The Impact of Organisational Culture Factors on Innovation Levels in SMEs: An Empirical Investigation

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ABSTRACT

An innovative organisational culture is one in which continuous improvement throughout the organisation is the norm. This is achieved through the generation and implementation of ideas. In other words, innovation is not confined to something that a small minority are charged with doing (e.g. those in R&D), with the results appearing at fixed times.

Literature in the area shows little agreement on the type of organisational culture needed to improve creativity and innovation. Previous research findings are paradoxical in the sense that organisational culture can stimulate or hinder creativity and innovation. Several researchers have worked on identifying values, norms and assumptions considered to be important in promoting and implementing creativity and innovation. However, very few empirical studies involving quantitative research have been carried out to support the findings of researchers.

This paper presents the results from a quantitative study on innovation in SMEs (small to medium enterprises). Data was obtained from a total of twenty-five respondents to a questionnaire regarding innovation within companies.

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The findings deal with issues such as current innovation strategies, product and process innovation, drivers, constraints and sources of innovation, and the company environment and cultural factors that contribute to innovation within companies.

The paper concludes with a discussion of the salient cultural factors that can contribute to the stimulation of innovation and creativity within organisations. Further expansion of this research is also explored mindful of the constraints of the sample size.

INTRODUCTION

In today's business world successful product or process innovation provides companies with major opportunities and advantages. Successful innovation is increasingly important in the current globally competitive economy. There is a considerable amount of literature on innovation from a variety of disciplines. Furthermore, many research studies have attempted to gather information on different aspects of innovation. Given this body of information, one would expect that most companies could successfully innovate. However, many SMEs have difficulty achieving successful innovation, despite significant investment in research and development (R&D) (O'Regan et al., 2006).

This paper presents the results from a study on innovation in rural SMEs. The purpose of this research was to investigate issues such as current innovation strategies, distinction between product and process innovation, main drivers, constraints and sources of innovation. The study also investigated the company environment and cultural factors that contribute to innovation within companies, e.g. information sources, role of management/leadership, attitude to success/failure, staff creativity, attitude to risk-taking and strategic direction. These, and other factors, were examined in the context of Cumming's (1998) three stages of innovation: namely, the creative/invention stage, the development stage and the application stage. The results provide an insight into the factors impacting innovation in SMEs and confirm an association between various aspects of organisational culture, commitment to R&D and innovation.

LITERATURE REVIEW

This paper draws from literature on organisational culture, innovation and innovation culture. General literature on innovation with specific reference to SMEs is also reviewed in this section.

Organisational Culture

The empirical work on organisational culture can be traced back to the early work of classical organisation theorists such as Lawrence and Lorsh (1967). Literature on the subject began with writers such as Peters and Waterman (1982) who put forward a theory of excellence which identified cultural characteristics of successful companies.

Earlier studies such as Kotter and Heskett (1992) produced evidence which highlighted the importance of culture to organisational performance and effectiveness. More recently, Deshpandé et al. (1993) linked culture types to innovativeness.

Furthermore, Dennison and Mishra (1995) identified four cultural traits and values that are associated with cultural effectiveness: involvement, consistency, adaptability and a sense of mission. Denison and Mishra (1995) proposed that for effectiveness, organisations need to reconcile all four of these traits. This focus is consistent with Schein's (1985) observation that culture is developed as an organisation learns to cope with the dual problems of external adaptation and internal integration.

There are few quantitative empirical research studies on the impact of culture on innovation (Ashkanasy et al., 2000). O'Regan et al. (2006) focused on organisational culture with specific reference to leadership and innovation. Lau and Ngo (2004) investigated the link between the HR system, organisational culture and product innovation. Some qualitative work was carried out in the context of innovation within the Biotechnology Industry by Terziovski and Morgan (2006) and the effects of a firm's size on innovation was investigated empirically by McAdam et al. (2004). This study adds to this growing stream of research by focusing on manufacturing SMEs in a rural setting.

Defining Innovation

Rogers (1995: 11) defined innovation as 'any idea, practice or object that is perceived to be new by an individual or other unit of

adoption'. Innovation involves the adoption of new products and/or processes to increase competitiveness and overall profitability. It involves new ways of identifying the needs of new and existing clients. Innovation is one of the principal challenges to the management of SMEs.

