Employees contribute to the innovation process in several ways. This dissertation defines employee innovation behavior as behavior related to the development of new products, the development of new markets, or improvement of business routines. This dissertation combines the top-down and management controlled corporate entrepreneurship perspective and the bottom up and employee controlled intrapreneurship perspective when defining employee innovation behavior.

The empirical basis for this dissertation is three surveys with 634, 153, and 555 respondents and a qualitative study examining four cases. The dissertation offers a classification scheme of important differences and similarities between theoretical concepts related to innovation behavior among employees, concepts describing actions intended to bring about beneficial organizational change. The concepts discussed are; strategic renewal, corporate venturing, corporate entrepreneurship, championship, intrapreneurship, extra-role behavior, taking charge, and organizational citizenship behavior.

The findings reported in this dissertation show that employees involve themselves in innovation behavior in order to benefit their organization. The entrepreneurial strategy of the organization is found to be associated with employee innovation behavior. The proactive and intrapreneurial characteristics of the employee are also found to be associated with employee innovation behavior. Other characteristics of the organization and employees are found to be associated with employees' innovation behavior as well. These characteristics are portrayed and discussed. The motivational factors that employees find stimulating with regard to innovation behavior are also discussed. Moreover, the dissertation indicates how involvement in innovation behavior can be encouraged at several organizational levels. The findings in this dissertation have importance in relation to promoting employee innovation behavior when designing an organization, and when choosing employees to fill the specific organizational roles.

Handelshøgskolen i Bodø
Bodø Graduate School of Business

ISBN 82-996157-4-7

Print: Lundblad Media Bodø AS

Bjørn Willy Åmo: Employee innovation behavior

Ph.D. serie
2005

Bjørn Willy Åmo

Employee innovation behavior

Handelshøgskolen i Bodø
Bodø Graduate School of Business

Employee innovation behavior

Bodø, June, 2005

Thesis for the Degree of Doctor Oeconomia

by

Bjørn Willy Åmo

Bodø Graduate School of Business
Bodø Regional University
NO-8049 Bodø
Norway
Phone: +47 755 17 200
Fax: +47 755 17 268
e-mail: hhb@hibo.no

Acknowledgments

First and foremost I would like to thank my nearest family – my two children, Vilde and Bendik, and my wife, Ida. Their love, support and patience have been invaluable during these last years.

This dissertation has my name on the front page, but even so, this dissertation would not have come about if it were not for the enduring help and support from my supervisor Professor Lars Kolvereid, Bodø Graduate School of Business. I would not have been able to finish this dissertation without his guidance, constructive criticism, and inspiration. He has provided me with everything necessary to succeed. The support from Bodø Graduate School of Business (HHB) has also been generous and helpful in every way.

I have attended conferences and workshops and presented my work, and everywhere I have been, people have shown interest in my work and have provided me with the help I needed. Here many names could be mentioned, but some of them are impossible not to; Professor Arthur Money, Henley Management College, Professor Sten Jönsson, Gothenburg Research Institute, and Professor Petter Gottschalk, BI. I would like to thank Professor Paul Westhead, University of Nottingham, in particular, for his efforts. I appreciate his enduring and to-the-point help and comments.

I would also like to thank all my respondents for their time and patience. I entered the PhD program supported by a grant from Telenor AS. I am also indebted to my colleagues for their support and encouragement. Without all this help from the above-mentioned, this dissertation would not have seen the light of day. Thank you all!

Bodø, June 2005

Bjørn Willy Åmo

Doctoral Thesis at Bodø Graduate School of Business, Norway

Abstract

Åmo, B.W. (2005) Employee innovation behavior, 235 pp. Distributor: Bodø Graduate School of Business, NO-8049 Bodø, Norway.

The contribution from employees to organizational development and innovation is underestimated and under-explored. Even so, employees contribute to the innovation process in several ways. Some achievements are proactive in the sense that they represent intentional constructional change. In this dissertation, employee innovation behavior is defined as behavior related to the development of new products, the development of new markets, or improvement of business routines within their organization.

The empirical basis for this dissertation is three surveys with 634, 153, and 555 respondents and a qualitative study examining four cases. The findings reported in this dissertation show that employees involve themselves in innovation behavior in order to benefit their organization. An organizational strategy of entrepreneurship is utilized to explain employee behavior. The motivational factors that employees find stimulating with regard to innovation behavior are also discussed. Moreover, the dissertation indicates how involvement in innovation behavior can be implemented at several organizational levels. Characteristics of the organization and employees are found to be associated with employees' innovation behavior. These characteristics are portrayed and discussed. The findings in this dissertation have importance in relation to promoting employee innovation behavior when designing an organization, and when choosing employees to fill the specific organizational roles.

Bjørn Willy Åmo, Bodø Graduate School of Business, NO-8049 Bodø, Norway.
ISBN 82-996157-4-7

Printed in Bodø, by Lundblad Media Bodø AS.

Preface

Organizational change stimulated by employee innovation behavior is generally ignored or underestimated. Investigators who study change processes in organizations mainly focus on the characteristics of the organization or management, as the source of innovation initiatives and organizational change. Most studies fail to focus on the employee. Very few, if any, investigate the combined effects of personal employee characteristics and organizational strategies, when investigating how and why organizations change.

One explanation for this lack of research into employee innovation behavior is that the research community does not yet possess the right tool to address the problem. Current constructs relating to employee innovation behavior are rather imprecise and they do not adequately address organizational change processes. Researchers investigating organizational change through innovation, in which employees play a part in the change process, often use the constructs related to employee innovation behavior interchangeably and without making the necessary distinction.

The object of this dissertation is to provide the research community with a new construct especially designed to investigate organizational change, seen from the employee's point of view. The construct provided, "employee innovation behavior", is created in order to facilitate studies of organizational change through innovation in which employees are involved. Another contribution provided by this dissertation is a schematic classification of constructs and concepts of organizational change by innovation related to employee innovation behavior. Concepts such as strategic renewal, corporate venturing, corporate entrepreneurship, championship, intrapreneurship, organizational citizenship behavior, extrarole behavior and taking care, all differ from employee innovation behavior along important dimensions. The dissertation argues why it is necessary to offer a new construct of employee innovation behavior. The papers in the dissertation all utilize this new construct

of employee innovation behavior in order to understand organizational change. The papers explain the influence from the corporate entrepreneurship strategy of the organization, the intrapreneurial and proactive characteristics of the employee, the hierarchical rank of the employee, the influence from “significant other” persons and what the employee finds motivating towards providing innovation behavior. The papers all argue in favor of the necessity of this new construct of employee innovation behavior in order to understand, explain and predict organizational change through employee innovation behavior.

List of papers

This dissertation consists of four independent papers, and an extended summary aggregating the papers together. All the papers concerns employee innovation behavior, but each and every paper looks at the subject from a different angle.

