

Building organisational culture that stimulates creativity and innovation

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Keywords

Organisational culture, Creativity, Innovation, Attitudes

Abstract

The purpose of this article is to present, by means of a model, the determinants of organisational culture which influence creativity and innovation. A literature study showed that a model, based on the open systems theory and the work of Schein, can offer a holistic approach in describing organisational culture. The relationship between creativity, innovation and culture is discussed in this context. Against the background of this model, the determinants of organisational culture were identified. The determinants are strategy, structure, support mechanisms, behaviour that encourages innovation, and open communication. The influence of each determinant on creativity and innovation is discussed. Values, norms and beliefs that play a role in creativity and innovation can either support or inhibit creativity and innovation depending on how they influence individual and group behaviour. This is also explained in the article.

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European Journal of Innovation Management
Volume 6 · Number 1 · 2003 · pp. 64-74
© MCB UP Limited · ISSN 1460-1060
DOI 10.1108/14601060310456337

Introduction

Post-industrial organisations today are knowledge-based organisations and their success and survival depend on creativity, innovation, discovery and inventiveness. An effective reaction to these demands leads not only to changes, in individuals and their behaviour, but also to innovative changes in organisations to ensure their existence (Read, 1996). It appears that the rate of change is accelerating rapidly as new knowledge, idea generation and global diffusion increase (Chan Kim and Mauborgne, 1999; Senge *et al.*, 1999). Creativity and innovation have a role to play in this change process for survival. The result is that organisations and leaders try to create an institutional framework in which creativity and innovation will be accepted as basic cultural norms in the midst of technological and other changes. Authors like Ahmed (1998), Martell (1989), Pheysey (1993), Robbins (1996) and Schuster (1986) have emphasised the importance of organisational culture in this context. Organisational culture appears to have an influence on the degree to which creativity and innovation are stimulated in an organisation.

Research problem

In some organisations, action is taken to stimulate creativity and innovation. The right steps may have been taken, such as involving personnel in decision making, recruiting and appointing personnel with creativity characteristics, setting standards for work performance and giving regular feedback, but creativity and innovation are hampered in some way. The culture of an organisation may be a contributing factor in the extent to which creativity and innovation occur in an organisation (Johnson, 1996; Judge *et al.*, 1997; Pienaar, 1994; Shaughnessy, 1988; Tesluk *et al.*, 1997; Tushman and O'Reilly, 1997). The current organisational culture and the demands of creativity and innovation may lead to a conflict situation.

This leads to the question: What determinants of organisational culture have an influence on stimulating and promoting organisational culture in organisations?

This central research question is subdivided into the following more specific research questions:



- What is the role of organisational culture in organisations?
- How can the dimensions of organisational culture be described?
- What is understood by creativity and innovation in organisations?
- What is the relationship between creativity, innovation and organisational culture?
- What determinants of organisational culture have an influence on creativity and innovation in organisations?
- How can a culture supportive of creativity and innovation be built?

The purpose of this article is to present, by means of a model, the determinants of organisational culture which influence the degree of creativity and innovation in an organisation.

Method

A literature study, which was descriptive in nature, was undertaken. The aim is to describe the phenomena as accurately as possible. Literature in the managerial sciences is used to describe organisational culture, creativity and innovation in organisations. The demands that creativity and innovation place on the culture of an organisation are derived from the literature study.

Organisational culture defined and its role in organisations

Organisational culture is defined in many different ways in the literature. Perhaps the most commonly known definition is “the way we do things around here” (Lundy and Cowling, 1996). In this research organisational culture is defined as the deeply seated (often subconscious) values and beliefs shared by personnel in an organisation. Organisational culture is manifested in the typical characteristics of the organisation. It therefore refers to a set of basic assumptions that worked so well in the past that they are accepted as valid assumptions within the organisation. These assumptions are maintained in the continuous process of human interaction (which manifests itself in attitudes and behaviour), in other words as the right way in which things are done or problems should be understood in the organisation. The components of routine

behaviour, norms, values, philosophy, rules of the game and feelings all form part of organisational culture (Hellriegel *et al.*, 1998; Smit and Cronje, 1992).

