Connections between organisational culture, leadership and the innovation climate in Estonian enterprises*

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Abstract

The purpose of this paper is to investigate connections between organisational culture, leadership and the innovation climate. A survey was conducted in Estonian electrical-electronic machine, retail and machine-building enterprises. The research questions are following. How do four organisational culture types - hierarchy, market, clan and adhocracy according to Cameron and Quinn (1999) predict three leadership factors according to Leader-Member Exchange (LMX)? How do leadership factors predict the innovation climate was also analysed ?

According to Cameron and Quinn (1999) culture defines the core values, assumptions, interpretations and approaches that characterise an organisation. Competing Values Framework is extremely useful in helping to organize and interpret a wide variety of organisational phenomena. The four dominant culture types – hierarchy, market, clan and adhocracy emerge from the framework.

Leader-Member Exchange (LMX) theory suggests that leaders do not use the same style in dealing with all subordinates, but rather develop a different type of relationship or exchange with each subordinate (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975; Liden & Graen, 1980; Graen, Novak, & Sommerkamp, 1982; Graen & Scandura, 1987).

In this study, authors examine the innovation climate, that is the degree of support and encouragement an organisation provides its employees to take initiative and explore innovative approaches is predicted to influence the degree of actual innovation in that organisation (Martins and Terblanche, 2003; Mumford and Gustafson, 1988).According to Damanpour and Schneider (2006) the climate for innovation is a direct result of top managers' personal and positional characteristics.

In order to find connections between organisational culture types, leadership styles and the innovation climate in Estonian enterprises, the authors conducted an empirical study in 2007-2008. The research was done in Estonian enterprises with 623 respondents. A linear regression analysis was conducted in order to analyse connections between four organizational culture types, three leadership factors and the innovation climate.
Authors developed Scale of Innovation Climate based on Ekvall et al. (1983) Innovation Climate Questionnaire. The final version of questionnaire for measuring the innovation climate consisted 14 items. Based on Cameron and Quinn (1999) authors developed subscales for measuring organisational culture types - clan, market, hierarchy, adhocracy. The final version of subscales consists of 19 items.

Authors used Leader-Member Exchange (LMX) scale with 8 items. 3-factors: affect, loyalty and professional respect were assessed in current research.
Based on the relevant literature authors developed two general propositions: (1) four organisational culture types – clan, hierarchy, market and adhocracy predict leadership factors – affect, loyalty and professional respect, (2) leadership factors – affect, loyalty and professional respect predict the innovation climate.

The results of an empirical study show that market organizational culture type predict leadership factors - affect, loyalty and professional respect. Hierarchy culture type predicts leadership factors – affect and loyalty. Clan and adhocracy culture types predict leadership factor - professional respect. The results of an empirical study show that leadership factors - loyalty and professional respect predict the innovation climate in Estonian enterprises. The model subsequently developed explains how four organizational culture types predict three leadership styles and how these leadership styles predict the innovation climate.

Keywords: the innovation climate, organizational culture, leadership, Estonia, electrical-electronic machine, retail and machine-building enterprises.

Introduction

The purpose of this paper is to investigate connections between organisational culture, leadership and the innovation climate. A survey was conducted in Estonian electrical-electronic machine, retail and machine-building enterprises.

The main aim of the study is to identify the connections between organisational culture, leadership and the innovation climate.

According to Cameron and Quinn (1999) culture defines the core values, assumptions, interpretations and approaches that characterise an organisation. Competing Values Framework is extremely useful in helping to organize and interpret a wide variety of organisational phenomena. The four dominant culture types – hierarchy, market, clan and adhocracy emerge from the framework.

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The main research questions are: Do four organisational culture types – clan, hierarchy, market and adhocracy predict leadership factors – affect, loyalty and professional respect? Do leadership factors – affect, loyalty and professional respect predict the innovation climate?

The following section will explore the theoretical framework of the study by presenting an overview of the literature on this topic. This will be followed by a brief discussion of the relationship between organisational culture, leadership and the innovation climate in Estonian enterprises. Then the empirical study will be presented followed by the results and some concluding remarks.