List of figures and tables

List of figures

List of tables

Content

1 Introduction

Entrepreneurship is about starting up a firm, and much research has been conducted concerning the business start-up process, who the entrepreneur is, and how he or she behaves. Considerable research has also been carried out regarding how established firms adopt and implement innovation. The vital role of top management and middle management in developing innovative and entrepreneurial behavior within an organization has been explored by several researchers (Kuratko, Hornsby and Goldsby, 2004). How the employee contributes to this, and what he / she gains by it is not such a well-developed field. Sundbo (1999) claims that it is particularly important to analyze innovation from the employee's point of view, as employees are the crucial actors in the innovation process, and he invites further research on this issue. The research reported in this dissertation initiates this longed-for investigation into the employees' role in the innovation process.

1.1 The focus and purpose of this research

The overall objective of this dissertation is to advance knowledge concerning employee innovation behavior. Employee innovation behavior is defined as an employee's behavior towards developing new products, developing new markets, or to improving business routines in their employing organization. This dissertation reports research investigations into the explanatory power of different theoretical approaches previously used to explain innovation in an organization. As a result of this research, a tool is developed to improve our understanding of innovation in organizations in which innovation is rooted in employee behavior. The research also explores the link between organizational hierarchy, mission statements, work group behavior and employee innovation behavior. What is more, this research delves in depth into motivation and employee innovation behavior, utilizing knowledge management and increasing personal intellectual capital with a view to explaining employee innovation

behavior. In order to achieve this aim, this dissertation defines and offers a new construct, namely employee innovation behavior.

When specifying this new construct of employee innovation behavior, the new construct is thrown into relief through related concepts. More specifically, this research addresses the basic assumptions in theoretical perspectives associated with employee innovation behavior. Moreover, this research refines and adds dimensions to concepts and constructs associated with employee innovation behavior. Furthermore, the research provides new evidence regarding factors explaining employee innovation behavior by linking organizational strategy and employee characteristics in a single model for employee innovation behavior. The concepts and constructs related to employee innovation behavior discussed in this dissertation are strategic renewal, corporate venturing, corporate entrepreneurship, championship, intrapreneurship, organizational citizenship behavior, extrarole behavior and taking care.

1.2 The outline of the dissertation

Entrepreneurship has been investigated for decades, and the literature regarding entrepreneurship is ample. Corporate entrepreneurship and intrapreneurship are younger research fields, and the literature is not as extensive. This dissertation focuses on the literature on corporate entrepreneurship and intrapreneurship in order to discuss what distinguishes these concepts from the construct of employee innovation behavior. This dissertation does not aim at providing a thorough review of all literature discussions on themes, theoretical perspectives, constructs, or terms related to employee innovation behavior. The aim of the theoretical presentation is to provide the reader with a cognitive map of how some related research useful for the purpose of this dissertation can be seen in contrast to employee innovation behavior. This is done in chapter 2. Chapter 2 starts by contrasting employee innovation behavior to related terms; the chapter shows some of the assumptions of employee innovation behavior and related

terms. Furthermore, the chapter directs attention to central gaps in knowledge related to issues regarding employee innovation behavior. As a point of departure, four different relevant topics are presented. The knowledge gaps that are highlighted in chapter 2 focus on (1) what theoretical perspective can be used in explaining employee innovation behavior; (2) how characteristics of the organization and individual characteristics of the employee influence the employees' propensity to provide employee innovation behavior; (3) how hierarchy and strategy influences the employees' propensity to provide employee innovation behavior and (4) what the employee finds motivating in order to become involved in employee innovation behavior.

Chapter 3 gives the reader the opportunity to follow the research process leading to this dissertation. This dissertation is based on four papers. The third chapter also gives a more thorough disclosure of the methods used in the four papers, than the length and the structure of the papers permit. The choice of using the employee as a unit of analysis is motivated. Chapter 3 also discusses the validity and the reliability of the papers and the validity and the reliability of the conclusion that can be made when aggregating the findings of the individual papers together. Furthermore, the chapter also shows the development in operationalization of the employee innovation behavior construct, operationalization of the independent variables, research questions and the different methods utilized in the four papers.

Chapter 4 discusses the value of this new research provided by the four papers and the dissertation in light of the limitations of the studies. The chapter also points to some important implications of the research conducted, and shows some paths for future research. Furthermore, chapter 4 discusses the findings of the four papers and the conclusion that can be drawn when aggregating the findings of the papers together. Chapter 5 is a copy of the four papers providing the foundation for this dissertation. The appendix shows the questionnaires and interview guide used.

1.3 The theoretical framework applied

The issue of involving employees in the development of the organization has been a subject of growing interest in academic literature (Hornsby, Naffziger, Kuratko and Montagno, 1993; Janssen, de Vries and Cozijnsen, 1998; Sharma and Chrisman, 1999; Janssen, 2000). There is an ever-increasing need for all employees to intensify their level of performance regarding innovation (Wunderer, 2001). However, work is still lacking describing the process of employee involvement in innovation behavior seen from the employee's perspective. Similarly, work is scarce describing employee innovation idea generation and development processes (Hayton, 2005). Thompsen (2004) argues that innovation consists of three key elements; product, processes and people. Furthermore, he argues that the "people" element is largely taken for granted. Aldrich (1999) claims that the assumption of limited participation from lower level employees in organizational development is so strong that evidence for wider participation is rarely sought. This dissertation focuses upon the "people" element of innovation by giving evidence on what the employees themselves find motivating with regard to contributing to innovation behavior. Furthermore, this dissertation reports findings regarding how characteristics of the employee him- / herself, the organization and the conditions of employment, as perceived by the employee, influence the employees' propensity to provide innovation behavior.

This dissertation positions itself between research on entrepreneurship and research on innovation. This dissertation aims to contribute to the discussion of which models and constructs are best suited for investigation related to employee innovation behavior in different research situations. This dissertation also aims to highlight how individuals other than the entrepreneur contribute to the development of the organization, who is the innovative employee, and what influences the employee with regard to conducting innovation behavior.

Moreover, this dissertation intends to examine what employees claim to be their motivation for innovation activities.

Initially, it is appropriate to define innovation and other concepts central to the topic investigated. An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption, and adoption is the decision to make full use of an innovation as the best course of action available (Rogers, 1995). Kirton (1988) distinguishes between an adopter and an innovator. Adopters aim at "doing things better", whereas innovators aim at "doing things differently" and the innovator is more likely, in the pursuit of change, to reconstruct the problem. Implementation occurs when an individual, or other decision-making unit, puts an innovation into practice (Rogers, 1995). This suggests that an innovation is any product or process that has been implemented and is non-trivial to the business (Thong, 1999). Peter Drucker adds improvement as a dimension to innovation when he defines innovation as "*change that creates a new dimension of performance*" (Hesselbein, Goldsmith and Somerville, 2002).

Intrapreneurship and corporate entrepreneurship are amongst the most developed research fields regarding employee behavior toward innovation. Intrapreneurship and corporate entrepreneurship share innovation as their theoretical base (Mintzberg, 1994). Both intrapreneurship and corporate entrepreneurship involve introducing innovation into organizations. The diffusion or adoption of an innovation depends on someone believing that they have a solution to a problem and wanting to invest time and energy in solving the problem (Rogers, 1995).