Innovation represents an orientation fundamentally different from traditional financial or market-based outcomes of a firm. Muffatto (1998) suggested that in the innovation process the creation of an innovative climate and related professional knowledge and capabilities are needed to support innovation activities. Hence, there is a need to change organisational arrangement and culture in order to foster innovation. This argument is in line with human capital theory used to explain an organisation's competitiveness in innovation outcomes (Chan et al., 2004).

Hitt et al. (2001) stated that innovation is critical to enable SMEs to compete in domestic and global markets. The importance of innovation for SMEs and start-up firms was highlighted by Lee et al. (2001) who argued that due to resource shortcomings, scale diseconomies and questionable reputation, innovation is a key competitive advantage for SMEs because it depends on quality and quantity of R&D personnel and complex social relationships. All of these are difficult to mimic.

Innovation is increasingly seen as a contributory factor to higher performance in a growing number of industries (Zahra et al., 1999) and in particular, strengthening the firm's competitive advantage (Mone et al., 1998). Yet earlier literature indicated that many firms believed their existing ways and processes were sufficient for the preceding decade (Utterback, 1994).

SMEs are renowned for their creativity and new product development. This applies in particular to SMEs that have the ability to innovate effectively and develop new products more rapidly than larger firms (Vossen, 1998). Indeed, Harrison and Watson (1998) contended that there was little doubt that SMEs were capable of effective innovation. However, many SMEs still fail to see the opportunities and advantages that are open to them, such as the flexibility of customising products to the requirements of the consumer, an advantage adopted by larger firms (O'Regan et al., 2006).

Innovation is holistic in nature. It covers the entire range of activities necessary to provide value to customers and a satisfactory return to the business. As Buckler (1997: 45) suggested, innovation 'is an environment, a culture – almost spiritual force – that exists in a company' and drives value creation. Cumming (1998) highlighted that many studies have been conducted on the important elements required to achieve the successful application of a new idea, but in general all relate to three basic steps to be considered:

(1) Idea generation (creativity).
(2) The successful development of that idea into a useable concept.
(3) The successful application of that concept.

These stages will be revisited later in the findings section of this paper.

Innovation Culture
An innovation-oriented culture may be initially defined as the need for the maximum number of innovative ideas to appear within a certain period (Fons-Boronat, 1992). A more precise definition was proposed by AECA (1995) and refers to an innovative culture as a way of thinking and behaving that creates, develops and establishes values and attitudes within a firm, which may in turn raise, accept and support ideas and changes involving an improvement in the functioning and efficiency of the firm, even though such changes may mean a conflict with conventional and traditional behaviour. For innovative culture to succeed certain requirements must be met, involving four kinds of attitudes: corporate management is willing to take risks, the participation of all members of the firm is requested, creativity is stimulated and there is shared responsibility. Deshpandé et al. (1993) pointed out that without a strong, shared culture which is clearly innovation-oriented a firm can hardly be competitive due to innovative development.

A similar view was that of Canalejo (1995) who considered that an innovation-based organisational culture must possess the following values: client-orientation, commitment towards objectives, challenge and initiative, exemplary behaviour, team work and permanent improvement.

LINK BETWEEN CREATIVITY AND INNOVATION AND ORGANISATIONAL CULTURE

Organisational culture seems to be a critical factor in the success of any organisation (Martins and Terblanche, 2003). Successful organisations have the capacity to absorb innovation into the organisational culture and management processes (Tushman and O'Reilly, 1997). Organisational culture was believed by Tushman and O'Reilly (1997) to lie at the heart of organisation innovation.

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 (Martins and Terblanche, 2003). Creativity is regarded as both desirable and normal and innovators are favoured 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 and Terblanche (2003) explained the relationship between organisational culture, creativity and innovation as follows:

- External environment (e.g. economy and competitiveness encourage continual changes in products, technology and customer preferences) (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 (Tesluk et al., 1997).
- Managers' values and beliefs (e.g. free exchange of information, open questioning, support for change and diversity of beliefs) (Tesluk et al., 1997).
- The structure of the organisation, which in turn allows management to reach organisational goals (e.g. a 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, the Internet) to support the creative and innovative process (Shattow, 1996).

According to the literature there is some broad agreement on the type of organisational culture needed to improve creativity and innovation. However, there is a subtle balance required as there also seems to be a paradox in the sense that organisational culture can stimulate or hinder creativity and innovation (Tushman and O'Reilly, 1997). Researchers such as Martins and Terblanche (2003) have worked on identifying values, norms and assumptions involved in promoting and implementing creativity and innovation. The current study aims to expand on this work within an Irish SME context.