Theoretical framework

Leadership

Leader-Member Exchange (LMX) theory suggests that leaders do not use the same style in dealing with all subordinates, but rather develop a different type of relationship or exchange with each subordinate (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975; Liden & Graen, 1980; Graen, Novak, & Sommerkamp, 1982; Graen & Scandura, 1987). These relationships range from those that are based strictly on employment contracts (i.e., low LMX, or "outgroup") to those that are characterized by mutual trust, respect, liking and reciprocal influence (i.e., high LMX or "in-group;" Dansereau, et al., 1975).

According to Liden and Maslyn (1998) LMX Dimension Definitions are following. Affect: The mutual affection members of the dyad have for each other based primarily on interpersonal attraction, rather than work or professional values. Loyalty: The expression of public support for the goals and the personal character of the other member of the LMX dyad. Contribution: Perception of the current level of work-oriented activity each member puts forth toward the mutual goals (explicit or implicit) of the dyad. Professional Respect: Perception of the degree to which each member of the dyad has built a reputation, within and/or outside the organization, of excelling at his or her line of work.

The innovation climate

In this study, we examine innovation climate. That is, the degree of support and encouragement an organisation provides its employees to take initiative and explore innovative approaches is predicted to influence the degree of actual innovation in that organisation (Martins and Terblanche, 2003; Mumford and Gustafson, 1988).
Many authors (Van de Ven, 1986; Amabile, 1988; Smith, 2002 Unsworth and Parker, 2003) have found that individual innovation helps to attain organisational success. Employees` innovative behaviour depends greatly on their interaction with others in the workplace (Anderson et al., 2004; Zhou and Shalley, 2003). According to Damanpour and Schneider (2006) the climate for innovation is a direct result of top managers' personal and positional characteristics.
Previous studies treated employees innovative behaviour as a one –dimensional construct that encompasses both idea generation and application behaviour (Scott and Bruce, 1994; Janssen, 2000). This implies that differences in relevant leader behaviour between the two phases remain invisible, which is why recent work recommends keeping these phases of the innovation process separate (Mumford and Licuanan, 2004). Innovation theorists often describe the innovation process as being composed of two main phases: initiation and implementation (Zaltman et al., 1973; Axtell et al., 2000).

According to Buckler and Zien (1996) innovation is the purpose of the whole organisation, a broad activity. In this kind of culture, new ideas come forward into an atmosphere of enthusiastic support and a desire to contribute to them, even though everyone knows that the majority of these ideas will not make it to the market. Innovative companies are on watch to continually refresh this climate, because it can be undermined. „Out of the box" thinking is certainly a major characteristic of an innovative environment. It is essential to become somewhat comfortable with the idea that at times the „unreasonable" solution is exactly what`s called for (Buckler and Zien, 1996).

Organisational culture

By Schein (1992) organisational culture is the pattern of basic assumptions that a given group has invented, discovered or developed in learning to cope with its problems of external adaptation and integral integration. Trice and Beyer (1993) have also connected culture with environment, seeing organisational culture as a collective response to uncertainty and chaos.

According to Cameron and Quinn (1999) there are many kinds or levels of culture that affect individual and organisational behaviour. At the broadest level, a global culture, such as a world religion`s culture or the culture of the Eastern hemisphere, would be the highest level.

Researchers Hofstede (1980) and Tromperaars (1992) have reported marked differences among countries based on certain key dimensions. For example, national differences exist among countries on the basis of universalism versus particularism, individualism versus collectivism, neutrality versus emotionality, specificity versus diffuseness, focus on achievement versus ascription, focus on past versus present versus future, and an internal focus versus an external focus (Tromperaars, 1992).

According to Cameron and Quinn (1999) culture defines the core values, assumptions, interpretations and approaches that characterise an organisation. Competing Values Framework is extremely useful in helping to organize and interpret a wide variety of organisational phenomena. The four dominant culture types – hierarchy, market, clan and adhocracy emerge from the framework. Most organisations develop a dominant cultural style. More than 80 percent of the several thousand organisations they have studied have been characterized by one or more of the culture type identified by the framework. Those that do not have a dominant culture type either tend to be unclear about their culture, or they emphasize nearly equally the four different cultural types.

The Hierarchy Culture

Weber (1947) proposed seven characteristics that have become known as the classical attributes of bureaucracy (rules, specialization, meritocracy, hierarchy, separate ownership, impersonality and accountability). They were adopted widely in organisations whose major challenge was to generate efficient, reliable, smooth-flowing, predictable output.

