European Journal of Innovation Management

Emerald Article: How leaders influence employees' innovative behaviour

Jeroen P.J. de Jong, Deanne N. Den Hartog

How leaders influence employees' innovative behaviour

Jeroen P.J. de Jong
*EIM Small Business Research and Consultancy, Zoetermeer,
The Netherlands, and*

Deanne N. Den Hartog
University of Amsterdam Business School, Amsterdam, The Netherlands

Abstract

Purpose – To provide an inventory of leader behaviours likely to enhance employees' innovative behaviour, including idea generation and application behaviour.

Design/methodology/approach – Based on a combination of literature research and in-depth interviews, the paper explores leadership behaviours that stimulate employees' idea generation and application behaviour. The study was carried out in knowledge-intensive service firms (e.g. consultants, researchers, engineers).

Findings – It was found that there were 13 relevant leadership behaviours. Although innovative behaviour is crucial in such firms, it has received very little attention from researchers. Leaders influence employees' innovative behaviour both through their deliberate actions aiming to stimulate idea generation and application as well as by their more general, daily behaviour.

Research limitations/implications – Future quantitative research could condense our overview of leader practices, explore which practices are most relevant to employees' idea generation and/or application behaviour, which contingency factors influence the leadership-innovative behaviour connection and provide information as to whether different practices are relevant in other types of firms.

Originality/value – Neither the innovation nor the leadership field provides a detailed overview of specific behaviours that leaders might use to stimulate innovation by individual employees. This paper fills that void.

Keywords Leadership, Innovation, Employee behaviour, Ideas generation, Knowledge organizations

Paper type Research paper

1. Introduction

One way for organizations to become more innovative is to capitalize on their employees' ability to innovate. As Katz (1964, p. 132) puts it: "an organization that depends solely upon its blueprints of prescribed behaviour is a very fragile social system". Work has become more knowledge-based and less rigidly defined. In this context, employees can help to improve business performance through their ability to generate ideas and use these as building blocks for new and better products, services and work processes. Many practitioners and academics now endorse the view that individual innovation helps to attain organizational success (Van de Ven, 1986; Amabile, 1988; Axtell *et al.*, 2000; Smith, 2002; Unsworth and Parker, 2003). In order to realize a continuous flow of innovations, employees need to be both willing and able to innovate. Individual innovation is central to several well-known management principles, including total quality management (McLoughlin and Harris, 1997; Ehigie and Akpan, 2004), continuous improvement schemes (Boer and Gieskes, 1998), Kaizen (Imai, 1986),

corporate venturing (Elfring, 2003), and organizational learning (Senge, 1990). Here, we address how leaders may influence individual innovation.

Individual innovation has been operationalised in various ways. For example, the construct has been thought of in terms of a personality characteristic (Hurt *et al.*, 1977) or an output (West, 1987). Others have taken a behavioural perspective (Janssen, 2000). We take the same line as the latter and address the influence of leaders on employees' individual innovative behaviour. Much of the behavioural research on individual innovation has focused on creativity, for example, on how leaders can stimulate idea generation. However, when and how creative ideas are implemented, a crucial part of the innovation process, is under-researched. We include both behaviours in the area of idea generation and the application or implementation of these ideas as important elements of innovative behaviour.

As stated, we focus on the innovative behaviour of employees and the role leaders play in enabling and enhancing such behaviour. Previous work has indicated that employees' innovative behaviour depends greatly on their interaction with others in the workplace (Anderson *et al.*, 2004; Zhou and Shalley, 2003). In general, leaders have a powerful source of influence on employees' work behaviours (Yukl, 2002). Innovative behaviour is no exception. Basadur (2004, p. 103), for instance, notes that in future business the most effective leaders:

> ... will help individuals (...) to coordinate and integrate their differing styles through a process of applied creativity that includes continuously discovering and defining new problems, solving those problems and implementing the new solutions.

Despite agreement on the importance of leaders in triggering individual innovation, little integration of leadership and innovation research is found in the literature. Various innovation studies explore the influence of leader behaviours using models developed in relation to performance outcomes, that is, leader behaviours that positively affect outcomes such as effectiveness and efficiency rather than innovation-related outcomes. Based on a special issue of *Leadership Quarterly*, Mumford and Licuanan (2004, p. 170) concluded that one cannot expect existing leadership models (developed to predict performance in routine settings) to be entirely applicable to the leadership of innovative individuals. Also, as mentioned above, most available research has focused on employee creativity, while the implementation of ideas is explored far less often. Innovation researchers often address a broad range of factors in their studies and, at most, include very brief measures of a single leader behaviour as one such factor amongst many (Cooper, 2003). No conclusions can yet be drawn from current innovation research as to which leader behaviours matter most.

The current study aims to provide more insight into the role of leaders in individual innovation. It uses a combination of in-depth interviews and literature research to explore what particular leader behaviours are likely to enhance employees' innovative behaviour. The study is being conducted in knowledge-intensive service firms (e.g. engineering, IT, architecture, consultancy, market research). Knowledge-intensive service firms constitute an ever-increasing share of the business population and add significantly to economic development (Anxo and Storrie, 2001). Compared to other sectors, knowledge-intensive services have an intangible, heterogeneous and perishable nature (Hislop, 2005). Such firms have a strong need for continuous

minor improvements and additions to their current product offerings, making employees' innovative behaviour very important within this context.

Employees'
innovative
behaviour

43

2. Background

2.1 Innovative behaviour

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). The division between the two phases is believed to be the point at which the idea is first adopted; i.e. the point at which the decision to implement the innovation is made. The first stage ends with the production of an idea, while the second stage ends as soon as the idea is implemented (King and Anderson, 2002).

Many studies focus mainly on the creative or idea generation stage of innovation (Mumford, 2000; McAdam and McClelland, 2002). However, innovation also includes the implementation of ideas. Here, we define innovative behaviour as behaviour directed towards the initiation and application (within a work role, group or organization) of new and useful ideas, processes, products or procedures (Farr and Ford, 1990). Thus, defined, innovative behaviour can be seen as a multi-dimensional, overarching construct that captures all behaviours through which employees can contribute to the innovation process. In the current paper, our focus is on two core innovative behaviours that reflect the two-stage process: idea generation and application behaviour. These behaviours were dealt with previously as key steps in the process of individual innovation (Axtell *et al.*, 2000; Krause, 2004; Dorenbosch *et al.*, 2005).

To initiate innovations employees can generate ideas by engaging in behaviours to explore opportunities, identify performance gaps or produce solutions for problems. Opportunities to generate ideas lie in incongruities and discontinuities – things that do not fit expected patterns, such as problems in existing working methods, unfulfilled needs of customers, or indications that trends may be changing. In the implementation phase employees can play a valuable role in the innovation process by demonstrating application-oriented behaviour. For example, employees with a strong personal commitment to a particular idea may be able to persuade others of its value. Employees can also invest considerable effort in developing, testing and commercialising an idea.

Innovative behaviour is closely related to employee creativity. The demarcation between the two is blurred, as some researchers have proposed models of creativity that also pay attention to the implementation of creative ideas. For example, Basadur (2004) distinguishes between problem finding, problem conceptualisation, problem solving, and solution implementation. In line with this, in a review of creativity research, Mumford (2003) recommends that future work should investigate "late cycle" skills, i.e. the implementation of creative ideas. He recognizes that real-world performance – the expression, shaping and execution of ideas – represents "another important component of creative work" (p. 116), and considers the investigation of implementing ideas to be an important emerging issue.