Organisational culture forms an integral part of the general functioning of an organisation. A strong culture provides shared values that ensure that everyone in the organisation is on the same track (Robbins, 1996). The role that organisational culture plays in an organisation can be divided into the functions of organisational culture and the influence that organisational culture has on the different processes in the organisation.

Furnham and Gunter (1993) summarise the functions of organisational culture as internal integration and coordination. Based on a literature study of the functions of organisational culture, internal integration can be described as the socialising of new members in the organisation, creating the boundaries of the organisation, the feeling of identity among personnel and commitment to the organisation. The coordinating function refers to creating a competitive edge, making sense of the environment in terms of acceptable behaviour and social system stability (which is the social glue that binds the organisation together) (Martins, 2000). Organisational culture offers a shared system of meanings, which forms the basis of communication and mutual understanding. If the organisational culture does not fulfil these functions in a satisfactory way, the culture may significantly reduce the efficiency of an organisation (Furnham and Gunter, 1993).

Organisations use different resources and processes to guide behaviour and change. Organisational culture complements rational managerial tools by playing an indirect role in influencing behaviour. Culture epitomises the expressive character of organisations: it is communicated through symbolism, feelings, the meaning behind language, behaviours, physical settings and artifacts. Rational tools and processes like strategic direction, goals, tasks, technology, structure, communication, decision making, cooperation and interpersonal relationships are designed to do things. The expressive practice of culture is more a reflection of a way of saying things (Coffey *et al.*, 1994). An example is the role that organisational culture plays in the mission and goal statements. Organisational culture fills the gaps between what is formally announced and what actually takes place. It is

the direction indicator that keeps strategy on track (Martins, 2000).

Model to describe organisational culture in organisations

Several models have been developed to describe the relationships between phenomena and variables of organisational culture. Some examples are the model of organisational culture as part of organisation reality developed by Sathe (1985), which focuses on the influence of leadership, organisation systems and personnel on the actual and expected behaviour patterns, the effectiveness thereof for the organisation and the level of personnel satisfaction brought about by these behaviour patterns. The criticism of this model is that it does not examine the influence of external factors on the organisational culture. Schein's (1985) model depicts the levels of organisational culture, namely artifacts, values and basic assumptions and their interaction. Schein's model is criticised for not addressing the active role of assumptions and beliefs in forming and changing organisational culture (Hatch, 1993). Some researchers see organisational culture in organisations against the background of the systems theory developed by Ludwig von Bertalanffy (1950) and adapted by several authors such as Katz and Kahn who initially applied the systems theory to organisations in 1966 (French and Bell, 1995), Kast and Rosenzweig (1985) and Kreitner and Kinicki (1992) for application in the organisational development field. The systems approach offers a holistic approach, but also emphasises the interdependence between the different sub-systems and elements in an organisation, which is regarded as an open system (French and Bell, 1995). The organisation system model explains the interaction between the organisational sub-systems (goals, structure, management, technology and psycho-sociology). This complex interaction, which takes place on different levels, between individuals and groups within the organisation, and with other organisations and the external environment, can be seen as the primary determinant of behaviour in the workplace. The patterns of interaction between people, roles, technology and the external environment represent a complex environment which influences behaviour in organisations.

Against this background and the work of Schein (1985), Martins (1987) developed a model to describe organisational culture based on the typical ideal organisation and the importance of leadership in creating an ideal organisational culture. Martins' model is based on the interaction between the organisational sub-systems (goals and values, structural, managerial, technological and psycho-sociological sub-systems), the two survival functions, namely the external environment (social, industrial and corporate culture) and the internal systems (artifacts, values and basic assumptions), and the dimensions of culture. The dimensions of culture encompass the following (Martins, 1987, 1997):

- *Mission and vision* (determines personnel's understanding of the vision, mission and values of the organisation and how these can be transformed into measurable individual and team goals and objectives).
- *External environment* (determines the degree of focus on external and internal customers and also employees' perception of the effectiveness of community involvement).
- *Means to achieve objectives* (determines the way in which organisational structure and support mechanisms contribute to the effectiveness of the organisation).
- *Image of the organisation* (focuses on the image of the organisation to the outside world and whether it is a sought-after employer).
- *Management processes* (focuses on the way in which management processes take place in the organisation. It includes aspects such as decision making, formulating goals, innovation processes, control processes and communication).
- *Employee needs and objectives* (focuses on the integration of employees' needs and objectives with those of the organisation as perceived by employees/personnel).
- *Interpersonal relationships* (focuses on the relationship between managers and personnel and on the management of conflict).
- *Leadership* (focuses on specific areas that strengthen leadership, as perceived by personnel).