The organisational culture compatible with this form is characterized by a formalized and structured place to work. Effective leaders are good coordinators and organizers. Maintaining a smooth-running organisation is important. The long-term concerns of the organisation are stability, predictability and efficiency. Formal rules and policies hold the organisation together. New employees begin by doing only one specific job (Cameron, Quinn, 1999).

The Market Culture

The market culture type was based largely on the work of Williamson (1975) and Ouchi (1981). The term market refers to a type of organisation that functions as a market itself. It is oriented toward the external environment instead of internal affairs. It is focused on transactions with external constituencies including suppliers, customers, contractors, licensees, unions, regulators and so forth. The market operates primarily through economic market mechanisms, mainly monetary exchange. That is, the major focus of market is to conduct transactions (exchanges, sales, contracts) with other constituencies to create competitive advantage. Profitability, bottom line results, strength in market niches, stretch targets and secure customer bases are primary objectives of the organisation. The core values that dominate market type organisations are competitiveness and productivity. The major task of management is to drive the organisation toward productivity, results and profits. It is assumed that a clear purpose and an aggressive strategy lead to productivity and profitability (Cameron, Quinn, 1999).

The Clan Culture

A number of researchers observed fundamental differences between the market and hierarchy forms of design in America and clan forms of design in Japan (Ouchi, 1981; Pascale and Athos, 1981). It is called a clan because of its similarity to a family-type organisation. Typical characteristics of clan-type firms were teamwork, employee involvement programs and corporate commitment to employee.

Some basic assumptions in a clan culture are that the environment can best be managed through teamwork and employee development, customers are best thought as partners, the organisation is in the business of developing a humane work environment and the major task of management is to empower employees and facilitate their participation, commitment and loyalty (McGregor, 1960; Likert, 1970; Argyris, 1964).

The organisation is held together by loyalty and tradition. The organisation emphasizes the long-term benefit of individual development with high cohesion and morale being important. Success is defined in terms of internal climate and concern of people (Cameron, Quinn, 1999).

The Adhocracy Culture

The root of the word adhocracy is ad hoc – referring to a temporary, specialized, dynamic unit. Most people have served on an ad hoc task force or committee, which disbands as soon as its task is completed. Adhocracies are similarly temporary. They have been characterized as" tents rather than palaces" in that they can reconfigure themselves rapidly when new circumstances arise. A major goal of an adhocracy is to foster adaptability, flexibility and creativity where uncertainty, ambiguity and/or information-overload are typical. An important challenge of these organisations is to produce innovative products and services and to adapt quickly to new opportunities. Unlike markets or hierarchies, adhocracies do not have centralized power or authority relationships. Instead, power flows from individual to

individual or from task team to task team depending on what problem is being addressed at the time. A high emphasis on individuality, risk taking and anticipating the future exists as almost everyone in an adhocracy becomes involved with production, clients, research and development and so forth (Cameron, Quinn, 1999).

Connection between organisational culture and leadership

Many authors have indicated to the strong relationship between organisational culture and leadership in organisations. Bass (1998), Kotter (1998) and Schein (1992), supported the notion that the survival of an organisation depended upon the change and responsiveness of a culture as influenced by effective leadership. Kotter and Heskett (1992) observed that the most obvious factor that distinguished the success of major cultural change from those that fail, was competent leadership. Parry (2002) concluded that leaders who inspired and helped create adaptive cultures possessed the qualities of transformational leaders.

According to Kwantes and Boglarsky (2007) the perceived relationship across samples was stronger between organizational culture and leadership effectiveness than between organizational culture and personal effectiveness.

Tsai, Wu and Chunq (2009) explored the relationship between organizational culture and administrators' leading behaviour. The results showed that organizational cultures do influence the style of leadership.

Connection between leadership and the innovation climate

One of the main factors that was repeatedly suggested to affect innovation was leadership (King, 1990; Osborne, 1998: Schin & McClomb, 1998, Schein, 1985). Leaders could promote an innovative culture, be product champions or innovators and create an organisational structure that promoted and supported innovativeness (Peters & Waterman, 1982; Van de Ven, 1986).