METHODOLOGY

Data was collected by means of 'face-to-face' administered questionnaires and semi-structured interviews with senior management. All respondents were involved in the decision-making process within their SME.

The sampling frame for this research was derived by combining company listings from relevant semi-state agencies. A sample of twenty-five manufacturing SMEs (companies with 10 to 249 employees) was randomly selected. The manufacturing sector was considered capable of providing greater scope for measuring innovation issues. The sample included a range of manufacturers, from food and beverages to wood and furniture.

RESEARCH FINDINGS

The research findings are presented in the following six sections: sample profile, markets and customers served, number of new products or services, general organisational culture, specific organisational culture regarding innovation, and the relationship between organisational culture factors and successful innovation.

Sample Profile

A broad range of manufacturing enterprises were included in the sample. Food products and beverages accounted for a quarter of the sample ($n = 6$) with textile manufacturing the next most frequent ($n = 4$), followed by machinery and equipment manufacturing ($n = 3$) and medical and optical manufacturing ($n = 3$). Companies manufacturing electrical items, non-metallic minerals, wood and furniture, chemicals and fabricated metal were also sampled.

Almost half the sample companies had between ten and forty-nine full-time employees. Three-quarters of the sample companies were in operation for ten or more years.

Nineteen companies answered the question on turnover and reported robust figures. The minimum reported turnover was €1 million. Furthermore, these nineteen companies expected their turnover to increase year-on-year for the next three years. The remaining six companies refused to disclose their turnover figures. A number of different sources of capital funding were listed but the majority of companies ($n = 17$) indicated their sources were internal.

Markets and Customers Served
Respondents were allowed to make multiple responses with regard to the markets and customers they served. Almost 90 per cent of the sample ($n = 22$) served the domestic market. The next most frequent response was the UK ($n = 17$); European ($n = 14$), North American ($n = 8$) and Australasian ($n = 5$) markets were also served. Nineteen companies (76 per cent of the sample) served business-to-business (B2B) customers and the remainder served a combination of business-to-business and business-to-customer (B2C) customers.

New Products or Services Launched in the Past Five Years
Successful innovation is highly dependant on external factors such as the nature of the market, industry sector and competitive behaviour. A particular focus of the current research was to investigate a possible link between new products and services and certain internal factors such as organisational culture. In the current study, innovation was measured by asking respondents how many new products or services their company had launched in the past five years. The measure was reliant on the respondents' self report. The results are categorised in Table 8.1.

General Organisational Culture
The general organisational culture factors measured in relation to innovation were the existence of and familiarity with a company mission statement and R&D aspects of the company.

Table 8.1: New Products or Services Launched

New Products or Services Launched Past Five Years	Frequency
0	4
1 to 9	9
10 to 49	5
50 to 99	4
100+	3
Total	25

Mission Statement

One of the findings from the literature was that correctly formulated corporate philosophies and mission statements can have a positive impact on the organisation. Martins and Terblanche (2003) included vision and mission as strategic determinants of organisational culture that influenced innovation. In the current study, nineteen companies reported they had a mission statement.

The extent of their employees' familiarity with the mission statement was then probed. Of the nineteen companies who had a mission statement, approximately one-third of these did not have all their employees familiar with it. This finding suggests that even when companies subscribe to the philosophy of a mission statement it does not necessarily receive the required follow-through. Therefore the benefits of such a statement, in terms of driving the organisation forward, may be lost.

Having a clear corporate philosophy enables individuals to coordinate their activities to achieve common purposes, even in the absence of direction from their managers (Ouchi, 1983). One effect of corporate statements is their influence in creating a strong culture capable of appropriately guiding behaviours and actions.

Despite these concerns, Ledford et al. (1995) suggested that if correctly formulated and expressed, philosophy statements can guide behaviours and decision-making, express organisational culture, and contribute to organisational performance by motivating employees or inspiring feelings of commitment (Lock and Kirkpatrick, 1995).