Corporate entrepreneurship (Floyd and Wooldridge, 1999) and intrapreneurship (Pinchot and Pellman, 1999) are both incremental renewal processes in the organization through innovation behavior from employees. Corporate entrepreneurship concerns how companies stimulate innovation, enterprise, and initiative from people in the company, and the subsequent

contribution of individual behavior to organizational success (Kanter, 1984). Corporate entrepreneurship can be defined as the transformation of organizations through strategic renewal (Dess, Lumpkin and McGee, 1999) and can be regarded as a strategy for the development and implementation of new ideas (Hornsby, Kuratko and Zahra, 2002). Kuratko, Montagno and Hornsby (1990) define intrapreneurship as autonomous strategic behavior of the employee to exploit a given business opportunity. Intrapreneurship means employees behaving in a way that may include altering routines and production methods (Pinchot and Pellman, 1999).

Both corporate entrepreneurship literature and intrapreneurship literature study innovative behavior among employees (Kanter, 1984; Pinchot, 1985; Kuratko et al., 1990; Pinchot and Pellman, 1999). Corporate entrepreneurship and intrapreneurship both represent processes of organizational renewal through innovation initiatives from employees (Floyd and Wooldridge, 1999; Pinchot and Pellman, 1999). It can be argued that the desired results of a corporate entrepreneurship strategy are intrapreneurial initiatives from employees. Corporate entrepreneurship literature embraces innovative initiatives from employees in which the initiatives are responses to requests, and when the answers coincide with the strategy of the organization. Similarly, from an intrapreneurship perspective, the same initiative can be conceived as something rooted in the individual itself. Mintzberg (1994) relates organizational strategy, corporate entrepreneurship and intrapreneurship in this way: corporate entrepreneurship is when the strategy formulation defines the implementation. Vice versa, i.e. when the implementers have greater influence on the strategy formulation, he calls this intrapreneurship. The difference and the connection between corporate and entrepreneurship intrapreneurship is illustrated in figure 1.

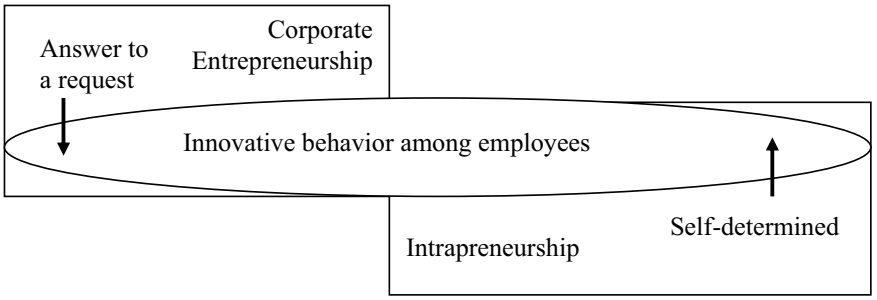


Figure 1 The difference and the connection between corporate entrepreneurship and intrapreneurship.

1.4 Introduction to existing research in the field of employee innovation behavior

Innovation behavior among employees has been linked to several related terms; corporate entrepreneurship, intrapreneurship, and the management of innovations among others (Kanter, 1984; Pinchot, 1985; Greene, Brush and Hart, 1999; Sharma and Chrisman, 1999). All the terms aim at explaining the process of renewal or the revitalization of the organization through innovation initiatives from the employees.

There is a striking lack of clarity in the manner in which this employee innovation behavior related activities has been defined (Thornberry, 2003). Sharma and Chrisman (1999) reveal that some authors use the same terms differently and some authors use different terms for the same activity. Moreover, Russell (1999) claims that there is no consensus regarding the definition of corporate entrepreneurship and asks for work clarifying these issues. This illustrates the need to define concepts carefully.

Chapter 2 provides further arguments for the confusion so far in the definition and use of concepts and theory related to innovation behavior among

employees. Chapter 2 also points to the potential disadvantages implied by this confusion. How "employee innovation behavior" relates and differs from concepts and constructs previously used to explain innovation behavior involving employees will be highlighted in chapter 2 in this dissertation. Chapter 2 further displays a gap in knowledge regarding how to design research about employee innovation behavior. Paper 1 address this knowledge gap and provides research tools for exploring employee innovation behavior.

There are two theoretical perspectives that both concern innovation behavior among employees. These theoretical perspectives are corporate entrepreneurship and intrapreneurship. There is a lack of empirical evidence exploring the links between employee innovation behavior, intrapreneurship, and corporate entrepreneurship. As Preiss and Spooner (2003: p. 202) state it; "*One of the reasons that a condition for innovation creation is not optimized is that we do not understand as well as we should those factors that lead to innovation creation*". Organizational members follow the rules of the organization regarding employee innovation behavior, as the rules are perceived by the organizational member (Mouritsen and Flagstad, 2004). How the strategy of the organization is formulated and communicated to the employees is a characteristic of the organization, as is the message embedded in the strategy itself. Kanter (1984) claims employees exhibit entrepreneurial behavior if the employer gives them the power to act. Work is still lacking regarding how organizational members perceive the organizational rules, as given by strategy statements, and how they act upon these cues.

Research investigating intrapreneurship as traits regarding entrepreneurship has lost some momentum (Crant, 1996). There are, however, some arguments indicating that research investigating traits regarding employee innovation behavior can prove useful. Personality serves as a unifying theme providing meaning, direction, and mobilization for the individual (Morris, Davis and Allen, 1994), indicating that traits are relative stable. There are many more

opportunities to engage in innovation behavior for an employee inside an organization, than there is for a person to establish his / her own firm. This implies that traits may be more useful for research work on employee innovation behavior, than for research on entrepreneurship.

Chapter 2 further fills the gap in our knowledge regarding the influence from traits and organizational characteristics on employee innovation behavior. Paper 2 then addresses this knowledge gap and reports evidence that both the trait of the employee themselves and characteristics of the organization influence the employee's propensity to engage in innovation behavior. Paper 2 provides further details about the relative strength of the influence from the characteristics of the employee and the characteristics of the organization.

Many corporate entrepreneurship programs in which the management asks for innovation behavior from the employees, do not achieve the desired enhanced organizational change (Wesorick, 2002; Zahra, 1991). Some employees immediately buy the idea of the corporate entrepreneurship program, whereas others are skeptical (Lindholm and Udèn, 2001). Shulman (1996) claims that vast studies focusing on work groups assume homogeneity among group members with regard to the values, experience and goals of the work group members. Morrison and Phelps (1999) encourage researchers to explore in more depth the relationship between work group characteristics and innovation behavior at the workplace. Research on "significant others" suggests that the behavior of an individual is more influenced by some individuals / groups of individuals, than on other individuals / groups of individuals. This notion of "significant others" refers to individuals whose evaluations of a person's behavior and attitude are held in high esteem (Denzin, 1966). There is a lack of work describing how "significant others" and organizational hierarchy has an impact on innovation behavior. Who the individual regards as "significant others" may well depend on the investigated attitude / behavior and the arena for this attitude / behavior. This makes it interesting to look into

whether there are any differences among occupational groups in organizations as to who they perceive as "significant others" regarding innovation behavior at the workplace.