This model is a comprehensive model which encompasses all aspects of an organisation upon which organisational culture can have an influence, and vice versa. This model can therefore be used to describe organisational

culture in an organisation and thus be used as background to determine which determinants of organisational culture influence the degree of creativity and innovation in organisations.

Creativity and innovation in organisations

The concepts of creativity and innovation are often used interchangeably in the literature. Consequently, it is important to analyse these concepts in the context of this research. Some definitions of creativity focus on the nature of thought processes and intellectual activity used to generate new insights or solutions to problems. Other definitions focus on the personal characteristics and intellectual abilities of individuals, and still others focus on the product with regard to the different qualities and outcomes of creative attempts (Arad *et al.*, 1997; Udwadia, 1990).

Creativity as a context-specific evaluation can vary from one group, one organisation and one culture to another and it can also change over time. Evaluating creativity should therefore be considered at the level of a person, organisation, industry, profession and wider (Ford, 1995). In the research under discussion the context of creativity is at the level of the organisation, and the concept of creativity can be defined as the generation of new and useful/valuable ideas for products, services, processes and procedures by individuals or groups in a specific organisational context.

Definitions of innovation found in the literature vary according to the level of analysis which is used. The more macro the approach (e.g. social, cultural), the more varied the definitions seem to be (West and Farr, 1990). Some definitions are general and broad, while others focus on specific innovations like the implementation of an idea for a new product or service. In an organisational environment, examples of innovation are the implementation of ideas for restructuring, or saving of costs, improved communication, new technology for production processes, new organisational structures and new personnel plans or programmes (Kanter (1983) cited in West and Farr, 1990; Robbins, 1996).

West and Farr (1990) define innovation as follows: “the intentional introduction and application within a role, group or organization of ideas, processes, products or

procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society”. It appears that the context in which a new idea, product, service or activity is implemented determines whether it can be regarded as an innovation within that specific context (Martins, 2000).

Innovation is often associated with change (Drucker (1985) cited in West and Farr, 1990; Robbins, 1996; Hellriegel *et al.*, 1998).

Innovation is regarded as something new which leads to change. However, change cannot always be regarded as innovation since it does not always involve new ideas or does not always lead to improvement in an organisation (CIMA Study Text, 1996; West and Farr, 1990). An example of change that cannot be regarded as an innovation is changing office hours in an exceptionally hot summer season.

In the research under discussion innovation can be defined as the implementation of a new and possibly problem-solving idea, practice or material artifact (e.g. a product) which is regarded as new by the relevant unit of adoption and through which change is brought about (Martins, 2000).

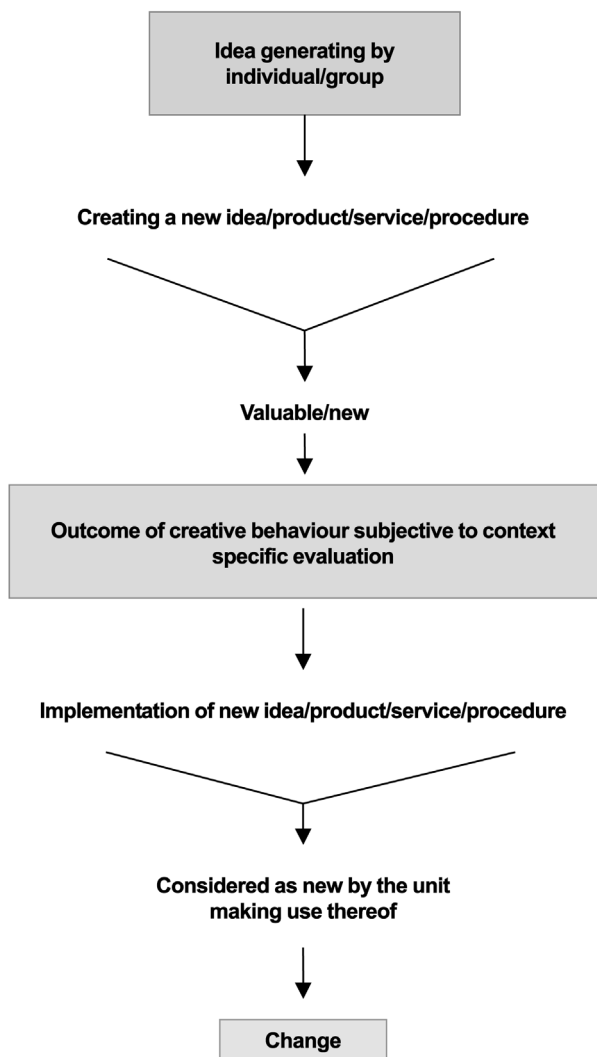
The concepts of creativity and innovation in the context of this research (determining which determinants of organisational culture influence creativity and innovation) can be illustrated as in Figure 1.