Other authors have identified and discussed differences between innovative behaviour and creativity. Unlike creativity, innovative behaviour is intended to produce some kind of benefit. Innovative behaviour has a clearer applied component since it is expected to result in innovative output. However, it cannot be said that it comprises application only as innovative behaviours encompass employees'

behaviours directed at the production of novel products, services and/or work processes (West and Farr, 1990; Scott and Bruce, 1994). In that sense, creativity can be seen as a part of innovative behaviour that is most evident in the first phase of the innovation process, where problems or performance gaps are recognized and ideas are generated in response to a perceived need for innovation (West, 2002). West (2002) also suggests that the distinction between creativity and innovative behaviour is one of emphasis rather than substance. Thus, we have used both creativity and innovation research to identify potentially relevant leader behaviours (see below).

Some 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 behaviours between the two phases remain invisible, which is why recent work recommends keeping these phases of the innovation process separate (Mumford and Licuanan, 2004). We follow this suggestion and address both idea generation and application.

2.2 Leadership
The term leadership means different things to different people. Although no ultimate definition of leadership exists (Yukl, 2002), the majority of definitions of leadership reflect some basic elements, including "group" "influence" and "goal" (Bryman, 1992). We think of leadership as the process of influencing others towards achieving some kind of desired outcome.

Leadership research has taken different perspectives, leader traits, behaviours, and the influence of situational characteristics on leader effectiveness, for example, have all been studied. In the past 20 years, transformational and charismatic leadership approaches have gained in popularity (Den Hartog and Koopman, 2001). We limit ourselves to the behavioural perspective and address how leader behaviour influences employees' idea generation and application behaviour. Although the impact of leaders seems intuitively appealing, most behavioural leadership studies look at performance or effective outcomes rather than innovation-related outcomes.

Available research on the relationship between leader behaviour and individual innovation has investigated transformational leadership, participative leadership, and leader-member exchange (LMX) theory. Transformational leadership is hypothesized to encourage creativity (Kahai *et al.*, 2003; Shin and Zhou, 2003). As transformational leaders stimulate followers to view problems in new ways and help them to develop to their full potential, this is likely to result in the enhanced creativity of followers. However, previous studies show mixed results. Kahai *et al.* (2003) used an electronic meeting system with students in a laboratory experiment to investigate the impact of leadership, anonymity and rewards on creativity-relevant processes and outcomes. As a by-product they found a positive impact of transformational leadership. However, an experiment by Jaussi and Dionne (2003) found little effect of transformational leadership on creativity. In contrast, field research by Shin and Zhou (2003) in Korea showed that transformational leadership was positively related to follower creativity.

Participative leadership involves the use of various decision-making procedures that determine the extent to which people can influence the leader's decisions and have the autonomy to design and perform their own tasks. Participative leadership can take different forms, including consultation, joint decision making and delegation

(Yukl, 2002). Such leadership has been identified as an antecedent of individual innovation. Judge *et al.* (1997), for example, interviewed R&D managers, scientists, and technicians from new biotechnology firms and concluded that giving employees operational autonomy encouraged an innovative culture. In a study among the employees of a manufacturing plant, Axtell *et al.* (2000) found a positive relationship between participation and employees' innovative behaviour, measured using self-ratings of employees' suggestions and implementation efforts. Similarly, Frischer (1993) found that when product-development managers gave authority to their subordinates and provided them with a sense of responsibility, subordinates were aware of a positive innovation climate.

LMX theory focuses on the social exchange relationships between leaders and employees. It proposes that the quality of the relationship between a leader and follower influences outcomes such as subordinate satisfaction, supervisor satisfaction, performance, commitment, role conflict, role clarity and turnover intentions (Yukl, 2002). Some suggest that the quality of the relationship between a leader and follower is also related to innovativeness (Graen and Scandura, 1987). High-quality exchange relationships include providing employees with challenging tasks, support in risky situations and the provision of task-related resources and recognition, all facilitating individual innovation. In line with this, Tierney *et al.* (1999) found a positive relationship between high-quality relationships and creativity in a study among R&D leaders and employees of a chemical firm. Janssen and van Yperen (2004) also found that high-quality relationships had a positive impact on the broader construct of innovative behaviour.

In conclusion, most studies on the connection between leadership and individual innovation have explored the role of theory-based leadership styles, originally developed for other purposes such as the assessment of leaders' impact on performance or effectiveness rather than innovation-related outcomes. They did not attempt to develop models aimed specifically at finding out how leader behaviour could stimulate the innovative behaviour of employees. Leadership models developed for more routine settings may not generalize to the leadership of innovative people (Mumford and Licuanan, 2004). Also, the studies that were carried out focus on the leader's role in stimulating creativity (Shalley and Gilson, 2004), whereas the role of leaders in employees' implementation of innovations received little attention. We, therefore, explored how leaders may trigger both these aspects of employees' innovative behaviour.

There are various views as to how leadership differs from management and entrepreneurship. Leadership is seen as a subset of managerial activities, others see leading and managing as overlapping roles, yet others describe them as different processes. For example, Kotter (1990) differentiates their intended outcomes: management seeks to produce predictability and order, while leadership aims to produce change. In Kotter's view, leaders and managers are not necessarily different persons, but rather different roles. This also holds for entrepreneurship. For example, when organizations grow beyond a few employees, entrepreneurs (should) start worrying about how followers must be directed towards specific goals (Shane, 2003). In this study, entrepreneurship, management and leadership are roles that are not mutually exclusive. Most of our interviewees fulfilled all three roles, including being a leader as part of their work. They are also managers and most were the entrepreneurs that started their firm. We thus use "leader" "manager" and "entrepreneur" interchangeably in referring to the interviewees.

3. Methodology

We combined in-depth interviews and literature research to develop the inventory of leader behaviours. The in-depth interview is a qualitative research technique that is particularly useful for exploration purposes, such as developing propositions on a particular subject (Churchill, 1999). It is a suitable research technique for relatively unexplored subjects (Eisenhardt, 1989). The use of literature is important to complement the results of an exploratory study (Strauss and Corbin, 1990). In this way, we used information from the field for our theorizing on leadership, and idea generation and application behaviour. As we focus on employees in knowledge-intensive services, we first explain how we defined this group within the working population and how we traced participants for the interviews. We then describe how we collected data and used the interview results and literature to arrive at our inventory.

3.1 Respondents

We selected 12 participants through purposive sampling. Each participant was a manager and/or entrepreneur (business owner) in a small knowledge-intensive service firm (<100 employees). Knowledge-intensive service is a relevant but under-researched context in individual innovation research. Alvesson (2000, p. 1101) defines knowledge-intensive firms as: "companies where most work can be said to be of an intellectual nature and where well-qualified employees form the major part of the workforce". Hislop (2005, p. 217) defines knowledge workers as: "people whose work is primarily intellectual and non-routine in nature, and which involves the utilizations and creation of knowledge". Based on this definition, a large range of occupations may be classified as knowledge-intensive, including lawyers, consultants, IT/software designers, advertising executives, accountants, scientists/engineers, and architects (Hislop, 2005).

All participants led (groups of) employees as part of their daily work. Since, we wanted to understand which leader behaviours account for variation in employees' idea generation and application behaviour, we aimed to interview both leaders who were good at eliciting employees' innovative behaviour and leaders who did not explicitly focus on this or achieved only modest results. Methodologists recommend such an approach in this exploratory stage of research to reveal contrasts and develop propositions (Yin, 1994). We contacted the Dutch non-profit consultancy firm Syntens to trace suitable participants. Syntens has 250 consultants and aims to stimulate innovation in small enterprises by providing managers/entrepreneurs with advice and information. We asked three specialised consultants, responsible for a project on stimulating the use of suggestion schemes, to suggest managers/entrepreneurs from their network who had demonstrated excellence in stimulating employees' innovative behaviour, and those who were not exceptionally good at this. The consultants maintained long-term and in-depth relationships with many managers/entrepreneurs. To ensure that social desirability (i.e. the rhetoric people may use to present themselves as enhancing innovative behaviour in others) was kept in check and that the consultants had sufficient knowledge to judge the extent to which a person actively stimulated innovative behaviour, we explicitly asked consultants to think only of strong ties in their network, people they had known for at least three years. Their suggestions enabled us to contact five "front-runners" and seven "average leaders" who agreed to participate. Table I shows that the interviewees are from a wide range of sectors, including research, engineering, consultancy, IT and accountancy.

