensions of leadership are vital to effective leadership. Do aspects of leadership influence structure directly, or do they operate on structure through the intermediate process of corporate strategy? These are relevant questions that have not been answered yet.

There are several more direct limitations of this study, which other researches might wish to address. Even though the sample was diversified, the response rate of 102 managers was not ideal. The researcher would recommend a longitudinal analysis to determine whether leadership determines structure or vice versa.

This research topic is very broad and still needs an in-depth analysis. If this study is taken further, it can significantly contribute to effective organisational restructuring and functioning and to selecting effective leadership training programmes.

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Annexure 1: QUESTIONNAIRE

INSTRUCTIONS

The Department of Industrial Psychology at the University of Stellenbosch in South Africa is currently conducting an extensive research project on leadership and organisational structures.

The questionnaire focuses on the nature/structure of the organisation and the leadership styles prevalent in the organisation which will be administrated by Julia Muetudhana. The management of this company has kindly agreed that middle and top management may partake in this research. Participation, however, remains voluntary.

The questionnaires are completed **anonymously**. The information will be kept **confidential** as the questionnaires will be handled and used by the researcher only.

For the research to yield valid results, it is important that you answer **all** the questions as **honestly** and **truthfully** as possible. The answers must reflect your own opinion and perception. The questionnaire consists out of 3 sections (**Section A - Section C**). Please, **answer all questions and statements**.

Thank you for your participation and contribution to this study, it is greatly appreciated.

SECTION A: YOUR DEMOGRAPHIC INFORMATION

NO.(For office use only)

--	--	--

Please mark the following questions with a cross

South Africa	1
Namibia	2

COUNTRY:

SEX:

Male	1
Female	2

AGE (years)

ETHNIC GROUP:

African Colo

1

Coloured

3

Asian

2

White

4

INDUSTRY /SERVICES SECTOR YOUR ORGANISATION PRIMARY OPERATES IN:

Communication

1

Information Technology

4

Transpor

2

Manufacturing

5

Financial Services

3

Local Government

6

Banking services

7

Any other

JOB LEVEL

Middle level management

1

Senior level management

2

Top level management

3

.....End of section A.....

Please turn to Section B ,

SECTION B: LEADERSHIP

This is a questionnaire to provide a description about leadership. Please describe your direct supervisor / manager when answering all the questions.

Directions: Listed below are descriptive statements about your supervisor / manager. For each statement, please indicate **how frequently** the person you report to, displays the behaviour described.

For example: If you feel your supervisor is almost never absent when you need him / her, then cross the box with the number 1.

1	2	3	4	5	6
Almost never x	Once in a while	Sometimes	Fairly often	Frequently	Almost always

Read each question carefully and choose only ONE answer!

The Person I Report To...

Questions	Almost never	Once in a while	Sometimes	Fairly often	Frequently	Almost always
1. Provides me with assistance in exchange for my efforts	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
2. Re-examines critical assumptions to question whether they are appropriate	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
3. Fails to interfere until problems become serious	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
4. Focuses attention on irregularities, mistakes, exceptions and deviations from standards	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
5. Talks about his/her most important values and beliefs	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
6. Seeks differing perspectives when solving problems	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
7. Talks optimistically about the future	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
8. Instills pride in me for being associated with him/her	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
9. Discusses in specific terms who is responsible for achieving performance targets	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
10. Waits for things to go wrong before taking action	1 Almost	2 Once in a	3 Sometimes	4 Fairly	5 Frequently	6 Almost

	never	while		often		always
11. Talks enthusiastically about what needs to be accomplished	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
12. Specifies the importance of having a strong sense of purpose	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
13. Spends time supporting and coaching	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
14. Makes clear what one can expect to receive when performance goals are achieved	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
15. Shows he/she is a firm believer in "if it isn't broken, don't fix it."	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
16. Goes beyond his/her self-interest for the good of the group.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
17. Treats you as an individual rather than just a member of the group	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
18. Demonstrates that problems must become chronic before he/she will take action.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
19. Acts in ways that builds my respect	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
20. Concentrates on correcting anticipating mistakes, complaints and failures	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
21. Considers the moral and ethical consequences of his/her decisions	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
22. Keeps track of all mistakes	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
23. Displays a sense of power and confidence	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
24. Articulates a compelling vision of the future	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
25. Directs his/her attention toward failures to meet standards	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
26. Considers me as having different needs, abilities and aspirations from others.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
27. Gets me to look at problems from many different angles	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