According to Figure 1 creativity and innovation can be regarded as overlapping constructs between two stages of the creative process, namely idea generating and implementation.

Relationship of creativity and innovation with organisational culture

Organisational culture seems to be a critical factor in the success of any organisation. Successful organisations have the capacity to absorb innovation into the organisational culture and management processes (Syrett and Lammiman, 1997; Tushman and O'Reilly, 1997). According to Tushman and O'Reilly (1997) organisational culture lies at the heart of organisation innovation. The basic elements of organisational culture (shared values, beliefs and behaviour expected of members of an organisation) influence creativity and innovation in two ways:

Figure 1 Defining creativity and innovation



- (1) Through socialisation processes in organisations, individuals learn what behaviour is acceptable and how activities should function. Norms develop and are accepted and shared by individuals. In accordance with shared norms, individuals will make assumptions about whether creative and innovative behaviour forms part of the way in which the organisation operates (Chatman (1991) and Louis (1980) both cited in Tesluk *et al.*, 1997).
- (2) The basic values, assumptions and beliefs become enacted in established forms of behaviours and activity and are reflected as structures, policy, practices, management practices and procedures. These structures and so on impact directly on creativity in the workplace, for example, by providing resource support to pursue the development of new ideas (Tesluk *et al.*, 1997). In this way individuals in organisations come to

perceive what is considered valuable and how they should act in the workplace.

Organisational culture affects the extent to which creative solutions are encouraged, supported and implemented. A culture supportive of creativity encourages innovative ways of representing problems and finding solutions, regards creativity as both desirable and normal and favours innovators as models to be emulated (Lock and Kirkpatrick, 1995).

Against the background of the systems approach which sees organisations as open systems consisting of different sub-systems interacting with one another, Martins (2000) explains the relationship between organisational culture, creativity and innovation as follows.

Certain environmental circumstances, strategic approaches, the values and actions of top management, organisational structure and technological cycles can be associated in the following ways with organisational cultures that support creativity and innovation:

- External environment (e.g. economy and competitiveness encourage continual changes in products, technology and customer preferences) (Kanter (1988) cited in Tesluk *et al.*, 1997).
- Reaction to critical incidents outside and within the organisation, which is reflected in the strategy (e.g. innovation strategy) of the organisation (Robbins, 1997; Schein (1990) cited in Tesluk *et al.*, 1997).
- Managers' values and beliefs (e.g. free exchange of information, open questioning, support for change, diversity of beliefs) (Amabile, 1988; Kanter, 1988; King and Anderson (1990) and Woodman *et al.* (1993) in Tesluk *et al.*, 1997).
- The structure of the organisation, which in turn allows management to reach organisational goals (e.g. flexible structure characterised by decentralisation, shared decision making, low to moderate use of formal rules and regulations, broadly defined job responsibilities and flexible authority structure with fewer levels in the hierarchy) (Hellriegel *et al.*, 1998).
- Technology, which includes knowledge of individuals and availability of facilities (e.g. computers, Internet) to support the creative and innovative process (Shattow, 1996).

The assumptions of personnel in the organisation on how to act and behave within

the sub-systems context, as explained above, will have an impact on the degree of creativity and innovation in the organisation (Martins, 2000).

Based on the explanation of the relationship between organisational culture, creativity and innovation, the question now arises as to which specific determinants of organisational culture have an influence on the degree to which creativity and innovation are encouraged and stimulated in the organisation.