Firm	Industry	Basic activity	Respondent	Number of employees
1	Consultancy	Public relations and communication	Manager of new ventures	80
2	IT	Software development (language technology)	General manager	15
3	Consultancy	Innovation and product development	Regional director	35
4	Technological research	Development and transfer of scientific knowledge	General manager	25
5	Consultancy	Strategic change	Senior consultant/team leader	10
6	IT	Internet applications	Entrepreneur/manager	25
7	Market research	Management information	Entrepreneur/manager	60
8	Accountancy	Approval of annual reports	Entrepreneur/manager	75
9	Engineering	Mechanical instruments	Entrepreneur/manager	25
10	Engineering	Constructions for buildings and bridges	Entrepreneur/manager	15
11	Accountancy	Approval of annual reports	Entrepreneur/manager	12
12	Consultancy	Investment decision making	Entrepreneur/manager	10

Table I.
Characteristics of
respondents

3.2 Data collection
Face-to-face interviews were held using a mostly unstructured format consisting of two parts. We first asked each respondent to describe his/her own leadership style, what role innovation plays in his/her firm, and whether and how employees are involved in innovation. After these general questions, we encouraged the participants to talk freely about their attitudes and behaviour as leaders. The respondent's initial reply and our probing for elaboration determined the direction. We always attempted to elaborate on the potential impact of a respondent's self-described leadership style on employees' idea generation and application behaviour. In the second part of the interview, we revealed to the respondents that the goal of the interview was to explore how leaders stimulate idea generation and application behaviour among their employees. We then asked more direct questions about how a person could stimulate or discourage these behaviours. The interviews lasted for an average of 90 minutes. Comprehensive notes of the answers were taken and transcribed into an interview report immediately after each session. Follow-up questions were asked by telephone and/or e-mail when clarification was necessary.

3.3 Analysis
We studied the interview reports intensively to identify common categories of meaning. Two researchers worked independently on the coding process. Differences in categories were discussed and resolved. Current literature, as recommended by Strauss and Corbin (1990), served as background material for our search. We used Yukl's (2002) taxonomy of "managerial practices" as a first classification of leader behaviours. This taxonomy consists of 14 leader behaviour constructs that are derived from empirical research and expert judgments (Appendix). It provides a description of what leaders do in their daily work, and this taxonomy seemed to encompass many possibly relevant leader behaviours. Using this as foundation categories of relevant leader behaviours were further developed and checked for suitability by looking for similar responses. We used information and insights emerging from the interviews as well as current literature to think of potential new categories and check for the suitability of existing ones.

This "back and forth" process, moving between the interview data and theory and literature, resulted in an inventory of 13 leader behaviours related to employees' idea generation and application behaviour. Five of Yukl's leader behaviours were retained in our final overview (monitoring, consulting, delegating, recognizing and rewarding). The other constructs were dropped whenever we felt that they were redundant or else redefined and refocused when they did not sufficiently reflect what interviewees described. In this way, insights emerging from the local context provided information for the theorizing process. We redefined Yukl's (2002) practices of "supporting" "informing" and "clarifying roles" to suit this context better and relabelled them "support for innovation" "stimulating knowledge diffusion" and "task assignment". Yukl's other practices were not included in the final inventory as they did not surface in the interviews and were not found in existing literature linking leadership to individual innovation. Instead, several other behaviours that did emerge from the interviews and are mentioned in this literature were added, such as "providing vision" and "innovative role modelling". Finally, our analysis also revealed some contingencies that may affect innovative behaviour. We discuss the results in the next section.

4. Results
Table II presents all leader behaviours that we found to be connected to innovative behaviour. Six behaviours were believed to relate to only one type of innovative behaviour, the others are likely to affect both idea generation and application behaviour.

Behaviour		Consists of	Relates to	
			Idea generation	Application
1	Innovative role-modelling	Being an example of innovative behaviour, exploring opportunities, generating ideas, championing and putting efforts in development	✔	✔
2	Intellectual stimulation	Teasing subordinates directly to come up with ideas and to evaluate current practices	✔	
3	Stimulating knowledge diffusion	Stimulating open and transparent communication, introducing supportive communication structures like informal work meetings	✔	
4	Providing vision	Communicating an explicit vision on the role and preferred types of innovation, providing directions for future activities	✔	✔
5	Consulting	Checking with people before initiating changes that may affect them, incorporating their ideas and suggestions in decisions	✔	✔
6	Delegating	Giving subordinates sufficient autonomy to determine relatively independently how to do a job	✔	✔
7	Support for innovation	Acting friendly to innovative employees, being patient and helpful, listening, looking out for someone's interests if problems arise	✔	✔
8	Organizing feedback	Ensuring feedback on concepts and first trials, providing feedback to employees, asking customers for their opinion		✔
9	Recognition	Showing appreciation for innovative performances	✔	✔
10	Rewards	Providing financial/material rewards for innovative performances		✔
11	Providing resources	Providing time and money to implement ideas		✔
12	Monitoring	Ensuring effectiveness and efficiency, checking-up on people, stressing tried and tested routines (negative relationship)	✔	✔
13	Task assignment	Providing employees with challenging tasks, make allowance for employees' commitment when assigning tasks	✔	

Table II.
Overview of leader behaviours

Some behaviour is more general in nature (e.g. consulting, delegating). Other behaviours are aimed more directly at stimulating employees' idea generation and/or application efforts (e.g. providing resources).

4.1 Innovative role modelling

Most interviewees suggested that it is beneficial if they themselves are examples of innovative behaviour. For instance, interviewees from the front-runners group stated: "I am always looking for ways to do things better and improve results. It stimulates some of my employees to do the same." Or: "Some of my employees tend to behave like I do, particularly the younger ones."

Empirical evidence supports such a link between innovative role-modelling and idea generation. Jaussi and Dionne (2003) hypothesized that leaders who act creatively make themselves available for creative emulation, which in turn produces more creativity in followers. Acting as a model for creativity was expected to increase the chance that followers would practice idea generation themselves. In an experiment using student participants, Jaussi and Dionne did indeed find a positive and direct impact of role-modelling on creativity. Shalley and Perry-Smith (2001) found that individuals who were provided with a creative work model were able to learn what was considered creative from this model and, in turn, exhibited more creative behaviour.

Evidence of the link between role-modelling and application behaviour is scarce. Tierney *et al.* (1999) found that direct assessments of leaders' creative skills correlated positively (in the 1930s) with output-based measures of individual innovation, such as invention disclosures. Sundbo (1996) performed case studies in Danish service firms and concluded that working with a manager of the "entrepreneurial type" strengthened the entrepreneurial activities of employees. Extraordinary levels of implementation-oriented innovative activity were found when such a leader was present. Therefore, both the interviews and literature suggest that role modelling may stimulate both idea generation and application behaviour.

4.2 Intellectual stimulation

Some of our respondents (mostly from the front-runners group) asserted that stimulating employees to generate ideas is quite simple: just tempt or even entice them to do so. For example, one respondent stated:

> To solve problems we make a "criminal tour". I ask my employees to think of something that is not ethical or strictly prohibited by law, but could actually serve as a solution. It is a nice way to find new methods we otherwise would never have thought of.