28.Helps me to develop my strengths	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
29. Suggests new ways of looking at how to complete assignments	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
30. Emphasises the importance of having a collective sense of mission	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
31. Expresses satisfaction when I meet expectations	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
32. Expresses confidence that goals will be achieved	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

..... End of Section B

Please turn over to Section C

SECTION C: ORGANISATIONAL STRUCTURE

This questionnaire provides a description on the dimensions of the structure of your organisation.

Read each question carefully and choose only ONE answer!

Please answer the following questions for the industry that accounts for the **largest %** of your sales/services (in other words, your principal industry). Always answer by crossing (x) the correct digit unless otherwise noted. How rapid or intense is each of the following in your main industry? Please cross (x) the number in each scale that best approximates the actual conditions in it.

1. Environmental uncertainty

Our organisation must rarely change its marketing practices to keep up with the market and competitors.	1	2	3	4	5	6	7	Our organisation must change its marketing practices extremely frequently (e.g., semiannually).
The rate at which products/ services are getting obsolete in the industry is very slow (e.g., basic metal like copper).	1	2	3	4	5	6	7	The rate of obsolescence is very high as in some fashion goods.
Actions of competitors are quite easy to predict (as in some primary industries).	1	2	3	4	5	6	7	Actions of competitors are unpredictable.
Demand and consumer tastes are fairly easy to forecast (e.g., for milk companies).	1	2	3	4	5	6	7	Demand and tastes are almost unpredictable (e.g., high-fashion goods).
The production/service technology is not subject to very much change and is well established (e.g., in steel production).	1	2	3	4	5	6	7	The modes of production/service change often and in a major way (e.g., advanced electronic components).

2. Centralisation

Which level in your organisation/business unit has the authority to make the following decisions?					
Decision concerning:					
a. The number of workers required	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
b. Whether to employ a worker	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
c. Internal labour disputes	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
d. Overtime to be worked at shop level	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive

e. Delivery dates and priority of orders	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
f. Production plans to be worked on	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
g. Dismissal of a worker	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
h. Methods of personnel selection	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
i. Method of work to be used	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
j. Machinery or equipment to be used	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive
k. Allocation of work among available workers	1 Non-management	2 First-level supervisors	3 Middle management	4 Top management	5 Chief Executive

3. Formalisation

Which of the following applies to the documents and procedures used in your organisation?

a. Written contract of employment

No	Yes
----	-----

b. Information booklets treating, for example, security, working conditions, employment rules and regulations, etc., are given to:

0 No one	1 Only few employees	2 Many employees	3 All employees
-------------	-------------------------	---------------------	--------------------

c. An organisation chart is given to:

1 Chief executive only	2 Top executives only	3 All middle managers (e.g., department heads)	4 All supervisors
---------------------------	--------------------------	---	----------------------

d. Written job descriptions are made for:

Production workers

No	Yes
----	-----

Clerical worker

No	Yes
----	-----

Supervisors

No	Yes
----	-----

Specialists

No	Yes
----	-----

Middle management

Top management

e. In your organisation/business unit is there:

A written business policy?

No	Yes
----	-----

A written manual of procedures and fixed rules?

No	Yes
----	-----

Written operating instructions for employees

No	Yes
----	-----

4. Specialisation

Which of the following activities are dealt with **exclusively** by at least **one** full-time person in the organisation who:

a. Is responsible for PR, advertising or promotion.

No	Yes
----	-----

b. Disposes of, distributes or services the output.

No	Yes
----	-----

c. Carries outputs, resources and other material from one place to another.

No	Yes
----	-----

d. Acquires and allocates human resources.

No	Yes
----	-----

e. Develops and trains personnel.

No	Yes
----	-----

f. Takes care of welfare, security, or social services.

No	Yes
----	-----

g. Obtains and controls materials and equipment (buying and stock control).