Determinants of organisational culture that support creativity and innovation

Based on a literature study it was found that there is little agreement on the type of organisational culture needed to improve creativity and innovation. There also seems to be a paradox in the sense that organisational culture can stimulate or hinder creativity and innovation (Glor, 1997; Tushman and O'Reilly, 1997). Several researchers (Ahmed, 1998; Filipczak, 1997; Judge *et al.*, 1997; Nystrom, 1990; O'Reilly, 1989; Pinchot and Pinchot, 1996; Tesluk *et al.*, 1997) have worked on identifying values, norms and assumptions involved in promoting and implementing creativity and innovation. Very few empirical studies, and especially quantitative research, seem to have been done to support the findings of researchers, but several values, norms and beliefs have been identified by researchers such as Judge *et al.* (1997), Nystrom (1990) and O'Reilly (1989) in their empirical research.

In order to synthesise the cultural values and norms that influence creativity and innovation, as found in the literature, the following integrated interactive model was created (Martins, 2000).

In studying the influence of organisational culture on creativity and innovation, it became clear that the dimensions of Martins' model of organisational culture (1987, 1997) have a direct bearing on the influence of organisational culture on creativity and innovation. Consequently this model was used as a starting-point in developing a model of the determinants of organisational culture that influence creativity and innovation. Although the newly developed model may illustrate only part of the phenomenon, it offers a starting-point for improved understanding.

The model (Figure 2) shows that the dimensions that describe organisational culture have an influence on the degree to

which creativity and innovation take place in the organisation. This influence can be divided into five determinants of organisational culture. Each of these determinants is discussed briefly to describe their influence in promoting or hindering creativity and innovation.

Strategy

An innovation strategy is a strategy that promotes the development and implementation of new products and services (Robbins, 1996). Covey (1993) claims that the origin of creativity and innovation lies in a shared vision and mission, which are focused on the future. Furthermore, the vision and mission of a creative and innovative organisation are also customer- and market-oriented, focusing on solving customers' problems among other things (CIMA Study Text, 1996).

An example of a vision that emphasises creative and innovative behaviour is: "Our company will innovate endlessly to create new and valuable products and services and to improve our methods of producing them" (Lock and Kirkpatrick, 1995).

It is also important that employees should understand the vision and mission (which support creativity and innovation) and the gap between the current situation and the vision and mission to be able to act creatively and innovatively.