Such examples seem related to what theorists call intellectual stimulation: increasing employees' awareness of problems and stimulating them to rethink old ways of doing things (Bass, 1985; Den Hartog, 1997). Intellectual stimulation may create opportunities for employees to voice ideas that may otherwise be overlooked and is, therefore, believed to trigger idea generation in particular. As most studies treat intellectual stimulation as part of the broader-defined construct of transformational leadership, research efforts have yet to focus explicitly on the connection between intellectual stimulation and innovative behaviours. Empirical work on related topics does suggest support for this link. In a study in R&D firms, Scott and Bruce (1994) empirically demonstrated that when managers expect their employees to be innovative, employees tend to perceive their leader as encouraging and facilitating their innovative efforts and

demonstrate more innovative behaviour. When individuals know that idea generation is important, they are more likely to show this behaviour (Shalley and Gilson, 2004). For example, Shalley (1991) examined the effects of two types of goals (i.e. a creativity versus a productivity goal) on creative output. Once a creativity goal was assigned, individuals were primed to focus attention and effort on this objective and exhibited higher levels of idea generation. Other studies found that even when there is no explicitly formulated goal, individuals are more creative when they are informed that it is considered to be important. For instance, Speller and Schumacher (1975) found that individuals' scores on creativity tests improved if they were told that they were taking a creativity test.

4.3 Stimulating knowledge diffusion

Several respondents in the front-runners group believed that stimulating the dissemination of information among subordinates enhances idea generation. They sometimes arranged informal meetings solely for the sake of knowledge diffusion, while the non-innovative respondents usually paid little attention to this. Sample quotes that underline this contradiction:

> It's always good when people are aware of how things are going. When you hear about someone's problems in engineering work, you may come up with suggestions or ideas for solutions if you have faced a similar problem in the past.

Versus:

> Of course it is a good thing to socialise during a coffee break. But it should not take too long.

There is also research that suggests a link between knowledge dissemination and idea generation. In a recent literature review on leadership and creativity, Mumford *et al.* (2002) propose that part of the idea-generating ability of employees depends on their awareness of the needs, trends, and problems within their professional and business environment. This sort of knowledge provides the individual with a source for new ideas. In line with this, in a study of 19 innovative banking projects, Harborne and Johne (2003) found that leaders of successful projects were able to change the nature of relationships between employees through informal communication. Anomalies or things that do not fit expected patterns often serve as the basis for new ideas. Such discrepancies are best captured when information is widely available.

4.4 Providing vision

Interviewees in the front-runner's group tried to anchor the innovative activities in their firms by providing their employees with a sense of direction and overarching goals as well as some general guidelines. In contrast, our less innovative participants did not mention providing a vision to support innovative activities. The innovative respondents attempted to communicate their ambition and drive and wanted to provide their employees with a beacon for innovative efforts. Providing an overarching vision was believed to enhance both idea generation and application behaviour for various reasons. First, it provided a frame of reference that indicated what kind of ideas would be appreciated. One interviewee from the innovative subset told us: "We want to be a leading firm in language technology. Of course, ideas that fit within our mission have a better chance of being implemented."

Second, if a promising idea fits within a vision familiar to and shared by employees, convincing them of its value and guiding its implementation was believed to be much easier. This is illustrated by the statement of one of the interviewees that:

> We want to innovate endlessly to create value for our customers and to improve our methods of delivery. Whenever an idea matches this principle, it is much easier to convince other employees of its value.

Most studies on individual innovation merge the construct of vision with other dimensions of transformational leadership. There are, however, studies that demonstrated an empirical connection between providing vision and measures of idea generation and application behaviour. Sosik *et al.* (1998) showed that providing a vision results in enhanced creativity on a computer-based brainstorming task. Hounsell (1992) demonstrated that the use of a vision results in successful research and development outcomes. These relate to application behaviour. Gebert *et al.* (2003) performed another study relevant to application behaviour. They claim that stimulating employees to be innovative entails particular risks. For example, one could end up with too broad a spectrum of initiatives. Gebert *et al.* define a construct called "integration" as being the clarity of the strategic course set by the organization, and the capacity to reach agreement on fundamental issues, and find support for a positive connection with employees' decision to innovate.

4.5 Consulting

It was striking that most interviewees spontaneously indicated that they maintained a "loose" management style and were convinced of the value of asking subordinates for their opinion. Interviewees suggested that when something new is implemented, those who have to adopt it should be allowed to influence decision-making. Both the more and less innovative interviewees mentioned this. One interviewee stated that:

> People are usually less motivated for another person's idea unless they are able to reshape it. If I just order an employee to do something, I cannot expect a high-quality outcome.

As mentioned, research has identified participation in decision-making as a strong determinant of innovative behaviour. Recent research also confirms the proposed link between a consulting leadership style and both idea generation and application behaviour. Amabile *et al.* (2004) compared teams of knowledge workers, using their daily reports about critical incidents in the behaviour of their leaders. The two R&D teams involved differed dramatically in idea generation, innovative output, and their perception of leader support for innovation. The leader of the successful team involved subordinates in decision making during weekly meetings, during which he and the team worked together to set their priorities and goals. In contrast, the leader of the unsuccessful team never asked his workers' for input for decision making. This lack of consultation undermined subordinates' motivation and also deprived the project of fresh ideas that could have improved performance. Also, a case study by Ruigrok *et al.* (2000) suggested a positive relationship between innovativeness and a "shared leadership" style characterized by frequent consultation. Shared leadership enhanced people's involvement and motivation to generate ideas and to strive for successful implementation.

4.6 Delegating

Extensive delegation was part of most interviewees' leadership style. In both groups, respondents tried to provide subordinates with sufficient autonomy to ensure high-quality work results. One responding manager even spontaneously connected delegation to innovative behaviour:

> As soon as we have decided to go ahead, I delegate the implementation activities to my employees. I am too dominant and my employees would not dare to object to my opinion.

There is consistent empirical support for a positive linkage between delegation and both idea generation and application behaviour. In a study among German middle managers, Krause (2004) investigated whether leaders can influence the innovation process by granting their subordinates freedom and autonomy. She found that granting freedom and autonomy was positively related to various types of innovative behaviour, including the generation, testing, and implementation of ideas. In an early study among NASA scientists, Andrews and Farris (1967) concluded that providing subordinates with more freedom to explore, discuss and challenge ideas was associated with higher innovation performance. Other studies carried out in different contexts point in a similar direction, these studies include work by West and Wallace (1992) in primary care teams, by Frischer (1993) in product development departments, by Nijhof *et al.* (2002) in a transport firm, and by Judge *et al.* (1997) in the biotechnology sector.

4.7 Support for innovation

Our interviews indicated that support could motivate employees in both phases of the innovation process. Experiencing support was believed to be helpful in creating and generating ideas. An innovative respondent stated that: "People know that I just love new ideas. That's why they come up with suggestions every day. I am always excited by them."

The way in which leaders dealt with mistakes seemed to be a key driver in the implementation stage. Most respondents from our group of front-runners, but also some in the non-innovative subset, indicated that mistakes should not be used to punish subordinates but instead should be considered a learning opportunity, for example: "You can really discourage innovative behaviour by being unreliable. When you do not support your subordinates when problems arise, you can forget successful innovation."

Various studies relate support for innovation to individual innovation (both to idea generation and application behaviour). Olham and Cummings (1996) examined the influence of personal and contextual factors at work on employee creativity and found that a supportive supervisory style is one of the drivers of excellent creative performance. Krause (2004) focused on influence-based leadership, defined as changes in the behaviour of a person due to the actions or presence of another person. A leader's support for innovative efforts was a predictor of idea generation and implementation efforts of middle managers. Barnowe (1975) investigated the impact of "leader assistance behaviours" on the performance of employees in an R&D organization. Leader assistance behaviours appeared to be positively related to R&D workers' scientific and applied research outcomes (an output-based measure of individual innovation). Basu and Green (1997) also studied leader-members dyads in a manufacturing plant and demonstrated that employees are more likely to deviate from the ordinary, engage in unconventional behaviour, and implement innovative ideas if they are sure that they will not be penalized for it.