Research and Development (R&D)
The organisational culture with respect to research and development (R&D) was believed by the authors to be very important in relation to innovation. R&D in relation to innovation has also been identified in the literature (Lee et al., 2001). Three aspects of R&D were measured in the current study: number of employees in R&D, who was responsible for R&D within the company, and, finally, the company's commitment to R&D. It was found that 60 per cent of the sample ($n = 15$) did not have any specific R&D employees and the maximum number of R&D employees in any sample company was seven. The fact that such a high number of companies did not have any specific R&D employees would indicate that this function may be carried out within companies but subsumed within other departments/roles and/or on an ad-hoc basis.

Respondents were also questioned on who was responsible for R&D within companies. A number of specific functions were mentioned but these could be generally classified under managing directors, directors and management.

Respondents were asked to rate their company's commitment to R&D on a five-point scale ranging from very low to very high. It was hoped to examine the relationship between number of employees in R&D and the quantity of new products or services launched by the company in the past five years. However as only ten of the companies had specific R&D employees, this analysis was not carried out.

The rating of the company's commitment to R&D was correlated with the number of new products or services launched by the company in the past five years. A significant positive correlation was found between the two variables, ($r = 0.469$, $p < .05$). This result indicates that there is a positive relationship between the company's commitment to R&D and the number of new products and services launched.

Specific Organisational Culture Factors Regarding Innovation
The specific aspects of organisational culture examined in relation to innovation were the company's innovation strategy, the type of innovation engaged in, and drivers and constraints of innovation.

Company Innovation Strategy
Respondents were asked whether their company's innovation strategy
was proactive, reactive, pre-emptive or any combination of same. The
most common strategy was proactive ($n = 15$), followed by reactive
($n = 7$). Two companies used both strategies while one company
used all three strategies (proactive, reactive and pre-emptive).

An innovation strategy is a strategy that promotes the develop-
ment and implementation of new products and services (Robbins,
1997). Covey (1993) claimed that the origin of creativity and inno-
vation lay in a shared vision and mission, which are focused on the
future. Judge et al. (1997) described 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).

Innovation Type
Respondents were asked to indicate the type of innovation their
company engaged in. For the purposes of the current study, product
innovation is production of a new product on a commercial basis
and process innovation is the establishment of new methods of pro-
duction (for a product and/or a service) or of supply and distribu-
tion, or introduction of changes in work organisation, management
and the working conditions and skills. The majority of respondents
($n = 16$) engaged in product innovation. The next most frequent
response was a combination of both product and process innovation
($n = 6$) and three companies engaged in process innovation only.

Training on Innovation
Another important aspect of innovation is the investment in train-
ing. Respondents were asked if they invested resources to train staff
or management to adopt and manage innovation within the com-
pany. Sixteen companies did invest resources while the remaining
nine did not.

In analysing the alignment of different operations in a technology
firm to improve innovation performance, Leede, de Looise and Alders
(2002) found that high-performing organisations spend more time

on education and training – not just on technical, task-related skills, but also on communication and team skills. In the implementation of innovation, firms have to create an organisational climate that fosters innovation by ensuring employee skills, providing incentives and removing obstacles (Klein and Sorra, 1996). Furthermore, having an innovation budget is one of the factors that distinguishes innovative firms from their less innovative counterparts (Souitaris, 2002).

Innovation Drivers
The drivers of innovation within the company were then investigated. Some categories were prompted to respondents and any open-ended responses were probed. Multiple responses were possible. The biggest drivers of innovation were the market ($n = 22$) and customers ($n = 20$). Company culture ($n = 9$) and technical developments ($n = 9$) were believed to drive innovation to a lesser extent. Employees, suppliers, legislation and finance were all mentioned as innovation drivers.

In a review of current research on the determinants of innovation, Read (2000) found that the most important determinant identified was management support for innovation and an innovative culture. This was followed by customer/market focus and communication/ networking. Other drivers that featured in Read's (2000) review were human resource innovation strategies, team emphasis and knowledge management.

The basis of innovation is knowledge, and innovation is realised through the ability to use knowledge to identify and pursue opportunities. This notion is supported by Day (1994), who suggested that a market orientation is the basis of innovation. This market-oriented culture is evident in the organisation's ability to equip employees with the necessary innovation-related behaviours to support ideation and engagement (Dobni, 2006).