No	Yes
----	-----

h. Maintains and erects buildings and equipment.

No	Yes
----	-----

i. Records and controls financial resources (accounts).

No	Yes
----	-----

j. Controls workflow (planning, scheduling).

No	Yes
----	-----

k. Takes care of quality control (inspection).

No	Yes
----	-----

l. Assesses and devises ways of producing output (work – study methods, operation study, etc.).

No	Yes
----	-----

m. Devises new outputs, equipments, and processes (design and development).

No	Yes
----	-----

n. Develops and carries out administrative procedures (statistics, information systems, filing etc.).

No	Yes
----	-----

o. Deals with legal and insurance requirements.

No	Yes
----	-----

p. Acquires information on the market–field of the organisation (market research).

No	Yes
----	-----

No	Yes
----	-----

No	Yes
----	-----

5. Structural liaison

In assuring the compatibility among decisions in one area (e.g., marketing) with those in other areas(e.g., production), to what extent are the following "integrative mechanisms" used?

Interdepartmental committees which are set up to allow departments to engage in joint decision making.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Task forces which are temporary bodies set up to facilitate interdepartmental collaboration on a specific project.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Liaison personnel whose specific job it is to coordinate the efforts of several departments for purposes of a specific project.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

To what extent is decision making at top levels in your organisation characterised by participative, cross-functional committees in which different departments, functions or divisions get together to decide the following classes of decisions:

Product or service decisions concerning production, marketing and R & D strategies.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Capital budget decisions – the selection and financing of long-term investments.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Long-term strategies (of growth, diversification, etc.) and decisions related to changes in the organisation's operating philosophy.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

6. Process liaison

In assuring the compatibility among decisions between departments to what extent are the following integrative mechanisms used?

Planning – so that decisions are co-ordinated via some master plan.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Bargaining among the heads of departments.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

Please cross the number on the scale that best reflects your opinion.

Each department makes decisions more or less on its own, without regard to other departments.	1	2	3	4	5	6	7	There is great deal of departmental interaction on most decisions.
Often there is a lack of complementarity between the decisions of different departments.	1	2	3	4	5	6	7	Decisions of the different departments are mutually reinforcing.

7. Controls

Rate the extent to which the following control devices are used to gather information about the performance of your organisation:

A comprehensive management control and information system.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Use of cost centers for cost control.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Use of profits centers and profit targets.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Quality control of operations by using sampling and other techniques.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Cost control by fixing standard costs and analysing variations.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Formal appraisal of personnel.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

8. Number of sites

What is the number of operating sites (e.g., plants and branches) of the organisation? _____

9. Proportion of managers

What is the proportion of managerial personnel to total personnel (include all levels of management with first-line supervisors)? _____%

10. Vertical span

How many levels are there in the organisation? Please, count the number of levels in the longest line between direct workers (non-management) and the chief executive (include both these levels) in the production or service function.

11. Virtual organisations:

Is whereby people use a computer network to work cooperatively and share knowledge quickly and easily regardless of time, distance, and organizational boundaries.

a. Communication

How often are the following media of communication used in your organisation to facilitate information dissemination and decision making?

Electronic-mail (e-mail)	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Verbal interactive/ face-to-face meetings	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Special PC software decision aids	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Voice mail	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Mobile phones	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Telecommuting	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Teleconferencing	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Commercial online services	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

b. Physical Proximity/ Location:

Employees share the same building (same working space).	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Work can be performed at a variety of locations, including employees' homes rather than at their offices at work.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Managers have the responsibility to coordinate projects where the people involved are distributed at remote sites.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

c. Network structure

Does your company or association of companies consist of a broker organisation, that play a controlling role and subcontract needed services and products?

No	Yes
----	-----

Does your company consist of independent, geographical dispersed organisations or business units?

No	Yes
----	-----

Is your organisation boundaryless and does it link separate business units to facilitate task interaction?

No	Yes
----	-----

d. Teamwork

Maak hierdie open-ended.