Chapter 2 provides further reasons for the gap in our knowledge regarding the influence from managers and colleagues on the employee's propensity to engage in employee innovation behavior. Paper 3 addresses this knowledge gap and provides evidence about the relationship between work group characteristics and innovation behavior at the workplace. The third paper reveals how the employees are influenced by the manager's encouragement and the colleague's innovation behavior regarding innovation behavior due to the employee's hierarchical rank. The study reported in paper 3 explores whether the influence from significant others on innovation behavior varies accordingly to the employee's position within the organizational hierarchy.

How to make people go on being challenged should remain a priority issue for organizations (Baden-Fuller and Stopford, 1992). Previous research has mainly addressed the motivational factors regarding innovation behavior among employees as a matter of monetary reward alone. Kanter (1984) claims that rewards play a role in promoting innovativeness, but conclude that how the reward system works still remain unclear. The discussion in chapter 2 and in paper 4 indicates that yet another approach may be fruitful. Employees decide themselves whether providing the organization with innovation behavior is appropriate or not. This is because the individual employee decides the level of involvement and energy to put into a work task. This is the case even if the employee is assigned from management to participate in innovation related tasks. Hence, there is a gap in our knowledge regarding what the employees find motivating regarding involvement in innovation behavior. The motivation and interest of the employees in involving themselves in the innovation process needs to be examined in further research (Sundbo, 1999).

Christensen (2004) argues that many organizations possess a bundle of unexploited resources, and that one such resource is the knowledge held by the employees. Drejer, Christensen, and Ulhøi (2004) points to the intrapreneur as a knowledge worker, and claim that it is paramount that we begin to understand the relationships between knowledge, knowledge management, innovation management and intrapreneurship. Learning in organizations occurs when individuals within an organization experience a problematical situation and inquire into the problem on the organization's behalf (Argyris and Schön, 1996).

Chapter 2 further describes the knowledge gap regarding knowledge management, learning, intellectual capital and innovation. Paper 4 addresses this knowledge gap and provides the reader with a new construct, "personal intellectual capital", suited for research regarding motivational factors into innovation behavior among employees. The main research issue in paper 4 is to reveal what potential knowledge-gain workers find motivating with regard to involving themselves in innovation behavior in organizations. In order to attend to this issue, the following four objectives are addressed. (1) The link between employee innovation behavior and an increase in the employee's knowledge base is identified and described. (2) The link between corporate entrepreneurship strategy and intellectual capital is identified. (3) The link between the employee's knowledge base and employee reward is identified. (4) A conceptual model of innovation management and knowledge management that includes the employee perspective is proposed.

1.5 The research issue of the dissertation

Challenging-promotive behavior has received little research attention although scholars in the area of innovation have, for a long time, noted the potential value of employee initiated change for long-term organizational adaptability (Morrison and Phelps, 1999). Employee innovation behavior may represent a large potential for deliberate organizational change, organizational change

through innovation that could benefit organizational owners, management, employees and customers. Organizational change by innovation is beneficial for organizational owners and managers as it is a means for doing more for less. Likewise, innovation is beneficial for customers since it may result in improved products and customer satisfaction. Employee innovation behavior can improve the organization's competitive position and secure employment, but even more important for the employee, it may possibly provide the employee with better work conditions and more interesting job tasks.

Despite this, the area of employee innovation-related behavior is under-researched and under-developed. Knowledge gaps exist regarding how to combine the theoretical perspectives of intrapreneurship and corporate entrepreneurship when conducting research associated with employee innovation-related behavior. How the strategy of the organization, the management, the workgroup and the traits of the employee simultaneously influence employee innovation related behavior remains unclear. Likewise, there is a lack of understanding regarding what the employee finds motivating for engaging in employee innovation behavior. Given the seeming importance of employee innovation behavior, the research issue addressed is the following:

What factors are associated with increased levels of employee innovation behavior?

This overriding research issue is then broken down into more specific research questions suitable for investigation. Aspects of the overall research issue are addressed in four different papers, each dealing with different issues. The first paper addresses the question of how to conduct research regarding employee innovation behavior. Further, the paper explores whether characteristics of the employee him- / herself, the organization and the employment status influences employee innovation behavior. The second paper

addresses the question of whether organizational strategy and personal traits influence the employee's propensity to engage in employee innovation behavior using structural equation modeling. The third paper addresses the question of how a request for employee innovation behavior ripples down the organizational hierarchy. Paper 3 tests whether the influence from management and colleagues on the employee's propensity to engage in employee innovation differs according to the employee's hierarchical rank. The fourth paper investigates the factors that the employees find motivating regarding employee innovation behavior.

1.6 Unit of analysis

The main objective of this dissertation is to improve understanding of employee innovation behavior. The dissertation attempts to explain which factors the employee finds motivating as regards innovation behavior. Further, this dissertation discusses the usefulness of two different theoretical perspectives concerning how to understand innovation behavior among employees. This is revealed by presenting four different papers, each dealing with employee and innovation behavior from different angles. The dissertation contrasts terms related to employee innovation behavior in order to provide the reader with an opportunity to map employee innovation behavior in the research field of organizational change, innovation and organizational improvements provided by employees. The dissertation discusses the unit of analysis in research regarding employee innovation behavior, and argues that the individual is the appropriate unit of analysis in most cases. Further, this dissertation investigates whether organizational and individual characteristics are related to employee innovation behavior, and it investigates the relationship between reward and employee innovation behavior. The dissertation also examines the relationship between significant others, hierarchical rank and employee innovation behavior.

This research is within the positivistic / empirical research paradigm. The dissertation addresses the research question: what factors are associated with increased levels of employee innovation behavior? In order to answer this research question, the dissertation uses the employee as the unit of analysis. This unit of analysis is chosen as the employee acts on cues as he / she perceives them. Furthermore, the manager or the co-worker of the employee may not know or appreciate the innovation behavior of the employee, and then wrongly report or refuse to report such behavior when asked to do so (Thornberry, 2003). Chapter 3 provides further arguments for the chosen unit of analysis.

Paper 1 investigates the employee's perception of his / her own intrapreneurial traits and the employee's perception of the organization's strategy regarding employee innovation behavior. Paper 2 investigates the employee's perception of his / her proactivity and the employee's perception of the competitive strategy of the organization. Paper 3 investigates the employee's perception of colleague's and manager's innovation behavior. Paper 4 investigates the employee's perception of how the organization values and rewards employee innovation behavior.

1.7 The purpose of the dissertation

The main issue in this dissertation is then, to reveal who the employees showing innovation behavior are and what the employees find motivating with regard to involving themselves in innovation within the organization. In this dissertation, this issue is handled by providing some indications as to who the employees contributing with innovation behavior are, and what they find rewarding by participating in innovation. The dissertation discusses how aspects of the organizational strategy and the corporate climate, as perceived by the employee, contribute towards employee innovation behavior. Furthermore, the dissertation discusses the appropriate theoretical tools to apply when conducting research on employee innovation in different research settings.

The purpose of the dissertation is better to understand how research into innovation behavior among employees should be conducted. The basic assumptions, in other words - the "core" of the theory used to understand the phenomena, and the primary goals in employee innovation related research are discussed and enlightened. Such a discussion, together with refinement and categorization of constructions and theoretical perspectives related to employee innovation behavior, will help researchers interested in the topic to make more informed choices regarding research design.