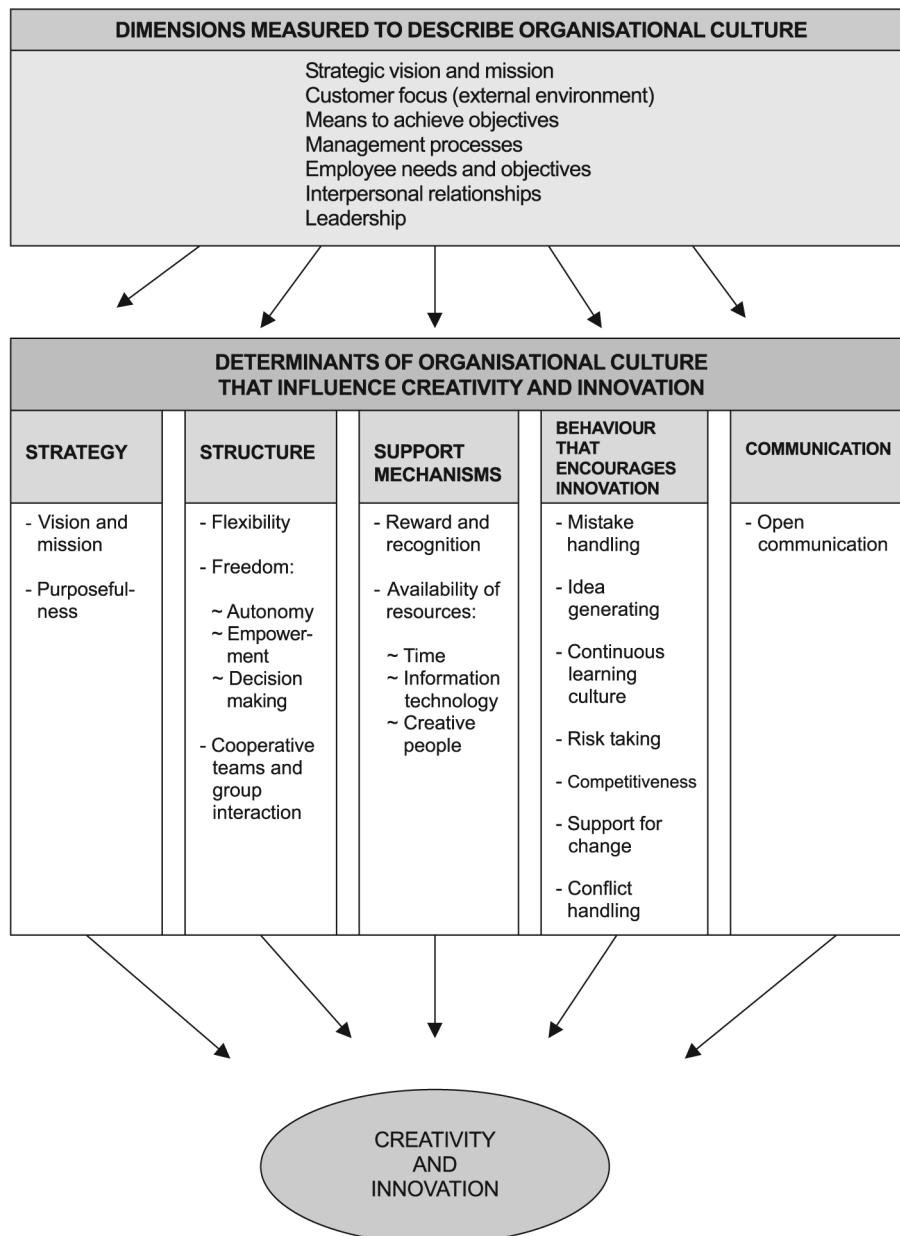
Judge *et al.* (1997) describe successful innovation as chaos within guidelines; in other words top management prescribes a set of strategic goals, but allows personnel great freedom within the context of the goals.

Organisational goals and objectives reflect the priorities and values of organisations and as a result may promote or hinder innovation (Arad *et al.*, 1997). Hall (cited in Arad *et al.*, 1997) found that personal and organisational goals that emphasise quality rather than effectiveness improve the levels of innovation.

It appears that reflecting the value of purposefulness in the goals and objectives of organisations has an influence on creativity and innovation. Arad *et al.* (1997) mentions that, apart from a few research studies, sufficient research about the effects of organisational and individual goals and objectives has not yet been done.

Structure

Organisational culture has an influence on the organisational structure and operational

Figure 2 Influence of organisational culture on creativity and innovation

systems in an organisation (Armstrong, 1995). The structure seems to emphasise certain values which have an influence on the promotion or restriction of creativity and innovation in organisations.

In the innovation literature, much has been written about the structural characteristics of organisations and according to Arad *et al.* (1997) and the CIMA Study Text (1996) a flat structure, autonomy and work teams will promote innovation, whereas specialisation, formalisation, standardisation and centralisation will inhibit innovation. As regards the influence of organisational culture on a structure that supports creativity and innovation, values like flexibility, freedom and cooperative teamwork will promote

creativity and innovation. On the other hand, values like rigidity, control, predictability, stability and order (mostly associated with hierarchical structures) will hinder creativity and innovation (Arad *et al.*, 1997).

It is especially the values of flexibility as opposed to rigidity, and freedom as opposed to control, that are emphasised in the literature. A high level of responsibility and adaptability also accompanies an organisational structure that allows for flexibility. Examples of flexibility in organisations are to make use of a job rotation programme or to do away with formal and rigid job descriptions.

Freedom as a core value in stimulating creativity and innovation is manifested in

autonomy, empowerment and decision making. This implies that personnel are free to achieve their goals in an automatic and creative way within guidelines (described as “chaos within guidelines” by Judge *et al.* (1997)). Personnel therefore have the freedom to do their work and determine procedures as they see fit within the guidelines provided. Management should also believe in personnel and encourage them to be more creative by allowing them more freedom, in other words empowering them instead of controlling them (Judge *et al.*, 1997, p. 76).