4.8 Organizing feedback

The innovative participants felt that organizing feedback is relevant and that this should be done as soon as the decision to go ahead with an innovative idea has been made. Leaders can provide feedback themselves, but may also ask others (e.g. subordinates) to take on this role. Another way in which participants arranged feedback was to let employees present an initial concept or idea to a group of customers and ask them for feedback. The innovative interviewees agreed that concepts for new services or processes would be improved by making sure that those who are developing and implementing it receive feedback on an initial version. For example, one respondent told us that:

> A sparring partner is an important element in the way we innovate. The one who came up with the idea is often very excited about it and does not want to see its pitfalls. Sparring partners keep more distance and are open-minded. With their comments and additional ideas they can increase successful implementation.

Empirical work on the connection between organizing feedback and application behaviour includes a qualitative study in a Swedish telecom firm by Hellström and Hellström (2002). They conclude that the willingness of employees to strive for innovation depends the on personal feedback that is given as soon as an idea is proposed. Positive, non-slashing feedback is perceived as a source of improvement. It increases the likelihood that an idea will improve. Likewise, innovation research at the organizational level suggests that feedback from customers can boost new product success rates (Cooper, 2003). These results suggest that new products or services should be tested, that is, evaluated by clients so that their feedback can be used to refine an initial concept. Von Hippel (2005) holds that user-innovation, where organizations increasingly develop innovations in partnerships with their customers and benefit from their ideas and modifications of products, will quickly become a key organizational innovation model.

4.9 Recognition

Several respondents in the front-runners group spontaneously stressed that they always tried to be positive to people coming up with initiatives, while most of their non-innovative counterparts confirmed this only when we asked for it explicitly. For example, an innovative respondent mentioned that: "When someone makes a suggestion I try to pay a lot of attention to such an initiative. Occasionally, I allow him or her a day or two to work out the idea."

Recognition includes giving praise (compliments), awards (e.g. certificates of achievement, private budgets, increased autonomy) and ceremonies (e.g. public speeches and celebrations) (Yukl, 2002). Past studies suggest that a leader should be keen to recognize innovative contributions, as such behaviour may trigger both idea generation and application behaviour. From a case study within a Canadian transport firm, Nijhof *et al.* (2002) concluded that when someone has an innovative idea, it is devastating for future idea generation if he/she has to convince the management of its potential. Rather, managers should appreciate and listen to the idea, even if they do not approve it. Also, Redmond *et al.* (1993) asked undergraduates to work on a marketing task consisting of developing advertising campaigns for a new product (3D TV) under conditions in which confederate leaders either did, or did not, recognize innovative practices by stressing an undergraduate's competence. Recognition led to higher-quality campaigns and a more effective application of creative problem-solving skills.

4.10 Rewards
Some interviewees suggested that financial rewards are helpful to focus employees' efforts when trying to implement new services or work processes. No differences were seen between the two group of interviewees were seen. As one of our non-innovative respondents mentioned:

> I do not believe that financial rewards are a trigger for idea generation. It does not improve work involvement. But after a new service has been introduced, my employees will see the results of their efforts in their salary. If I did not do this, I would communicate that you cannot make a career by doing more than expected.

In contrast to the interviewees' experience, some previous research shows that financial rewards may not be the best incentive to stimulate idea generation. Amabile (1988) claims that intrinsic motivation is more important to trigger non-routine behaviours than extrinsic rewards. Her research suggests one should avoid using money to "bribe" people to come up with innovative ideas. However, as intrinsic motivation is no prerequisite for effective implementation, rewards may well be used to trigger high-quality application behaviour of employees. In line with this, other research indicates that material rewards can be helpful, but they should be in line with other leader behaviours like providing support and recognition (Eisenberger and Cameron, 1996).

4.11 Providing resources
As soon as the decision to implement a promising idea is made, providing the necessary time and money seems to be essential. Some relevant quotes of interviewees include:

> Being enthusiastic about an idea is one thing, but your employees will not believe you if you do not come up with the resources to develop it.

And:

> We have plenty of ideas, but at the moment we do not innovate at all. We have had a vacancy for over six months now, and we need all our time to keep up with our current activities.

Empirical support for a positive connection between providing resources and application behaviour is widely available. A frequently mentioned example of providing resources for employees is that of 3M, the multinational company where scientists and R&D professionals are encouraged to spend 15 per cent of their working hours on their own innovative projects (Brand, 1998). Ekvall and Ryhammer (1999) examined a variety of organizational variables that might influence innovation among scholars working at a Swedish university, and found that the availability of resources was most strongly related to their innovative results. Drawing upon interviews with R&D managers and employees, Judge *et al.* (1997) recommended that maintaining continuous "slack" resources helped to create an innovative culture. Finally, Nijhof *et al.* (2002) recommended exempting employees from their ordinary tasks in order to concentrate all their efforts on the development and implementation of their ideas. When employees were assigned to work on innovations only part-time they experienced working on a project as something additional to their daily activities, and this often resulted in longer development times, as their daily work remained the number one priority.

4.12 Monitoring

Compared to our innovative participants, the non-innovative interviewees appeared to have strong monitoring standards. One less innovative respondent thought this might be disadvantageous for idea generation:

> We have adopted a low-cost strategy to be competitive. This implies that I frequently check whether my employees are spending too many hours on a single customer. This leaves them with less time think about doing their work differently.

The relationship with application behaviour was less clear. Some thought that excessive monitoring would hinder employees' application efforts, but others were convinced that some degree of monitoring is desirable to keep track of progress. For instance, interviewees mentioned that:

> You have to keep yourself informed about how things are going. You should not just throw away your money. But your supervision must not become too strict or else your employees will feel they are constantly being watched by "big brother" and avoid all risks.

The dilemma of the bright and dark sides of monitoring is also found in previous empirical work. Monitoring impedes employees' idea generation because it makes them feel insecure and unsafe at work – their jobs may be threatened if they make mistakes. A survey-based study by Olham and Cummings (1996) demonstrated that controlling supervision was negatively related to employees' creative performance. The comparison of two teams by Amabile *et al.* (2004) revealed that the leader of the unsuccessful team tended to over-control workers by issuing decrees and spending much time on checking performance and activities, even for their highly experienced workers. Excessive monitoring may have negative consequences for application behaviour as well. Focusing too strongly on error prevention (through monitoring) is likely to lead to low levels of risk taking, exploration and innovation (Kirkman and Den Hartog, 2004). Hitt *et al.* (1996) studied 250 firms that reported R&D expenditures each year between 1985 and 1991 and found that the implementation of strict financial controls was associated with less internal innovation (as a result of employees' application behaviour). On the other hand, Leonard and Swap (2005) stress that some degree of monitoring is desirable to ensure the progress of both innovations and current operations. Thus, the relationship between monitoring and application behaviour may show an inverted U-shape, such that both excessive and too little monitoring hamper application.

4.13 Task assignment

Although no major differences emerged between both subsets, it was mentioned that it is important for task content to match job incumbents' skills, abilities and preferences. One interviewee stated that:

> It is essential that people like their job. If they enjoy doing their work, they are more interested in delivering high quality. Then they are more eager to make suggestions for improvements as well.