Innovation Constraints
Respondents were asked to consider the constraints of innovation in their company. Again, some response categories were prompted, any open-ended responses were probed and multiple responses were possible. Financial constraints ($n = 8$), market size ($n = 8$) and

customers ($n = 7$) were mentioned as the most restrictive obstacles to innovation. These were followed closely by management risk-taking ($n = 6$) and technical ($n = 6$) and legislative constraints ($n = 6$). Financial constraints may always play a part in innovation, but in the current study only five (20 per cent) of the companies mentioned grants as a source of capital funding.

In a similar vein, Loewe and Dominiquini (2006) listed the major obstacles to innovation as follows: short-term focus; lack of time, resources or staff; leadership expects payoff sooner than is realistic; management incentives are not structured to reward innovation; lack of a systematic innovation process; and belief that innovation is inherently risky.

McAdam et al. (2004), in a study of SMEs in Northern Ireland, found that the barriers or weaknesses were culturally based issues that required substantial effort and time to overcome. McAdam et al. (2004) stated that there is a need for SMEs to take a long-term strategic approach to innovation rather than a short-term quick-fix initiative.

Sources of Innovative Ideas
Respondents were asked from whom or where they sourced ideas for innovation. This was an open-ended question where the interviewer probed for clarification where necessary. It was found that innovative ideas came from a range of internal and external sources. This is interesting as customers, suppliers and knowledge/education institutes are generally found to be significant sources for innovation in SMEs (Appiah-Adu and Singh, 1998). However the top sources for innovative ideas volunteered by the respondents were management ($n = 8$), the managing director ($n = 4$) and customers ($n = 4$). Other sources were designers, sales, marketing, research, suppliers, competitors, trade shows and seminars.

Sources of Innovation
The last section of the questionnaire contained two questions, each comprised of a series of statements relating to innovation. The first question contained eighteen statements relating to important sources of innovation. Respondents rated each statement on a five-point scale as to the degree to which they agreed each was an important source

**Figure 8.1: Top Nine Important Sources of Innovation
(based on % net agree)**
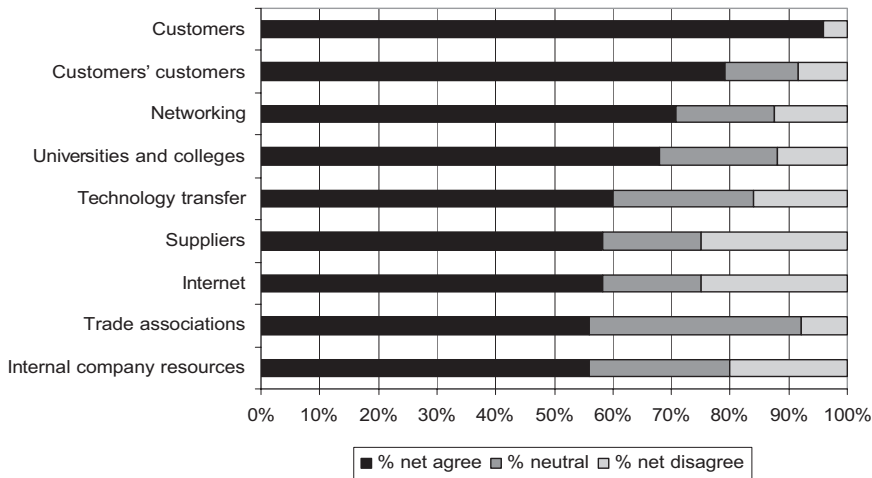
of innovation. The scale ranged from strongly disagree (1) to strongly agree (5). A broad range of sources was provided, e.g. exhibitions, the Internet, customers, technical literature and suppliers. The data was recoded into net agree (strongly agree, agree), neutral, and net disagree (disagree, strongly disagree) for analysis purposes. The top nine statements sorted by the percentage net agree are shown in Figure 8.1. Customers, customers' customers and networking were the top three important sources. This is consistent with previous findings identified in the literature (Appiah-Adu and Singh, 1998).

With regard to networking, McAdam et al. (2004) recommended that there should be much more use of cluster networks and university–SME links (e.g. science parks) to develop and spread innovative practice, thus overcoming the limited resources and knowledge of the individual SME. Buhalis and Main (1998) referred to these actions as increasing the 'interconnectivity' of SMEs to overcome the effects of being situated in a peripheral region such as Ireland. However, Gomez Arias (1995) cautioned that networks can simultaneously promote and block innovation in partner companies.