The intention of this dissertation is also to enable findings generated by this work to be used in order to stimulate organizations to grow / stay competitive through employee innovation behavior. Carrier (1996) suggests that intrapreneurship depends on the entrepreneur and the culture in the organization. There exist several state-run programs utilizing taxpayers' money to promote growth and employment in organizations. The knowledge gained from this dissertation may also be used to differentiate between those organizations in witch stimulating employee innovation behavior is worth while and those not motivated to pursue employee innovation behavior as a means of achieving growth. Not all organizations pursue growth. Wiklund (1998) found that the growth rate of a given SME remained stable over the years. Some SME's stayed put and others grew rapidly.

1.8 Methods and analysis applied

Research on the issues addressed in this dissertation has not been conducted before, and the data needed in order to answer the research questions was not publicly available. In order to answer the research questions addressed in this dissertation and in the four papers, three surveys and one case-study were conducted. Chapter 2 reveals further information regarding the knowledge gaps the four papers address. Chapter 3 gives the reader detailed information about the methodology used in the four papers.

Paper 1 exploits a survey of business graduates from Bodø Graduate School of Business. The postal survey was administered in March 2001, addressing the entire alumni of 1431 graduates. The response-rate was higher than 50%. Paper 1 investigates the issue of what theoretical perspective to use when doing research on employee innovation behavior. Paper 1 tests the explanation power of the intrapreneurship perspective, compared to the explanation power of the corporate entrepreneurship perspective with regard to employee innovation behavior. The paper uses hierarchical regressions to reach the conclusion that a combination of the bottom-up intrapreneurship perspective and the top-down corporate entrepreneurship perspective is best suited in investigations regarding employee innovation behavior. Among other things, paper 1 provides further details about the survey and the administration of it.

Paper 2 uses data from a postal survey administered in March 2003, addressing the entire alumni of 1776 graduates from Bodø Graduate School of Business. As in the survey used in paper 1, the response-rate in the second survey was approximately 50%. Paper 2 provides further details about the items used and their suitability for the research conducted. Paper 2 studies the relative impact from the characteristics of the organization versus the impact from the trait of the employee themselves on employee innovation behavior. Comparing the relative influence from several independent variables on one dependent variable is best done with a structural equation model. The research model used was highly significant, as indicated by the goodness-of-fit measures and the RMSEA as reported in the paper. Among other things, paper 2 provides further information concerning the statistical method used and why structural equation modeling was applied.

Paper 3 uses data from a postal survey administered in September 2003, addressing 1452 health care workers employed in Norwegian municipalities. This survey also had a response rate above 50%. Paper 3 provides further details about the purpose of the research and the findings reported. Paper 3 focused on

the influence from the respondent's position in the organizational hierarchy on their innovation behavior. The paper utilized multiple regressions in order to investigate how the mission statement of the organization rippled down to the employees. The paper investigates the influence from the colleagues in the work group and the influence from the immediate manager on the employee's propensity to conduct innovation behavior. Amongst other things, paper 3 provides the reader with the methodology applied for the research conducted in this paper.

The fourth paper applies a totally different research design than the first three papers. Paper 4 uses an extreme case-study design as it contrasts different ways employees can be recruited to participate in an innovation program. The case study is longitudinal as it follows the four respondents over a period of 18 months examining their reasons for providing their employer with innovation behavior. Paper 4 provides further details about the innovation program and how employees were recruited to the program. As argued in paper 4, there is no consensus in the literature as to what employees find motivating with regard to employee innovation behavior. The paper goes into depth in exploring what the investigated employees find motivating with regard to their employee innovation behavior. The paper offers a new concept, "personal intellectual capital", in order to explain the motivators of employee innovation behavior. Among other things, paper 4 provides further details about the new concept of "personal intellectual capital" and what the employees find motivating with regard to innovation behavior.

1.9 New findings and key implications

The new finding provided by paper 1 is that combining the top-down corporate entrepreneurship and the bottom-up intrapreneurship perspective improves the explanation power of employee innovation behavior. The paper labels this new construct capitalizing on this combination "employee innovation behavior".

Paper 1 provides further information regarding the explanation power of the different perspectives. Paper 1 also provides the reader with a discussion concerning in which respect the corporate entrepreneurship and the intrapreneurship perspective differ, what the two perspectives have in common, and how they both relate to the "employee innovation behavior" construct. Paper 1 provides the reader with further details about the explanation power of the different theoretical perspectives applied, and the theoretical underpinnings of the perspectives.

Paper 2 presents the novel findings that both traits associated with the employee themselves and characteristics of the organization influence the employee's propensity to engage in employee innovation behavior. Research into characteristics or traits of the employee has then proven useful in investigations regarding intrapreneurship as in innovation involving employees. Likewise, research into organizational characteristics has also proven useful in investigations regarding corporate entrepreneurship as in innovation involving employees. Still, it has proven even more useful to combine research on intrapreneurship (individual traits) and corporate entrepreneurship (organizational characteristics) in one and the same study. This is a new finding. Furthermore, the findings in the paper suggest that the impact from the organization is stronger than the impact from the trait of the employee themselves. The findings reported in this dissertation contradict Pinchot's (1985) argument that the work-experience the employee holds is related to innovation behavior. The interested reader can turn to chapter 3 or paper 2 for particulars concerning how traits and organizational characteristics were measured and the theoretical arguments for the chosen operationalization of the constructs used.

A new finding reported in paper 3 was that employees employed at different organizational levels, do not respond in the same way regarding the influence from management requests for innovation behavior and colleague's innovation behavior. The introduction of the established concept "significant

others" has proven to be of value in the innovation research field when investigating employee innovation behavior. The findings in paper 3 indicate that colleagues are the most "significant other" persons for low-level workers. Moreover, the findings reported in the paper indicate that the higher the organizational rank, the more important the opinion of management level becomes regarding innovation behavior. The introduction of the concept of "significant others" or "important others" in innovation research is novel. Paper 3 provides the reader with further information about the concept of "significant others" and how it relates to innovation.

The major new finding described in paper 4 is what employees find motivating regarding employee innovation behavior. By introducing the concept "personal intellectual capital" the learning possibility embedded in the innovation can be linked to rewards for the employee. The employee finds the learning embedded in the innovation motivating, in that engaging in the realization of the innovation also increases the employee's personal intellectual capital. This increase in personal intellectual capital is valued by the organization as it increases the organization's stock of intellectual capital. This then increases the organization's possibility to engage in further innovation. Another key finding reported in paper 4, is that the expressed strategy of the organization works as a guiding star for the employee regarding innovation behavior by telling the employee what kind of knowledge the organization values and what it does not. Paper 4 provides the reader with the theoretical basis for the proposed construct "personal intellectual capital" and how it relates to strategy, innovation and motivation.

This dissertation is then based on four papers. The novel findings reported in the four papers, contribute to knowledge concerning innovation in several significant ways. All the papers highlight different aspects of employee innovation behavior. Paper 1 discusses the theoretical viewpoints suitable for understanding employee innovation behavior. The paper concludes that a model

including both the corporate entrepreneurship strategy of the organization and the intrapreneurial characteristics of the employee work better towards explaining the innovation behavior of the employee, than a model of the corporate entrepreneurship strategy of the organization or the intrapreneurial characteristics of the employee alone.