Literature indeed shows that task assignment can influence idea generation. Intrinsically motivating tasks serve as a trigger for creativity (Amabile, 1988). Olham and Cummings (1996) showed that manufacturing employees produced their most

creative work when they felt that they working on complex, challenging tasks. Tesluk *et al.* (1997) stress task rotation as a relevant practice to enhance innovative behaviour.

4.14 Contingencies
Some interviewees elaborated on factors other than leadership that may enhance or impede employees' innovative behaviour. Examples include work climate and the external contacts among employees. One respondent stated that:

> It is not only the manager who is important. I am not the first one who gets to hear about new ideas. Normally people talk to their colleagues first. If they reject an idea, I will probably never hear about it.

Other interviewees stressed that some employees may have better opportunities to generate ideas due to frequent external contacts in their daily work (for instance, sales representatives). A typical quote here is:

> Having frequent contact with employees from other firms is helpful. Most of my younger people are still involved in a part-time education program for accountants. They have frequent contacts with the Accountancy Society. It is a good thing to meet other accountants and see how they do their work. I notice that it sparks new ideas in them.

These factors suggest that future research needs to explore the role that contingencies play in the relationship between leadership and employees' idea generation and application behaviour. Moderators for some of these leader behaviours may exist in that they have a stronger or weaker impact on employees' innovative behaviour in a given context. Leadership may also have indirect effects on outcomes, for instance, through creating a context in which innovative behaviour can flourish. For example, leadership may be crucial only in creating a work climate in support of employees' innovative efforts.

5. Discussion
5.1 Conclusions and implications
One way for organizations to become more innovative is to capitalize on their employees' ability to be innovative. This paper aimed to contribute to the literature on individual innovation by providing an inventory of leader behaviours that may influence employees' innovative behaviour. We focused on behaviours that specifically influence employees' individual innovative efforts (rather than performance or effectiveness as much previous work did). In developing the inventory, we paid explicit attention to both the generation of ideas and employees' application behaviour, i.e. behaviours directed towards the implementation of creative ideas as the latter has received far less attention to date. We also differ from previous work in our focus on leaders in knowledge-intensive service firms. Individual innovation has received little attention in such firms, which is surprising given how relevant innovation by employees is for knowledge-intensive services. Our study provides insights into the behaviours that leaders in knowledge-intensive services use to stimulate innovation among their employees.

Drawing on a literature review and in-depth interviews, we identified 13 leader behaviour constructs that are proposed to influence either idea generation or application behaviour or both. The range of identified leader behaviours is wide: as a leader it seems impossible not to affect employees' innovative behaviour. We revealed

some leader behaviours that can serve as a direct trigger to influence employees' idea generation and/or application efforts, but we also highlighted the impact of some general leader behaviours that are displayed as part of any leading profession. The latter are more general in the sense that they do not specifically aim to stimulate innovation. In other words, leaders in knowledge-intensive services also influence innovative behaviour through their "day-to-day" ways of doing things.

Leaders vary in the extent to which they typically display consulting, delegating and monitoring behaviour. As was shown, these practices are likely to have an impact on both employees' idea generation and application behaviour. Given our findings, leaders trying to enhance individual innovation among their employees could attempt to consult them more often, ensure that employees have sufficient autonomy in deciding how to go about their task, and support and recognize people's initiatives and innovative efforts. Creating a positive and safe atmosphere that encourages openness and risk taking seems to encourage idea generation and application. Although excessive monitoring is likely to have a negative effect, some degree of monitoring may be necessary to secure the effectiveness and efficiency of the firm's current operations. Creating a balance between stimulating innovative behaviour and ensuring short-term effectiveness and efficiency forms a challenge.

Our overview also contains behaviours shown by leaders with the explicit purpose of influencing individual innovation. For example, communicating an attractive vision that explicitly incorporates the role and preferred types of innovation may guide idea generation and application behaviour. Possibilities for idea generation and opportunity exploration also seem to be enhanced by directly stimulating and probing employees to generate ideas (intellectual stimulation), supporting open and transparent communication processes, creating avenues for knowledge sharing and diffusion, and assigning challenging tasks to employees. When employees have frequent external contacts (with customers, suppliers, etc.) this also seems to spark ideas. As some employees have better opportunities for idea generation than others (for instance, sales people who often meet external parties), leaders cannot reasonably expect a similar contribution to innovation from each of their employees. As soon as the decision to implement a promising idea has been made, additional risks may be involved. It takes time and money to implement beneficial novelty, but returns are never guaranteed. Also, when suggestions are never implemented people become de-motivated. Resources such as organised feedback are needed to enhance employees' motivation and ability to reach successful implementation. Occasionally, it may also help to provide financial rewards to encourage the desired behaviour.

5.2 Limitations and future research

The current study has some limitations that offer an agenda for future research. As we confined ourselves to qualitative techniques, a large-scale follow-up survey would be useful to find out which of the identified leader behaviours do indeed have the proposed connection with employees' idea generation and/or application behaviour. We found a wide range of leadership practices that play a role, but which behaviours are most relevant is not yet clear. It seems unlikely that all practices can be treated as atomistic ingredients that have an additive enhancing effect on idea generation and/or application behaviour. Rather, future quantitative research may condense the list we

provide into a more limited number of underlying dimensions. For instance, employees' perceptions of (low) monitoring and (high) delegating may correlate and could form part of a broader empowerment-based construct.

Another limitation is our exclusive focus on leaders in knowledge-intensive services. Perhaps some different leader behaviours might be found in other sectors. Knowledge-intensive services should probably be distinguished from firms with other ways of organising the innovation process, such as supplier-dominated firms (e.g. personal services, hotels and retail stores) (Pavitt, 1984; Evangelista, 2000). Such firms are generally adopters of innovations developed by other firms, so innovative behaviour of employees is probably less crucial to these firms' ability to generate profits and survive in the long run. Also, in our interviews we limited ourselves to leaders as a source of relevant behaviours. Although some respondents elaborated on experiences they had when they used to be an employee, additional interviews with subordinates may provide a more comprehensive picture of relevant leader behaviours.

Finally, although our focus was on providing an inventory of leader behaviours, contingency factors appeared to be relevant as well. As stated, interviewees mentioned a supportive work climate and external work contacts as potential antecedents of idea generation and application behaviour. Leaders play a role in creating a positive climate and provide the opportunity for employees to have external work contacts. These examples show that leaders also have indirect influence on individual innovation through the way in which they structure the work environment. Thus, future research should also try to address how leaders adapt to and even shape the environmental and organisational settings in such a way that the context optimally stimulates employees' innovative behaviour.

References

Alvesson, M. (2000), "Social identity and the problem of loyalty in knowledge-intensive companies", *Journal of Management Studies*, Vol. 37 No. 8, pp. 1101-23.

Amabile, T.M. (1988), "A model of creativity and innovation in organizations", in Shaw, B.M. and Cummings, L.L. (Eds), *Research in Organizational Behavior*,Vol. 10, pp. 123-67.

Amabile, T.M., Schatzel, E.A., Moneta, G.B. and Kramer, S.J. (2004), "Leader behaviors and the work environment for creativity: perceived leader support", *Leadership Quarterly*, Vol. 15 No. 1, pp. 5-32.

Anderson, N.R., de Dreu, C.K.W. and Nijstad, B.A. (2004), "The routinization of innovation research: a constructively critical review of the state-of-the-science", *Journal of Organizational Behavior*, Vol. 25 No. 2, pp. 147-74.

Andrews, F.M. and Farris, G.F. (1967), "Supervisory practices and innovation in scientific teams", *Personnel Psychology*, Vol. 20, pp. 497-515.

Anxo, D. and Storrie, D. (2001), *The Job Creation Potential of the Service Sector in Europe*, XXX, Luxembourg, EC.