Based on the relevant literature authors developed the following general propositions:

P1. Four organisational culture types – clan, hierarchy, market and adhocracy predict leadership factors – affect, loyalty and professional respect.

P2. Leadership factors – affect, loyalty and professional respect predict the innovation climate.

Empirical study

In order to find connections between organisational culture types, leadership styles and the innovation climate in Estonian enterprises, the authors conducted an empirical study in 2007-2008. The research was done in Estonian enterprises with 623 respondents.

Methodology - Based on Cameron and Quinn (1999) authors developed subscales for measuring organisational culture types - clan, market, hierarchy, adhocracy. Items were selected. The internal consistency, or Cronbach`s Alpha coefficient is .92 for clan culture type, .90 for market culture type, .87 for hierarchy culture type and .91 for adhocracy culture type. The final version consists of 19 items, which form four subscales – clan with 5 items, market with 4 items, hierarchy with 5 items and adhocracy with 5 items. Authors developed

Scale of Innovation Climate based on Ekvall et al. (1983) Innovation Climate Questionnaire. Items were selected. The internal consistency, or Cronbach`s Alpha coefficient was .70. The final version of questionnaire for measuring innovation consisted 14 items. Authors used Leader-Member Exchange (LMX) scale with 8 items. 3All leadership items were assessed via 6-point scale where 1 represented strongly disagree and 6 represented strongly agree. 3-factors were assessed in the current research: affect, loyalty and professional respect. Affect factor consists of three items. An example of an item was 'I like my supervisor very much as a person'. This scale had a Cronbach of .79. Loyalty factor consists of two items. An example of an item was 'My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question'. This scale had a Cronbach of .78. Professional respect factor consists of three items. An example of an item was 'I am impressed with my supervisor's knowledge of his/ her job'. This scale had a Cronbach of .77.

The linear regression analysis was used in order to find statistically relevant connections between organisational culture, leadership styles and the innovation climate in Estonian enterprises.

Connections between organisational culture, leadership styles and the innovation climate in Estonian enterprises

Our main purpose was to evaluate how four organizational culture types predict different leadership styles and how leadership styles predict the innovation climate. The authors used Linear Regression analysis. In the first analyse organisational culture types were taken as an independent variables and leadership styles as a dependent variable. We calculated a standardised regression coefficient Beta, which enabled us to predict how strongly organisational culture types predict leadership styles. In the second analyse leadership styles were taken as independent variables and the innovation climate was taken as an dependent variable. We calculated a standardised regression coefficient Beta, which enabled us to predict how strongly leadership styles predict the innovation climate. Analysis was applied separately for 4 organisational culture types, for 3 leadership styles and for the innovation climate.

According to the linear regression analysis results in Table 1 and 2, market organizational culture type predict leadership factors - affect, loyalty and professional respect. Hierarchy culture type predicts leadership factors – affect and loyalty. Clan and adhocracy culture types predict leadership factor - professional respect. The results of an empirical study show that leadership factors - loyalty and professional respect predict the innovation climate in Estonian enterprises. The model subsequently developed explains how four organizational culture types predict different leadership styles and how leadership styles predict the innovation climate (Table 1, 2).

Table 1. How do organisational culture types predict leadership styles (according to standardised regression coefficient Beta).

		B	Beta	t	Sig.
Leadership factor - affect					
N=623, R²=.090 F(4.596)=14.885,	CLAN	.010	.011	0.181	.856
	MARKET	..382	.376	5.552	**.000***

p<.000	HIERARCHY	-.098	-.153	-2.482	**.013***
	ADHOCRACY	.011	.014	0.241	.808
Leadership factor - loyalty					
N=623, R²=.171, F(4.596)=30.743, p<.000	CLAN	-.001	-.002	-0.037	.970
	MARKET	.225	.241	3.725	**.000***
	HIERARCHY	.118	.200	3.393	**.000***
	ADHOCRACY	.003	.005	0.085	.932
Leadership factor – professional respect					
N=623, R²=.401, F(4.596)=100.16 p<.000	CLAN	.325	.259	5.101	**.000***
	MARKET	.392	.297	5.407	**.000***
	HIERARCHY	-.083	-.100	-2.002	.045
	ADHOCRACY	.227	.229	4.593	**.000***

Notes. * - coefficient statistically significant, p<0,01

Results indicate that two organisational culture types – market and hierarchy predict leadership factor - affect (R^2=.090 F(4.596)=14.885, p<0.01) and leadership factor – loyalty (R^2=.171, F(4.596)=30.743, p<0.01). Three organisational culture types –clan, market and adhocracy (R^2=.401, F(4.596)=100.16 p<0.01) predict leadership factor – professional respect in Estonian organisations.