Paper 2 indicate the magnitude of the impact from the corporate entrepreneurship strategy versus the magnitude of the impact from the entrepreneurial characteristics of the employee, on the employee's propensity to behave in an innovative way. Paper 2 concludes that both the proactive personality of the employee and a corporate entrepreneurship strategy contribute positively to employee innovation behavior. The findings suggest that a corporate entrepreneurship strategy has a stronger impact on the employee's propensity to engage in innovation behavior, than a proactive personality does. The findings reported in the paper indicate that both personal traits (intrapreneurship) and characteristics of the organization (corporate entrepreneurship) should be included in research regarding employee innovation behavior.

Paper 3 deals with the employee's propensity to engage in employee innovation behavior and relates this to the employees' place in the organizational hierarchy, the influence from management and colleagues in the work group. The paper indicates that the higher the employee is placed in the organizational hierarchy, the more the employee is influenced by management regarding innovation behavior. Another finding reported in the paper is that the lower the employee is placed in the organizational hierarchy, the more influenced the employee is by his / her immediate colleagues in the work group regarding employee innovation behavior. The introduction of the theory about "significant others" or "important others" previously used in research in education has proven valid, also in the innovation sphere. The paper shows how strategy decided at the top ripples down to shop-floor employees.

The fourth paper this dissertation is based on, deals with what the employee finds motivating with regard to engaging in employee innovation behavior. The paper presents the finding that the employee wishes to engage in innovation as the employee regards such involvement as a valuable learning opportunity. The introduction of the concept of "personal intellectual capital" proved to be valuable in this research in order to identify what employees find motivating with regard to employee innovation behavior. The paper also shows how strategy conceived at the top influences employee innovation behavior.

Reporting the four papers as a whole and assessing the findings together while discussing the underlying assumptions of research on employee innovation behavior as in this dissertation, hopefully also makes a substantial contribution to knowledge about innovation. Assessing the findings from the four papers together, a larger picture of employee innovation emerges. The reader of this dissertation is provided with a tool to improve the understanding of employee innovation behavior. The reader is offered empirical underpinned reflections about how to understand employee innovation behavior. Furthermore, the reader is offered evidence of how the strategy of the organization, the management, colleagues and characteristics of the employees themselves are associated with increased levels of employee innovation behavior. The reader is offered an explanation as to what motivates employees to engage in employee innovation behavior. In addition, the reader is offered a classification scheme of constructs related to employee innovation behavior. The categorizing displays how "employee innovation behavior" differs from or equals several innovation related constructs along important dimensions. The findings reported in this research are then summed up in a conceptual model of employee innovation behavior.

The findings reported in this dissertation and in the four papers the dissertation is founded on, contribute substantially to our knowledge about employee innovation behavior. The four papers contribute to knowledge by

introducing a new construct aimed at understanding and predicting innovation behavior of employees. This new construct is then compared with frequently applied concepts used to understand innovation and organizational change. This is done by comparing the construct of employee innovation behavior with several other concepts along some chosen important dimensions. This classification scheme is then shown to be helpful for the four papers this thesis is founded on.

The findings reported in this dissertation and in the four papers also contribute to practice as they provide advice to policy makers about how to mould future organizational development programs promoting innovation by employees. The findings reported may also help managers who wish to involve employees in the innovation process in the organization. The dissertation points to the importance of the organizational innovation strategy. Furthermore, it gives cues as to how to ripple down the strategy via middle management to the shop-floor employees. Furthermore, it gives cues as to how to understand the dynamics of the work group regarding employee innovation behavior. Moreover, the dissertation demonstrates that people differ in how they perceive the organizational strategy of innovation, the support from management and colleagues, and that people differ in their propensity to act proactively to alter their environment. The findings and the conclusions of this dissertation may also prove beneficial for employees, as the dissertation is one of few attempts to link employees to innovation and change in organizations. The findings in paper 4 indicate that the employees value the innovation event as a learning opportunity.

2 Theoretical insights

This chapter reasons that the innovation behavior of the employee is influenced by characteristics of the organization (corporate entrepreneurship), i.e. the strategy of the employing organization and the traits of the employee (intrapreneurship). The chapter builds upon two commonly used theoretical perspectives used to describe employee innovation behavior, namely corporate entrepreneurship and intrapreneurship. The chapter discusses the theoretical underpinning of these two constructs and concludes that they can be combined in order to study employee innovation behavior.

The chapter starts by discussing how the theoretical concept of corporate entrepreneurship contributes to our understanding of employee innovation behavior. Then a discussion of how the theoretical concept of intrapreneurship contributes to our understanding of employee innovation behavior follows. This is succeeded by a discussion of how these two theoretical concepts can be combined. A new construct is proposed, namely "employee innovation behavior". This new construct is then compared with other innovation related concepts along important dimensions in a classification scheme of constructs related to innovation among employees. Finally some important knowledge gaps are addressed.

2.1 The corporate entrepreneurship perspective

Corporate entrepreneurship is about how companies can stimulate more innovation, enterprise, and initiative from the employees in the company, and the contributions of individuals to a company's success (Kanter, 1984). There are several definitions of corporate entrepreneurship. Corporate entrepreneurship has been defined as the transformation of organizations through strategic renewal (Dess et al., 1999) and is regarded as a strategy for the development and implementation of new ideas (Hornsby et al., 2002). Corporate entrepreneurship has also been defined as the process of creating new business within established

firms in order to improve organizational profitability and enhance a company's competitive position (Zahra, 1991). Common for most of the definitions of corporate entrepreneurship is that corporate entrepreneurship is a strategy that management can utilize to foster more innovation initiatives from the employees, and that management level is in charge of the innovation process.

2.1.1 Strategy and intended change as a basis for the corporate entrepreneurship perspective

Strategy is an old concept and an old word. The ancient Chinese author Sun Zi wrote his famous text "*Art of War*" about military strategy twenty-five centuries ago (Hou, 2003). Bracker (1980: p. 219) argues that the word '*strategy'* originates from the ancient Greek word '*stratego'*, which can be translated '*to plan the destruction of one's enemies through the effective use of resources*'.

Strategy as a concept used in business management is not that old. Burnes (2000) claims that, after World War II, strategic management and long-range planning grew as a discipline in the US. This was due to many highly qualified former officers entering the business world with knowledge of military strategy and planning. Strategic planning techniques require defining the organization's objective, establishing plans in order to achieve these objectives, and allocating resources in line with these plans (Mintzberg, 1994). The focus of strategic management is on the use of numerical analysis to forecast market trends in order to plan for the future. Unlike strategic planning, strategic management focuses on the environmental assumptions underlining market trends and incorporates the possibility that changes in trends can and do take place (Burnes, 2000). According to Mintzberg and Quinn (1996), one of the basic premises behind the strategy concept developed in the 1960's was the clear distinction between strategy formulation and strategy implementation, and the assumption that strategy emanates from the formal leadership of the organization. Strategy has been defined as the determination of the basic long-term goals and

objectives of an enterprise, and the adoption of courses of action and allocation of resources necessary to carry out these goals (Chandler, 1962).