Does your organisation make use of self-managed teams?	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always
Employees are members of teams but do not necessarily work in the same location.	1 Almost never	2 Once in a while	3 Sometimes	4 Fairly often	5 Frequently	6 Almost always

END OF QUESTIONNAIRE
THANK YOU FOR YOUR CO-OPERATION

Annexure 2: Correlation between the dimensions of leadership and dimensions of organisational structure

Correlations

	TELLE	INSPIR	INDIVID	CONTIN	HARISMANAG	ENV	CENT	FORM	SPEC	CONT	STRUC	PROC	PHY	NET	TEAM	COMM	VIRTUA	MECHA	
INTELLI Pearson Cor	1.000	.807*	.827*	.758*	.833*	-.070	.028	.171*	.198*	.132	.392*	.445*	.272*	-.002	.042	.151	.201*	.171*	-.399*
Sig. (1-tailed)		.000	.000	.000	.000	.242	.391	.043	.023	.093	.000	.000	.003	.491	.338	.064	.021	.043	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
INSPIR Pearson Cor	.807*	1.000	.824*	.784*	.882*	-.096	.066	.158	.109	.257*	.481*	.514*	.325*	.036	.097	.138	.175*	.176*	-.495*
Sig. (1-tailed)	.000		.000	.000	.000	.168	.255	.056	.138	.005	.000	.000	.000	.359	.165	.083	.039	.038	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
INDIVID Pearson Cor	.827*	.824*	1.000	.767*	.856*	-.115	.050	.180*	.077	.182*	.409*	.423*	.228*	.111	-.019	.187*	.224*	.237*	-.404*
Sig. (1-tailed)	.000	.000		.000	.000	.124	.308	.035	.221	.034	.000	.000	.010	.134	.426	.030	.012	.008	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CONTIN Pearson Cor	.758*	.784*	.767*	1.000	.769*	-.099	.127	.132	.100	.242*	.429*	.499*	.391*	.129	.208*	.163	.300*	.294*	-.466*
Sig. (1-tailed)	.000	.000	.000		.000	.162	.102	.093	.158	.007	.000	.000	.000	.099	.018	.051	.001	.001	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CHARIS Pearson Cor	.833*	.882*	.856*	.769*	1.000	-.079	.059	.139	.124	.212*	.400*	.425*	.235*	.033	.030	.124	.160	.151	-.406*
Sig. (1-tailed)	.000	.000	.000	.000		.214	.277	.082	.106	.016	.000	.000	.009	.372	.383	.108	.055	.065	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
MANAG Pearson Cor	-.070	-.096	-.115	-.099	-.079	1.000	-.002	-.131	.014	.044	-.036	-.012	.102	-.152	.104	.001	.141	.012	-.003
Sig. (1-tailed)	.242	.168	.124	.162	.214		.490	.094	.443	.331	.359	.454	.154	.064	.149	.497	.078	.453	.489
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
ENV Pearson Cor	.028	.066	.050	.127	.059	-.002	1.000	-.006	.014	.086	.180*	.072	.292*	.294*	.304*	.147	.184*	.318*	-.135
Sig. (1-tailed)	.391	.255	.308	.102	.277	.490		.476	.444	.194	.035	.235	.001	.001	.001	.071	.032	.001	.087
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CENT Pearson Cor	.171*	.158	.180*	.132	.139	-.131	-.006	1.000	-.132	-.139	.112	.036	-.191*	.018	-.065	-.079	-.021	-.055	.135
Sig. (1-tailed)	.043	.056	.035	.093	.082	.094	.476		.093	.082	.131	.359	.028	.430	.257	.214	.417	.293	.088
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
FORM Pearson Cor	.198*	.109	.077	.100	.124	.014	.014	-.132	1.000	.495*	.327*	.353*	.336*	-.055	.140	.096	.108	.095	-.317*