Axtell, C.M., Holman, D.J., Unsworth, K.L., Wall, T.D., Waterson, P.E. and Harrington, E. (2000), "Shopfloor innovation: facilitating the suggestion and implementation of ideas", *Journal of Occupational & Organizational Psychology*, Vol. 73, pp. 265-85.

Barnowe, J.T. (1975), "Leadership and performance outcomes in research organizations", *Organizational Behavior and Human Performance*, Vol. 14, pp. 264-80.

Basadur, M. (2004), "Leading others to think innovatively together: creative leadership", *Leadership Quarterly*, Vol. 15 No. 1, pp. 103-21.

Bass, B.M. (1985), *Leadership and Performance Beyond Expectations*, The Free Press, New York, NY.

Basu, R. and Green, S.G. (1997), "Leader-member exchange and transformational leadership: an empirical examination of innovative behaviors in leader-member dyads", *Journal of Applied Social Psychology*, Vol. 27 No. 6, pp. 477-99.

Boer, H. and Gieskes, J. (1998), *Continuous Improvement – From Idea to Reality*, Twente University Press, Enschede.

Brand, A. (1998), "Knowledge management and innovation at 3M", *Journal of Knowledge Management*, Vol. 2 No. 1, pp. 179-84.

Bryman, A. (1992), *Charisma and Leadership in Organizations*, Sage, London.

Churchill, G.A. (1999), *Marketing Research: Methodological Foundations*, The Dryden Press, Forth Worth.

Cooper, R.G. (2003), "Profitable product innovation: the critical success factors", in Shavinina, L.V. (Ed.), *The International Handbook on Innovation*, Elsevier Science, Barking, pp. 139-57.

Den Hartog, D.N. (1997), *Inspirational Leadership*, VU doctoral dissertation, KLI-dissertation series, 1997-nr 2, Ipskamp, Enschede.

Den Hartog, D.N. and Koopman, P.L. (2001), "Leadership in organizations", in Anderson, N., Ones, D.S., Kepir-Sinangil, H. and Viswesvaran, C. (Eds), *PsyHandbook of Industrial, Work and Organizational Chology*, Vol. 2, Sage, London.

Dorenbosch, L., van Engen, M. and Verhagen, M. (2005), "On-the-job innovation: the impact of job design and human resource management through production ownership", *Creativity and Innovation Management*, Vol. 14 No. 2, pp. 129-41.

Ehigie, B.O. and Akpan, R.C. (2004), "Roles of perceived leadership styles and rewards in the practice of total quality management", *Leadership & Organization Development Journal*, Vol. 25 No. 1, pp. 24-40.

Eisenberger, R. and Cameron, J. (1996), "Detrimental effects of reward: reality or myth?", *American Psychologist*, Vol. 51, pp. 1153-66.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-50.

Ekvall, G. and Ryhammer, L. (1999), "The creative climate: its determinants and effects at a Swedish university", *Creativity Research Journal*, Vol. 12, pp. 303-10.

Elfring, T. (2003), "Intrapreneurship: corporate ondernemerschap en venturing", in Risseeuw, P. and Thurik, R. (Eds), *Handboek ondernemers en adviseurs: management en economie van het midden- en kleinbedrijf (Handbook Entrepreneurs and Advisors: Management and Economics of SMEs)*, Deventer, Kluwer, pp. 147-64.

Evangelista, R. (2000), "Sectoral patterns of technological change in services", *Economics of Innovation and New Technology*, Vol. 9, pp. 183-221.

Farr, F. and Ford, C. (1990), "Individual innovation", in West, M.A. and Farr, J.L. (Eds), *Innovation and Creativity at Work: Psychological and Organisational Strategies*, Wiley, Chichester.

Frischer, J. (1993), "Empowering management in new product development units", *Journal of Product Innovation Management*, Vol. 10, pp. 393-401.

Gebert, D., Boerner, S. and Lanwehr, R. (2003), "The risks of autonomy: empirical evidence for the necessity of a balance management in promoting organisational innovativeness", *Creativity and Innovation Management*, Vol. 12 No. 1, pp. 41-9.

Graen, G. and Scandura, T. (1987), "Towards a psychology of dyadic organizing", in Cummings, L.L. and Staw, B.M. (Eds), *Research in Organizational Behavior*, Vol. 9, JAI Press, Greenwich, CT, pp. 175-208.

Harborne, P. and Johne, A. (2003), "Creating a project climate for successful product innovation", *European Journal of Innovation Management*, Vol. 6 No. 2, pp. 118-32.

Hellström, C. and Hellström, T. (2002), "Highways, alleys and by-lanes: charting the pathways for ideas and innovation in organizations", *Creativity and Innovation Management*, Vol. 11 No. 2, pp. 107-14.

Hislop, D. (2005), *Knowledge Management in Organizations – A Critical Introduction*, Oxford University Press, Oxford.

Hitt, M.A., Hoskisson, R.E., Johnson, R.A. and Moesel, D.D. (1996), "The market for corporate control and firm innovation", *Academy of Management Journal*, Vol. 39, pp. 1084-196.

Hounsell, E.A. (1992), "Invention in the industrial research laboratory: individual act or collective process", in Weber, R.J. and Perkins, D.N. (Eds), *Inventive Minds: Creativity in Technology*, Oxford University Press, New York, NY, pp. 273-91.

Hurt, H., Joseph, K. and Cook, C. (1977), "Scale for the measurement of innovativeness", *Human Communication Research*, Vol. 4, pp. 58-65.

Imai, M. (1986), *Kaizen: The Key to Japan's Competitive Success*, McGraw-Hill, New York, NY.

Janssen, O. (2000), "Job demands, perceptions of effort-reward fairness, and innovative work behavior", *Journal of Occupational & Organizational Psychology*, Vol. 73, pp. 287-302.

Janssen, O. and van Yperen, N.W. (2004), "Employees' goal orientations, the quality of leader-member exchange, and the role of job performance and job satisfaction", *Academy of Management Journal*, Vol. 47 No. 3, pp. 368-84.

Jaussi, K.S. and Dionne, S.D. (2003), "Leading for creativity: the role of unconventional leader behavior", *Leadership Quarterly*, Vol. 14 Nos 4/5, pp. 475-98.

Judge, W.Q., Gryxell, G.E. and Dooley, R.S. (1997), "The new task of R&D management: creating goal-directed communities for innovation", *California Management Review*, Vol. 39, pp. 72-85.

Kahai, S.S., Sosik, J.J. and Avolio, B.J. (2003), "Effects of leadership style, anonymity, and rewards on creativity-relevant processes and outcomes in an electronic meeting system context", *Leadership Quarterly*, Vol. 14 Nos 4/5, pp. 499-524.

Katz, D. (1964), "The motivational basis of organizational behavior", *Behavioral Science*, Vol. 9, pp. 131-3.

King, N. and Anderson, N. (2002), *Managing Innovation and Change: A Critical Guide for Organizations*, Thomson, London.

Kirkman, B.L. and Den Hartog, D.N. (2004), "Team performance management", in Lane, H., Maznevski, M., Mendenhall, M. and McNett, J. (Eds), *Handbook of Cross-Cultural Management*, Blackwell Publishers, Malden, MA.

Kotter, J.P. (1990), *A Force for Change: How Leadership Differs from Management*, The Free Press, New York, NY.

Krause, D.E. (2004), "Influence-based leadership as a determinant of the inclination to innovate and of innovation-related behaviors: an empirical investigation", *Leadership Quarterly*, Vol. 15 No. 1, pp. 79-102.

Leonard, D. and Swap, W. (2005), *When Sparks Fly: Harnessing the Power of Group Creativity*, Harvard Business Publishers, Cambridge.