The literature study revealed that the degree to which employees have freedom and authority to participate in decision making in solving problems determines the level of empowerment, which is positively related to the level of creativity and innovation in an organisation (Arad *et al.*, 1997, p. 4).

The speed of decision making can also promote or inhibit creativity and innovation. Tushman and O'Reilly (1997, p. 117) claim that cultural norms which lead to quick decision making (e.g. that speed is important and that the work rate is fast) should promote the implementation of innovation.

Co-operative teams are identified by some authors as having an influence on the degree to which creativity and innovation take place in organisations. Well-established work teams which allow for diversity and individual talents that complement one another should promote creativity and innovation (Arad *et al.*, 1997; Mumford *et al.*, 1997). Cross-functional teams which encourage social and technical interaction between developers and implementers can improve and promote creativity and innovation. Another important aspect is that team members should be able to trust and respect one another, understand one another's perspectives and style of functioning, solve differences of opinion, communicate effectively, be open to new ideas and question new ideas. Such effective teamwork is partly based on team members' skills and abilities and partly on the shared values within the group (e.g. values about shared trust and solving differences) (Shattow, 1996; Tushman and O'Reilly, 1997).

Support mechanisms

Support mechanisms should be present in the culture of an organisation to create an environment that will promote creativity and innovation. The literature study revealed that rewards and recognition and the availability of resources, namely time, information

technology and creative people, are mechanisms that play this role.

Behaviour that is rewarded reflects the values of an organisation. If creative behaviour is rewarded, it will become the general, dominant way of behaving (Arad *et al.*, 1997). The problem is that many organisations hope that personnel will think more creatively and take risks, but they are rewarded for well-proven, trusted methods and fault-free work. Personnel should also be rewarded for risk taking, experimenting and generating ideas. Intrinsic rewards like increased autonomy and improved opportunities for personal and professional growth may support the innovation process (Shattow, 1996; Amabile and Gryskiewicz (1987) and Kanter (1983) cited in Arad *et al.*, 1997). It is also important to reward individuals as well as teams (Tushman and O'Reilly, 1997). Management should be sensitive to which methods of reward and recognition will inspire personnel in their specific organisation to be more creative and innovative (Tushman and O'Reilly, 1997).

An organisational culture that promotes creativity and innovation should allow employees time to think creatively and experiment (Shattow, 1996). In organisations where creativity and innovation are encouraged, personnel are, for example, allowed to spend 15 percent of their time on generating new ideas and working on their favourite projects. Emphasis on productivity and downsizing, which leads to more pressure on employees to work harder, is not conducive to creativity and innovation in organisation (Filipczak, 1997).

Information technology as a support mechanism is an important resource for successful innovation (Shattow, 1996). In organisations where it is part of the culture to use computer technology such as the Internet and intranet to communicate and exchange ideas, the chances of creativity and innovation taking place are improved (Bresnahan, 1997; Khalil, 1996).

Recruitment, selection and appointment and maintaining employees are an important part of promoting the culture of and specifically creativity and innovation in an organisation. The values and beliefs of management are reflected in the type of people that are appointed. Apart from personality traits like intelligence, knowledge, risk taking, inquisitiveness and energy, a value like diversity

is of utmost importance in the appointment of creative and innovative people. Appointing people of diverse backgrounds should lead to richer ideas and processes that should stimulate creativity and innovation (Bresnahan, 1997; Gardenswartz and Rowe, 1998).

Behaviour that encourages innovation

Values and norms that encourage innovation manifest themselves in specific behavioural forms that promote or inhibit creativity and innovation.

The way in which mistakes are handled in organisations will determine whether personnel feel free to act creatively and innovatively. Mistakes can be ignored, covered up, used to punish someone or perceived as a learning opportunity (Brodtrick, 1997). Tolerance of mistakes is an essential element in the development of an organisational culture that promotes creativity and innovation. Successful organisations reward success and acknowledge or celebrate failures, for example, by creating opportunities to openly discuss and learn from mistakes (Ryan, 1996; Tushman and O'Reilly, 1997).

An organisational culture in which personnel are encouraged to generate new ideas, without being harmed, and where the focus is on what is supported instead of on what is not viable, should encourage creativity and innovation (Filipczak, 1997). Fair evaluation of ideas will also support and encourage creativity (Amabile, 1995).