The topic of change is an important sub-discipline of organizational theory (Wilson, 1992). Wilson (1992) claims that the leitmotiv of modern management theory is that of understanding, creating and coping with change. The aim of organizational change through innovation is to reply to or prepare for changes in the environment that may have a bad influence on the profitability and the survival of the organization. Many would claim that environmental factors influencing organizations are changing more and more rapidly (Burnes, 2000). To respond effectively to such changes in the environment, organizations have to change in innovative ways. Despite the growing recognition of the role of top management and middle management in developing entrepreneurial behavior, more needs to be known about the specific factors that can influence all members of the organization to attempt to achieve this objective (Kuratko et al., 2004).

2.1.2 Mission statement and organizational change intentions

Business leaders are supposed to make a deliberate and conscious articulation of a direction (Kanter, 1984), and management should impose a strategy on the organization in which the employees and middle managers are supposed to innovate for the best of the firm (Block and MacMillian, 1993). Such a strategy could be imposed on the organization by mission statements given at the top management level. Mission statements have the purpose of motivating staff within the company and communicating central management's belief concerning where the organization should be heading and how the employees should contribute towards this aim (Klemm, Sanderson, and Luffman, 1991).

Mission statements are meant to 'cascade down' the organization and are means of guiding the employees towards fulfilling the goals of the organization (Wilson, 1992). Behavior modification represents one approach to implementing

organizational change by innovation through individuals. In behavior modification, the first thing management has to do is to articulate a vision of which kind of organizational culture they want. When the individuals in the organization are persuaded to buy in to the desired culture, change will follow.

2.1.3 Basic assumptions in corporate entrepreneurship studies

According to Blaug (1992) the "core" of a research program is treated as irrefutable by the research society, and the "protective belt" contains the flexible parts of a research program. It is in the protective belt that the core is combined with auxiliary assumptions to form the specific testable theories through which the scientific research program earns its scientific reputation. The core in the field of corporate entrepreneurship is that organizational change through innovation is manageable, that management is in control of the actions of the employees and that management is able to decide which innovation to implement and which not to implement.

Corporate entrepreneurship related research is mostly associated with the empirically analytical research tradition as described by Andersen (1994). The research conducted is mostly done by testing hypotheses based on observing the "real" world in some sort of way. The hypothesis and the research are often founded on several basic assumptions; some of them are discussed here.

There is no such thing as 'status quo'; everything is constantly changing. There are only grades of change. As everything is changing constantly, when the organization apparently seems to be remaining in a status quo situation, it is still changing slightly in one way or another (Burnes, 2000). Wilson (1992) grades change as remaining in status quo, expanded reproduction, evolutionary transition and revolutionary transformation. Change as expanded reproduction involves producing more of the same products, and change as evolutionary transition is when change occurs within existing parameters of the organization. When change involves shifting or redefining existing parameters, Wilson (1992)

calls it revolutionary transformation. When an organization encounters organizational change by innovation it risks altering its resources and resource mixes too much or too little (Baden-Fuller and Volberda, 1997). Too much change may result in chaos, loss of cultural glue, fatigue and organizational breakdown. Too little change may result in shrinking competitive advantages and decline. According to the corporate entrepreneurship perspective, being innovative is regarded as good in itself, as a vital and central part of business strategy (Kuratko et al., 2004).

A perspective of change, as planned from management and implemented as a strategy, assumes that managers alone can make the difference between achieving and not achieving change. Moreover, it assumes the uncritical subordination of non-managerial staff to the requirements of management. Furthermore, the locus of change is assumed to emanate solely from the management cadre and that implementation of change is fully a task for management (Wilson, 1992). The corporate entrepreneurship perspective views the responsibility of the executive management to be that of formulating and implementing a strategy aimed at achieving the goals of the firm as it is to evaluate the progress towards the strategic objectives of the firm (Kuratko et al., 2004). The assumptions of organizational theory are of rational individuals operating in a closed, rational system of organization (Wilson, 1992).

2.1.4 Process initiators, process ownership, and main contributors in the corporate entrepreneurship perspective

As corporate entrepreneurship is initiated from the top, the management levels give the initiative name and content and assign members, responsibility and resources to the new group. The new venture manager is assigned or appointed to lead the new venture, and the decision of who this person is, is made at senior management level (Block and MacMillan, 1993; Kuratko, Ireland, and Hornsby,

2001). A solid knowledge base in management is one of the required personal characteristics of the new venture manager.

The role of top management is that of directing the innovation process. This requires articulating a vision, gaining acceptance of this vision within the organization, and gaining congruence between the vision and the followers' self interest. The role of middle management is that of implementing, facilitating and synthesizing the process of innovation within the organization. The role of operating management is then to conform and adjust to these innovation processes (Dess, Ireland, Zahra, Floyd, Janney and Lane, 2003). The main contributor towards corporate entrepreneurship is then the management level which facilitates innovation in the organization (Kuratko et al., 2001). The proof of good leadership is subsequently when the employees provide the management level with innovation ideas for evaluation. Moreover, the new business idea should be delegated to a person or a group of persons with the right set of skills and characteristics for him or her to succeed for the organization.

2.1.5 Entrepreneurial orientation and corporate entrepreneurship

Corporate entrepreneurship is related to entrepreneurial orientation at the organizational level (Antoncic and Hisrich, 2001). Organizations that pursue a strategy of corporate entrepreneurship are found to be proactive, innovative and risk-taking. Proactivity at firm level has been associated with corporate entrepreneurship strategies, i.e. when they borrow ideas from other firms as a means of making a break from past behavior (Stopford and Baden-Fuller, 1994).

Even as corporate entrepreneurship is often associated with proactivity at the firm or organizational level, corporate entrepreneurship also assumes proactivity at the individual level. Corporate entrepreneurs are the corporate equivalent of entrepreneurs (Kanter, 1984). These "new entrepreneurs" do not start businesses; they improve them. According to Kanter (1984), even as

corporate entrepreneurship is often a collective work, organizations need personnel who are willing to go their own ways and follow their own intuition. Even if one claims that corporate entrepreneurship is a group process, there are some parts of the process that could benefit from individual leadership and providing direction to the entrepreneurial process (Morris et al., 1994).

2.1.6 Intended system output of corporate entrepreneurship studies and strategies

The primary goal of science is the creation of useful models whose utility and quality can be tested against real-world applications. The underlying objective behind research in the field of corporate entrepreneurship and related issues is not always brought to light, except that the purpose of the research is often claimed to give a contribution to society. The contribution is often, as in entrepreneurship research elsewhere, cost reduction in producing goods and services. The aim in corporate entrepreneurship studies is to prescribe which strategy to apply for organizations with a given mix of organizational and environmental characteristics.

The intended outcome of a corporate entrepreneurship strategy is sustained or improved competitive advantages for the organization. This is achieved when the organization introduces new products into existing markets, sells existing products to new markets, or sells new products to new markets or implements new cost-reducing routines. The organization achieves a consolidated or an increased profit for its owners. In the corporate entrepreneurship perspective, this goal is pursued by companies focusing on exploiting new business possibilities using an entrepreneurial spirit (Kuratko et al., 2001).