The Relationship Between Organisational Culture Factors and Successful Innovation

Based on a review of the innovation literature, Cummings (1998) identified a number of variables that have a positive effect on innovation. The current study adapted these variables into a series of statements, which respondents rated on the degree to which they considered each would contribute to the successful launch of a new product or service. Ratings were on a five-point scale ranging from very low (1) to very high (5). Ultimately the authors' aim is to develop a measurement scale of company culture positively impacting on innovation. This final question was an initial step in that direction, was purely exploratory and the results are reported here in that context only.

After an examination of the initial correlation analysis (Pearson and partial correlations), twenty statements were included in the factor analysis: Principal Components Analysis (PCA), varimax rotation. Three statements had missing data from one or two respondents and in those cases mean substitution was used. Initial statistics from PCA produced a measure of sampling adequacy (KMO MSA) $= 0.474$ and Bartlett's Test of Sphericity $= 231.593$, $p < .001$. Four, five and six factor solutions were obtained because the authors believed that this would be the optimum range to conceptually represent the statements. A cut-off loading of 0.50 was used to screen out statements that were weak indicators. The five-factor model was determined to be the best in terms of representing the dimensions of the statements. Eighteen statements loaded on the five factors and these are shown in Table 8.2. All statements had communalities ≥ 0.50 except 'diverse information sources are used' $= 0.38$. However, it was decided to retain this statement as it fitted well with the other two items in the factor. Summated scales were then constructed for each of the factors and the internal consistency of statements corresponding to each factor was analysed (see Table 8.2).
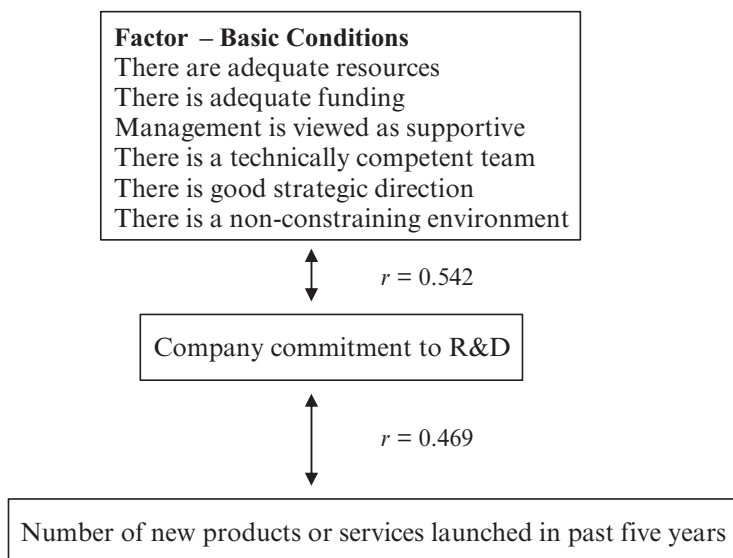
These five factors were then correlated with the number of new products or services launched in the past five years and the degree of commitment to R&D. No statistically significant relationship was found between any of the five factors and the number of new products or services launched. A statistically significant relationship

Table 8.2: Five-Factor Solution: Statements, Loadings and Cronbach's Alpha

Factor	Statement	Factor Loading	Cronbach's Alpha
Basic Conditions	There are adequate resources	.852	
	There is adequate funding	.798	
	Management is viewed as supportive	.751	
	There is a technically competent team	.743	
	There is good strategic direction	.684	
	There is a non-constraining environment	.635	$\alpha=0.868$
Open Communication	Staff have diverse interests	.888	
	Brainstorming is encouraged	.700	
	There is access to external stimuli	.689	$\alpha=0.740$
Entrepreneur	Failures are willingly tolerated	.798	
	Risk-taking is encouraged	.784	
	Staff have freedom to pursue own ideas	.740	$\alpha=0.723$
Organisational Empowerment	There is a challenging environment	.752	
	Nonconformity is tolerated	.711	
	Diverse information sources are used	.574	$\alpha=0.562$
Procedures	Patent programmes are in operation	.804	
	Suggestion programmes are in operation	.705	
	There is adequate manpower	.648	$\alpha=0.665$

**Figure 8.2: Relationship between Organisational Culture Factors and
Reported Successful Innovation in Past Five Years**

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│ Factor – Basic Conditions                   │
│ There are adequate resources                │
│ There is adequate funding                   │
│ Management is viewed as supportive          │
│ There is a technically competent team       │
│ There is good strategic direction           │
│ There is a non-constraining environment     │
└─────────────────────────────────────────────┘
                    ↕        $r = 0.542$
┌─────────────────────────────────────────────┐
│ Company commitment to R&D                   │
└─────────────────────────────────────────────┘
                    ↕        $r = 0.469$
┌─────────────────────────────────────────────┐
│ Number of new products or services launched in past five years │
└─────────────────────────────────────────────┘
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was found between the 'Basic Conditions' factor and the degree of commitment to R&D, $r = 0.542$, $p < .01$. No other statistically significant relationships were found between the remaining four factors and the degree of commitment to R&D. These relationships are displayed in Figure 8.2.