Several authors (Arad *et al.*, 1997; Lock and Kirkpatrick, 1995; Samaha, 1996) indicate that an organisational culture that supports a continuous learning orientation should encourage creativity and innovation. By focusing on being inquisitive, encouraging personnel to talk to one another (e.g. to clients within and outside the organisation to learn from them), keeping knowledge and skills up to date and learning creative thinking skills, a learning culture can be created and maintained.

Taking risks and experimenting are behaviours that are associated with creativity and innovation. A culture in which too many management controls are applied will inhibit risk taking and consequently creativity and innovation (Judge *et al.*, 1997). The assumption that risks may be taken as long as they do not harm the organisation will not encourage personnel to be creative and innovative by experimenting and taking risks (Filipczak, 1997, p. 37). It is important that a

balance should be reached in the degree to which risk taking is allowed. This can be achieved by spelling out expected results, assigning the responsibility of monitoring and measuring risk taking to someone in the organisation, creating a tolerant atmosphere in which mistakes are accepted as part of taking the initiative, regarding mistakes as learning experiences, and assuming that there is a fair chance of risks being successful.

Research by Nystrom (1990) indicates that the most creative and innovative departments in an organisation regard competitiveness as an important aspect of their culture. According to Read (1996, p. 226), competitiveness in organisations has shifted to the creation and assimilation of knowledge. In creating a culture of competitiveness managers should reach out to internal and external knowledge, encourage debating of ideas, create an environment in which constructive conflict will lead to information flow, support projects based on information flow and actively manage the choice of organisational design.

Support for change is a value that will influence creativity and innovation positively (Arad *et al.*, 1997; Eyton, 1996; Glor, 1997; Johnson, 1996; Tushman and O'Reilly, 1997). Managers can create a culture that supports change by looking for new and improved ways of working, creating a vision that emphasises change and revealing a positive attitude towards change (Arad *et al.*, 1997; Tushman and O'Reilly, 1997). An example of a culture in which change is supported is to expect personnel, when stating their annual objectives for the year, to indicate how they intend changing their work methods.

Tolerance of conflict and handling conflict constructively are values that support creative and innovative behaviour in organisations (Mumford *et al.*, 1997; Robbins, 1997; Judge *et al.*, 1997). When there is conflict between different ideas, perceptions and ways in which information is processed and evaluated, the process of handling conflict should be handled constructively to promote creativity and innovation. Understanding different individual thinking styles and training personnel in the process of constructive confrontation will create a culture supportive of creativity and innovation.

Communication

An organisational culture that supports open and transparent communication, based on

trust, will have a positive influence on promoting creativity and innovation (Barret, 1997; Robbins, 1996). Teaching personnel that disagreement is acceptable, since it offers the opportunity to expose paradoxes, conflict and dilemmas, can promote openness in communication. At the same time personnel must feel emotionally safe to be able to act creatively and innovatively and should therefore be able to trust one another, which in turn is promoted by open communication. An open-door communication policy, including open communication between individuals, teams and departments to gain new perspectives, is therefore necessary to create a culture supportive of creativity and innovation (Filipczak, 1997; Frohman and Pascarella, 1990; Samaha, 1996).

Conclusions

In attempting to create a culture supportive of creativity and innovation, it has been found that one of the best approaches to describe organisational culture is based on the open systems approach. This conclusion is based on the fact that it offers a holistic approach that allows the investigation of the interdependence, interaction and interrelationship of the different sub-systems and elements of organisational culture in an organisation.

The patterns of interaction between people, roles, technology and the external environment represent a very complex environment. Under these circumstances creativity and innovation can be influenced by several variables. It appears that creativity and innovation will flourish only under the right circumstances in an organisation. The values, norms and beliefs that play a role in creativity and innovation in organisations can either support or inhibit creativity and innovation, depending on how they influence the behaviour of individuals and groups.

The model designed in this research highlights the determinants that play a role in promoting creativity and innovation. The way in which these determinants, namely strategy, organisational structure, support mechanisms, behaviour that encourages innovation and communication, operate will either support or inhibit creativity and innovation. It is clear that these determinants overlap and interact with one another, which supports the open systems approach that was followed.

It may be concluded that there is a need for empirical research to support the theoretical research findings on the organisational culture determinants that support creativity and innovation in organisations.

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