Clan and adhocracy culture types doesn`t predict leadership factors – affect and loyalty. Hierarchy culture type doesn`t predict leadership factor – professional respect in Estonian enterprises.

Table 2. How do leadership styles predict the innovation climate (according to standardised regression coefficient Beta).

		B	**Beta**	**t**	**Sig.**
The innovation climate					
N=623, R²=.261, F(3.597)=70.641, p<.000	Leadership factor - affect	-.169	-.072	-1.818	.069
	Leadership factor - loyalty	.460	.180	4.578	**.000***
	Leadership factor – professional respect	.838	.463	12.654	**.000***

Notes. * - coefficient statistically significant, p<0,01

Results indicate that two leadership factors – loyalty and professional respect predict the innovation climate (R^2=.261, F(3.597)=70.641, p<0.01). Leadership factor – affect doesn't predict the innovation climate in Estonian enterprises.

Conclusions

In this article, a theoretical model of the relationship between organisational culture, leadership styles and the innovation climate in Estonian enterprise was developed and analysed. Our purpose was to examine the relationship between leadership styles, the

innovation climate and organizational culture types. The findings of this study contribute to our understanding of the connection between these theoretical constructs.

From this study market organizational culture type predict leadership factors - affect, loyalty and professional respect. Hierarchy culture type predicts leadership factors – affect and loyalty. Clan and adhocracy culture types predict leadership factor - professional respect. The results of an empirical study show that leadership factors - loyalty and professional respect predict the innovation climate in Estonian enterprises. The model subsequently developed explains how four organizational culture types predict different leadership styles and how leadership styles predict the innovation climate (Figure 1). Therefore, the innovation climate in organizations is influenced by the loyal and professional leaders. Market organizational culture type is most suitable for loyal and professional leaders. Hierarchy culture type is suitable for loyal leaders and clan and adhocracy culture types for professional leaders according to this study.

The propositions discussed at the beginning of the paper will now be re-evaluated.

P1. Four organisational culture types – clan, hierarchy, market and adhocracy predict leadership factors – affect, loyalty and professional respect. This postulate was partly supported. Market organizational culture type predict leadership factors - affect, loyalty and professional respect. Hierarchy culture type predicts leadership factors – affect and loyalty. Clan and adhocracy culture types predict leadership factor - professional respect.

P2. Leadership factors – affect, loyalty and professional respect predict the innovation climate. This postulate was partly supported. Leadership factors - loyalty and professional respect predict the innovation climate in Estonian enterprises

Our findings are consistent with following studies.
According to Scott and Bruce (1994) individual innovation was thought to be influenced by co-workers and leaders and was more recently identified as a multistage process between these agents and organisational components such as culture and climate. Bass (1998), Kotter (1998) and Schein (1992), supported the notion that the survival of an organisation depended upon the change and responsiveness of a culture as influenced by effective leadership.

One of the main factors that was repeatedly suggested to affect innovation was leadership (King, 1990; Osborne, 1998: Schin & McClomb, 1998, Schein, 1985).

Implications for managers from this study are following. The innovation climate is a complex entity. Leadership factors - loyalty and professional respect are important to shape the innovation climate in Estonian enterprises. Therefore it should be taken into account when leaders create an innovative climate in an organisation.

There are also limitations in this study connected with its general framework. The authors have focused only on certain factors – organisational culture and leadership factors that influence the innovation climate, but there could be other factors influencing the innovation climate. The author explored concrete connections between a limited number of factors and the other influences have been left for future research. Ethical values in business could be studied and analysed concerning the innovation climate. This research was done in Estonian electric-electronic machine, retail store and machine-building enterprises. Researches in other countries and in other branches should be done.
The concepts: organisation culture, leadership and the innovation climate should be studied in more detail in further studies by using the model developed in this research. Concepts

organisation culture, leadership and the innovation climate are understood and valued differently in different countries and in different organisations. Firstly national cultural differences concerning the concepts of organisation culture, leadership and the innovation climate should be studied. Secondly other factors that influence organisation culture, leadership and the innovation climate should be found out.