Therefore, there is a positive relationship between the basic conditions (for innovation) in terms of organisational culture and companies' commitment to R&D. A statistically significant relationship was found between the company's commitment to R&D and the number of new products or services launched in the past five years. This is in contrast to O'Regan et al.'s study (2006), which found that empowerment culture, transformational and human resources leadership, and the staff creativity characteristic of strategy are associated with successful innovation to a significant extent.

With regard to management style, Delbecq and Mills (1985) argued that if decisions regarding innovation are left to a single executive, power and personality can be strong determinants in the allocation of resources to support innovation rather than the feasibility of the

proposal. However, Laursen and Foss (2003) observed that relatively little attention has been paid in the literature to management practices and how they affect innovation performance.

Terziovski and Morgan (2006) argued that if managers are to become more effective and focus on a faster time to market, there is a need to change from traditional management approaches that focus on processes, R&D, cost savings and stand-alone improvements to an approach that places a strong emphasis on the value of knowledge and innovation. This approach fosters faster new product development and increased cost effectiveness, particularly if management practices are strategically aligned with the corporate objectives.

Baptista and Swann (1998) also found that organisations that had 'seamless' interfaces between functions are likely to perform better than organisations that had functions which were managed as separate and discrete entities with their own independent supporting mechanisms.

On the management of innovation, Pavitt (1999) argued that as products and firms are incorporating an increasing range of technologies, a more precise and practical understanding of both the firm-specific 'routines' associated with innovation and the factors determining what might be called the 'knowledge boundaries' of the firm is called for.

In SMEs the owner/entrepreneur has a larger direct influence on employees, as compared to managers of large organisations (Bodewes and de Jong, 2003). Leaders in small firms can successfully instil an 'entrepreneurial dynamism' in the behaviour of others in their organisations. A positive attitude towards innovation correlates with continual attention being paid to innovative opportunities and it provides employees with support for their innovative behaviour. This, in turn, strongly affects the decision to innovate and the ways that innovation is carried out in small firms (Hoffman et al., 1998).

CONCLUSION

From the data available, some salient points emerge from the innovative actions of these companies in this region:

• Companies have a strong reliance on their own internal funding for innovation and R&D.

- The majority of companies had a mission statement; however, only a third of these stated that their employees were familiar with the exact content of these statements.
- Over half of the companies did not have any specific R&D employees and this would indicate that this function may be carried out within other departments/roles, and/or on an ad-hoc basis.
- A significant correlation was found between a company's commitment to R&D and the number of new products and services launched.
- Over half of the companies consider their innovation strategy to be proactive and are involved in product innovation.
- Over half the respondents invested in training for innovation and R&D.
- The biggest drivers of innovation were the market and customers.
- Financial constraints, market size and customers proved the most restrictive factors on innovation.
- Innovative ideas came from a range of internal and external sources, and the top two sources mentioned were management and the managing director.
- Customers, customers' customers and networking were the top three important sources of innovation.
- There is a relationship between the following elements of culture factors and companies' commitment to R&D: adequate resources, adequate funding, supportive management, technically competent team, good strategic direction and a non-constraining environment.

This study provided two levels of information. Firstly, a snapshot of organisational culture factors and innovation within SMEs in this region. A number of the findings were consistent with previous studies, e.g. drivers and constraints of innovation. Other findings gave an insight as to how certain key elements of innovation actually operate within SMEs, e.g. sources of ideas for innovation and the lack of specific R&D employees. Secondly, the study has gone some way to identify the management perspective as to what organisational culture determinants impact on innovation within SMEs in this region. The latter finding must be treated with a

certain element of caution due to the sample size, and further research is necessary to both validate the current results and provide a better understanding of the relationship between management thinking and innovation.

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