McAdam, R. and McClelland, J. (2002), "Individual and team-based idea generation within innovation management: organizational and research agendas", *European Journal of Innovation Management*, Vol. 5 No. 2, pp. 86-97.

McLoughlin, I. and Harris, M. (1997), *Innovation, Organizational Change and Technology*, Thompson, London.

Mumford, M.D. (2000), "Managing creative people: strategies and tactics for innovation", *Human Resources Management Review*, Vol. 10 No. 3, pp. 313-51.

Mumford, M.D. (2003), "Where have we been, where are we going? Taking stock in creativity research", *Creativity Research Journal*, Vol. 15 Nos 2/3, pp. 107-20.

Mumford, M.D. and Licuanan, B. (2004), "Leading for innovation: conclusions, issues, and directions", *Leadership Quarterly*, Vol. 15 No. 1, pp. 163-71.

Mumford, M.D., Scott, G.M., Gladdis, B. and Strange, J.M. (2002), "Leading creative people: orchestrating expertise and relationships", *Leadership Quarterly*, Vol. 13, pp. 705-50.

Nijhof, A., Krabbendam, K. and Looise, J.K. (2002), "Innovation through exemptions: building upon the existing creativity of employees", *Technovation*, Vol. 22 No. 11, pp. 675-83.

Olham, G.R. and Cummings, A. (1996), "Employee creativity: personal and contextual factors at work", *Academy of Management Journal, Vol.*, Vol. 39 No. 3, pp. 607-34.

Pavitt, K. (1984), "Sectoral patterns of technical change: towards a taxonomy and a theory", *Research Policy*, Vol. 13, pp. 343-73.

Redmond, M.R., Mumford, M.D. and Teach, R.J. (1993), "Putting creativity to work: leader influences on subordinate creativity", *Organizational Behavior and Human Decision Processes*, Vol. 55, pp. 120-51.

Ruigrok, W., Achtenhagen, L., Rügg-Stürm, J. and Wagner, M. (2000), "Hilti AG: shared leadership and the rise of the communication organization", in Pettigrew, A. and Fenton, E. (Eds), *The Innovating Organization*, Sage, London.

Scott, S.G. and Bruce, R.A. (1994), "Determinants of innovative behavior: a path model of individual innovation in the workplace", *Academy of Management Journal*, Vol. 38, pp. 1442-65.

Senge, P. (1990), *The Fifth Discipline: The Art and Practice of the Learning Organisation*, Doubleday, New York, NY.

Shalley, C.E. (1991), "Effects of productivity goals, creativity goals, and personal discretion on individual creativity", *Journal of Applied Psychology*, Vol. 76, pp. 179-85.

Shalley, C.E. and Gilson, L.L. (2004), "What leaders need to know: a review of social and contextual factors that can foster or hinder creativity", *Leadership Quarterly*, Vol. 15 No. 1, pp. 33-54.

Shalley, C.E. and Perry-Smith, J.E. (2001), "Perry-Smith Effects of social-psychological factors on creative performance: the role of informational and controlling expected evaluation and modelling experience", *Organisational Behaviour and Human Decision Processes*, Vol. 84, pp. 1-22.

Shane, S. (2003), *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*, Edward Elgar, Aldershot.

Shin, S.J. and Zhou, J. (2003), "Transformational leadership, conservation, and creativity: evidence from Korea", *Academy of Management Journal*, Vol. 46 No. 6, pp. 703-14.

Smith, G.P. (2002), "The new leader: bringing creativity and innovation to the workplace", *Chart Your Course*, Conyers, Georgia.

Sosik, J.J., Kahai, S.S. and Avolio, B.J. (1998), "Transformational leadership and dimensions of creativity: motivating idea generation in computer-mediated groups", *Creativity Research Journal*, Vol. 11, pp. 111-21.

Speller, K.G. and Schumacher, G.M. (1975), "Age and set in creative test performance", *Psychological Reports*, Vol. 36, pp. 447-50.

Strauss, A.L. and Corbin, J. (1990), *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage, London.

Sundbo, J. (1996), "The balancing of empowerment: a strategic resource based model of organizing innovation activities in service and low-tech firms", *Technovation*, Vol. 16 No. 8, pp. 397-409.

Tesluk, P.E., Farr, J.L. and Klein, S.R. (1997), "Influences of organisational culture and climate on individual creativity", *Journal of Creative Behaviour*, Vol. 31 No. 1, pp. 27-41.

Tierney, P., Farmer, S.M. and Graen, G.B. (1999), "An examination of leadership and employee creativity: the relevance of traits and relationships", *Personnel Psychology*, Vol. 52, pp. 591-620.

Unsworth, K.L. and Parker, S.K. (2003), "Proactivitiy and innovation: promoting a new workforce for the new workplace", in Holman, T., Wall, T.D., Clegg, C.W., Sparrow, P. and Howard, A. (Eds), *The New Workplace: A Guide to the Human Impact of Modern Work Practices*, Wiley, Chichester, pp. 175-96.

Van de Ven, A. (1986), "Central problems in the management of innovation", *Management Science*, Vol. 32, pp. 590-607.

Von Hippel, E. (2005), *Democratizing Innovation*, MIT Press, Cambridge, MA.

West, M.A. (1987), "A measure of role innovation at work", *British Journal of Social Psychology*, Vol. 6, pp. 83-5.

West, M.A. (2002), "Sparkling fountains or stagnant ponds: an integrative model of creativity and innovation implementation in work groups", *Applied Psychology: An International Review*, Vol. 51 No. 3, pp. 355-87.

West, M.A. and Farr, J.L. (1990), "Innovation at work", in West, M.A. and Farr, J.L. (Eds), *Innovation and Creativity at Work: Psychological and Organisational Strategies*, Wiley, Chichester, pp. 3-13.

West, M.A. and Wallace, M. (1992), "Innovation in health care systems", *European Journal of Social Psychology*, Vol. 21, pp. 303-15.

Yin, R.K. (1994), *Case Study Research: Design and Methods*, Sage, Thousand Oaks, CA.

Yukl, G. (2002), *Leadership in Organizations*, 5th ed., Prentice-Hall, Englewood Cliffs, NJ.

Zaltman, G., Duncan, R. and Holbek, J. (1973), *Innovations and Organizations*, Wiley, New York, NY.

Zhou, J. and Shalley, C.E. (2003), "Research on employee creativity: a critical review and proposal for future research directions", in Martocchio, J.J. and Ferris, G.R. (Eds), *Research in Personnel and Human Resource Management*, Elsevier, Oxford.

Appendix

Yukl's (2002) taxonomy of managerial practices

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

Table AI.

Corresponding author
Jeroen P.J. de Jong can be contacted at: jjo@eim.nl

The practice and sustenance of innovative behaviors was not substantially discussed in previous literature. Past researchers also have discussed factors to sustain innovative activities in the organization. One of the main factors is leaders' role. Leadership style is crucial in organizations to boost innovation performance. It is, therefore, imperative to investigate these leadership practices and most importantly understand how these variables can influence the practices and sustainability of innovation in organizations. (Retrieved 18 Feb 2012 from Emerald database).CrossRefGoogle Scholar. 5. Kerr, W. R., & Fu, S. (2008). How leaders influence employees' innovative behaviour. European Journal of Innovation Management, 10(1), 41–64.CrossRefGoogle Scholar. 14. Purpose – To provide an inventory of leader behaviours likely to enhance employees' innovative behaviour, including idea generation and application behaviour. Design/methodology/approach – Based on a combination of literature research and in‐depth interviews, the paper explores leadership behaviours that stimulate employees' idea generation and application behaviour. The study was carried out in knowledge‐intensive service firms (e.g. consultants, researchers, engineers). Findings – It was found that there were 13 relevant leadership behaviours. Although innovative behaviour is cruci