Sig. (1-tailed)	.023	.138	.221	.158	.106	.443	.444	.093		.000	.000	.000	.000	.291	.081	.168	.140	.171	.001
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
SPEC Pearson Cor	.132	.257*	.182*	.242*	.212*	.044	.086	-.139	.495*	1.000	.226*	.279*	.500*	.076	.375*	.084	.112	.177*	-.266*
Sig. (1-tailed)	.093	.005	.034	.007	.016	.331	.194	.082	.000		.011	.002	.000	.223	.000	.199	.130	.038	.003
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
STRUC Pearson Cor	.392*	.481*	.409*	.429*	.400*	-.036	.180*	.112	.327*	.226*	1.000	.778*	.461*	.140	.138	.318*	.242*	.351*	-.908*
Sig. (1-tailed)	.000	.000	.000	.000	.000	.359	.035	.131	.000	.011		.000	.000	.081	.083	.001	.007	.000	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PROC Pearson Cor	.445*	.514*	.423*	.499*	.425*	-.012	.072	.036	.353*	.279*	.778*	1.000	.492*	.095	.152	.248*	.298*	.319*	-.930*
Sig. (1-tailed)	.000	.000	.000	.000	.000	.454	.235	.359	.000	.002	.000		.000	.171	.064	.006	.001	.001	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
CONT Pearson Cor	.272*	.325*	.228*	.391*	.235*	.102	.292*	-.191*	.336*	.500*	.461*	.492*	1.000	.073	.414*	.310*	.242*	.359*	-.532*
Sig. (1-tailed)	.003	.000	.010	.000	.009	.154	.001	.028	.000	.000	.000	.000		.232	.000	.001	.007	.000	.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
PHY Pearson Cor	-.002	.036	.111	.129	.033	-.152	.294*	.018	-.055	.076	.140	.095	.073	1.000	.082	.339*	.132	.656*	-.127
Sig. (1-tailed)	.491	.359	.134	.099	.372	.064	.001	.430	.291	.223	.081	.171	.232		.207	.000	.092	.000	.102
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
NET Pearson Cor	.042	.097	-.019	.208*	.030	.104	.304*	-.065	.140	.375*	.138	.152	.414*	.082	1.000	.086	.149	.284*	-.161
Sig. (1-tailed)	.338	.165	.426	.018	.383	.149	.001	.257	.081	.000	.083	.064	.000	.207		.194	.067	.002	.053
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
TEAM Pearson Cor	.151	.138	.187*	.163	.124	.001	.147	-.079	.096	.084	.318*	.248*	.310*	.339*	.086	1.000	.241*	.800*	-.315*
Sig. (1-tailed)	.064	.083	.030	.051	.108	.497	.071	.214	.168	.199	.001	.006	.001	.000	.194		.007	.000	.001
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
COMM Pearson Cor	.201*	.175*	.224*	.300*	.160	.141	.184*	-.021	.108	.112	.242*	.298*	.242*	.132	.149	.241*	1.000	.617*	-.289*
Sig. (1-tailed)	.021	.039	.012	.001	.055	.078	.032	.417	.140	.130	.007	.001	.007	.092	.067	.007		.000	.002
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
VIRTUA Pearson Cor	.171*	.176*	.237*	.294*	.151	.012	.318*	-.055	.095	.177*	.351*	.319*	.359*	.656*	.284*	.800*	.617*	1.000	-.367*
Sig. (1-tailed)	.043	.038	.008	.001	.065	.453	.001	.293	.171	.038	.000	.001	.000	.000	.002	.000	.000		.000
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
MECHA Pearson Cor	-.399*	-.495*	-.404*	-.466*	-.406*	-.003	-.135	.135	-.317*	-.266*	-.908*	-.930*	-.532*	-.127	-.161	-.315*	-.289*	-.367*	1.000
Sig. (1-tailed)	.000	.000	.000	.000	.000	.489	.087	.088	.001	.003	.000	.000	.000	.102	.053	.001	.002	.000	
N	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102