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Figure 2. How organisational culture types predict leadership factors and how leadership factors predict the innovation climate

ORGANIZATIONAL CULTURE TYPES

| ADHOCRACY | CLAN | MARKET | HIERARCHY |

LEADERSHIP FACTORS

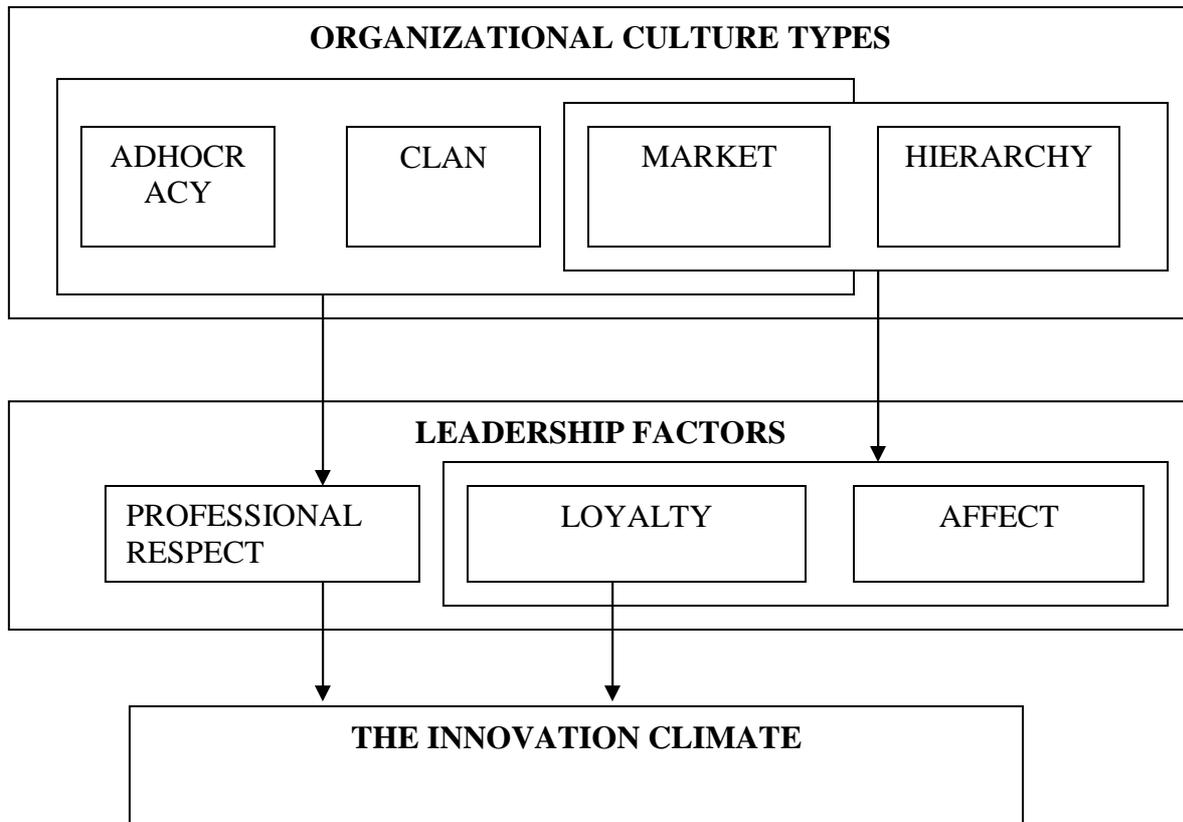| PROFESSIONAL RESPECT | LOYALTY | AFFECT |

THE INNOVATION CLIMATE

Figure 1. How organisational culture types predict leadership factors and how leadership factors predict the innovation climate

ORGANIZATIONAL CULTURE TYPES

| CLAN | MARKET | HIERARCHY | ADHOCRACY |

LEADERSHIP FACTORS		
AFFECT	LOYALTY	PROFESSIONAL RESPECT

↓

THE INNOVATION CLIMATE