**Correlation is significant at the 0.01 level (1-tailed).

*Correlation is significant at the 0.05 level (1-tailed).

ANNEXURE 3 A: STANDARD MULTIPLE REGRESSION: DIMENSIONS OF ORGANIC-MECHANISTIC STRUCTURE ON TRANSFORMATIONAL LEADERSHIP

Descriptive Statistics

	Mean	Std. Deviation	N
TRANSFOR	14.9931	4.7110	102
CENT	3.3987	.5725	102
FORM	1.2511	.2070	102
STRUC	3.6683	1.3398	102
PROC	3.8284	1.4151	102

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	STRUC, CENT, FORM, PROC		Enter

- a All requested variables entered.
- b Dependent Variable: TRANSFOR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.516 ^a	.266	.236	4.1178	.266	8.799	4	97	.000

a. Predictors: (Constant), PROC, CENT, FORM, STRUC

ANOVA ^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	596.825	4	149.206	8.799	.000 ^a
	Residual	1644.755	97	16.956		
	Total	2241.580	101			

- a. Predictors: (Constant), PROC, CENT, FORM, STRUC
- b. Dependent Variable: TRANSFOR

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	% Confidence Interval for		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
		1	(Constant)	5.223			3.754		1.391	.167	-2.227
	CENT	1.143	.733	.139	1.560	.122	-.312	2.599	.174	.156	.136
	FORM	-.633	2.155	-.028	-.294	.770	-4.910	3.645	.134	-.030	-.026
	STRUC	.569	.495	.162	1.151	.253	-.413	1.551	.449	.116	.100
	PROC	1.198	.468	.360	2.557	.012	.268	2.128	.481	.251	.222

a. Dependent Variable: TRANSFOR

B. STANDARD MULTIPLE REGRESSION: STRUCTURAL DIMENSIONS ON TRANSACTIONAL LEADERSHIP

Descriptive Statistics

	Mean	Std. Deviation	N
TRANSAC	6.7479	1.3355	102
CENT	3.3987	.5725	102
FORM	1.2511	.2070	102
STRUC	3.6683	1.3398	102
PROC	3.8284	1.4151	102

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	PROC, CENT, FORM, STRUC ^a		Enter

- a. All requested variables entered.
 b. Dependent Variable: TRANSAC

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.456 ^a	.208	.175	1.2130	.208	6.357	4	97	.000

- a. Predictors: (Constant), STRUC, CENT, FORM, PROC

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.417	4	9.354	6.357	.000 ^a
	Residual	142.728	97	1.471		
	Total	180.145	101			

- a. Predictors: (Constant), STRUC, CENT, FORM, PROC
 b. Dependent Variable: TRANSAC

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part
		Beta									
1	(Constant)	5.437	1.106		4.917	.000	3.242	7.631			
	CENT	2.353E-02	.216	.010	.109	.913	-.405	.452	.040	.011	.010
	FORM	-.416	.635	-.064	-.655	.514	-1.676	.844	.104	-.066	-.059
	STRUC	5.024E-02	.146	.050	.345	.731	-.239	.339	.368	.035	.031
	PROC	.409	.138	.434	2.966	.004	.135	.683	.451	.288	.268

- a. Dependent Variable: TRANSAC

C. STANDARD MULTIPLE REGRESSION: STRUCTURAL DIMENSIONS ON VIRTUAL STRUCTURE

Descriptive Statistics

	Mean	Std. Deviation	N
VIRTUAL	10.8464	2.4791	102
CENT	3.3987	.5725	102
FORM	1.2511	.2070	102
STRUC	3.6683	1.3398	102
PROC	3.8284	1.4151	102

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	PROC, CENT, FORM, STRUC ^a		Enter

a. All requested variables entered.

b. Dependent Variable: VIRTUAL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.372 ^a	.139	.103	2.3477	.139	3.905	4	97	.006

a. Predictors: (Constant), PROC, CENT, FORM, STRUC

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.100	4	21.525	3.905	.006 ^a
	Residual	534.657	97	5.512		
	Total	620.757	101			

a. Predictors: (Constant), PROC, CENT, FORM, STRUC

b. Dependent Variable: VIRTUAL

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	10.351	2.140		4.837	.000	6.104	14.599			
	CENT	-.425	.418	-.098	-1.017	.312	-1.255	.404	-.055	-.103	-.096
	FORM	-.640	1.229	-.053	-.521	.604	-3.078	1.799	.095	-.053	-.049
	STRUC	.533	.282	.288	1.889	.062	-.027	1.093	.351	.188	.178
	PROC	.206	.267	.117	.770	.443	-.325	.736	.319	.078	.073

a. Dependent Variable: VIRTUAL