2.1.7 Unit of analysis and methodology in corporate entrepreneurship studies

Investigations of corporate entrepreneurship are conducted with the business as the unit of analysis (Greene et al., 1999), and with the chief executive and the

top team as respondents representing the organization. Examples of such designs are numerous, see table 1 for examples of unit of analysis in research about corporate entrepreneurship.

Table 1 Examples of unit of analysis in corporate entrepreneurship research.

Author(s)	Publication and publication year	Unit of analysis	Respondents	Research aim
Zahra.	Academy of Management Journal, 1996.	Organization.	127 firms represented by CEO from list of US Fortune 500 list.	Relates corporate governance with corporate entrepreneurship.
Zahra and Covin.	Strategic Management Journal, 1993.	Organization.	103 firms represented by CEO or the highest ranking official.	Relates selected business strategies dimensions and technology policy dimensions to firm performance.
Antoncic and Hisrich.	Journal of Business Venturing, 2001.	Organization.	141+51 firms represented by a top executive officer.	Relates selected characteristics of the environment and the organization to innovation.
Srivastava and Lee.	Journal of Business Venturing, 2005.	Organization.	Secondary data about new product entry and demographic characteristics of the top management team.	Relating demographical characteristics of the top management team to new product moves. The top management team represents the organization's innovativeness.

When investigating organizational behavior, the organization as the unit of analysis is appropriate. Further, when investigating how the environment of the organization influences change in the organization, using the organization as a unit of analysis seems suitable. An example of research investigating how the environment of the organization influences change in the organization, utilizing

the organization as the unit of analysis can be found in Guth and Ginsberg, (1990).

2.1.8 Limitation in the corporate entrepreneurship perspective

An approach to strategic management as in corporate entrepreneurship portrays strategy as a rational process whereby managers gather hard quantitative data concerning their organization and from this information reach rational decisions regarding the future of the organization. The rational perspective on strategy has come under increasing attack recently (Burnes, 2000). The main argument against the rational approach to strategy is (1) that hard data is not more reliable than qualitative data, (2) that organizations and managers are not rational entities and do not apply a rational approach to decision-making, (3) and that an organization's strategy is as likely to emerge from unplanned actions as from any deliberate process of planning and implementation (Burnes, 2000). Besides, the assumption of linearity in process and rational planning and implementation neglects the political and / or irrational aspects of organization's and human behavior (Wilson, 1992).

The classical approach to strategy, the prescriptive view, emphasizes strategy as a deliberate rational process of long-term planning aimed at maximizing profit (Burnes, 2000). The classical approach to strategy rests its case regarding employee participation and motivation on role prescriptions and rewards. Role prescriptions specify how people are supposed to behave in carrying out their assigned role and serve as structuring influencers on the nature of reciprocal exchange (Bandura, 1977). Anticipatory capabilities enable humans to be motivated by prospective consequences. People are more likely to adopt behavior if it results in outcomes they value than if it has unrewarding or punishing effects (Bandura, 1977).

Where people have a choice of how to spend their time and energy, rewards and compensation have a direct influence on that choice (Baden-Fuller and Stopford, 1992). The incentive schemes and the reward system decide which

initiatives are pursued and which are left behind (von Hippel, 1988). For extrinsic motivation to work as a motivator there must be clarity about what behavior is expected and what outcomes will result from this instrumental behavior (Deci, 1996). This implies that the organization to a great extent has to describe the desired and rewarded innovative outcome, before the employees involve themselves in innovation behavior. A part of being innovative is thinking and doing things that have not been done before. In the case of something not having been done previously, it is hard for any manager to give their employees a recipe of what to do and how to do it. Kanter (1984) claims that innovating companies reward individuals. Further she claims that rewards play a role in promoting innovativeness, but concludes that how the reward system works is still unclear.

The proper question is not how people can motivate others, but how can people create the conditions within which others will motivate themselves (Deci, 1996). The processualists' view, also called the analytical view, involves skepticism to long-range-planning, and sees strategy as an emergent process of learning and adaptation (Burnes, 2000). Psychological factors are claimed to influence the exploitation of entrepreneurial opportunities (Shane, 2003). The psychologies of the employees who are supposed to contribute with innovative ideas are seldom investigated using the corporate entrepreneurship perspective.

2.2 The intrapreneurship perspective

Some questions arise as to why the intrapreneurship school should be considered a school of entrepreneurship (Cunningham and Lischeron, 1991). The essential difference between intrapreneurship and entrepreneurship in most cases, if not all, is first and foremost the context in which the entrepreneurial act takes place. Entrepreneurs innovate for themselves, while intrapreneurs innovate on behalf of an existing organization (Carrier, 1996). According to Pinchot and Pellman (1999), intrapreneurs behave much like entrepreneurs. Intrapreneurship is one

way organizations can continue to innovate and continue to be entrepreneurial. Davidsson (1991) asks for entrepreneurship research with a greater focus on continued entrepreneurship.

There are several definitions of intrapreneurship. Intrapreneurship is about the implementation of innovations in organizations, in which the adoption is initiated and desired by an employee in a bottom-up way (Block and MacMillan, 1993). The management may not even want the initiative in the first place (Carrier, 1996). Kuratko et al. (1990) defines intrapreneurship as autonomous strategic behavior of the employee in order to exploit a given business opportunity. Most definitions of intrapreneurship share the view that intrapreneurship implies innovation initiatives stemming from within the employee itself. The strategy of the organization does not play such an active role in the intrapreneurship perspective as it does in the corporate entrepreneurship perspective. The activities that constitute intrapreneurship have also been labeled "skunkwork" (Stopford and Baden-Fuller, 1994). Employees convicting skunkwork pursue their own strategies, sometimes because they are not convinced that the present official strategy is right for the organization (Mintzberg and Quinn, 1996).

2.2.1 Behavioral theory and motivation as a basis for the intrapreneurship perspective

Shane and Venkatarman (2000) define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects, opportunities create future goods and services and how these opportunities are discovered, evaluated and exploited. They also find it interesting to reveal why, when, and how some people, and not others, discover and exploit these opportunities. French and Bell (1990) claim that most people want to make, and are capable of making, a larger contribution to the attainment of organizational goals than most organizational environments permit. The entrepreneurial drive to pursue

opportunities is a combination of many factors; most important are motivation and attitude (Block and MacMillan, 1993).

Reward is a strong motivator. The purpose of having an organizational strategy is that the strategy directs the mind of the organization's members. Stopford and Baden-Fuller (1994) claim that strategy in business, as in the armed forces has historically, been based on authority. Further, they argue that rationality was presumed to be in the ascendant. Furthermore, they argue that these assumptions of rationality in human motivation regarding role prescriptions and extrinsic rewards have been challenged.

2.2.2 Cognition, motivation and intention

Some theories allow uncertainty, ambiguity and human behavior to be taken account of when studying organizational change through innovation. An interpretive view requires that change is analyzed from the perspective of the individual's definition of the situation as he or she interprets it (Wilson, 1992). The prescriptive stream sees strategy formulation as an economical-rational process based on mathematical models, while the analytical or interpretive stream represents focuses on organizational, social, and political aspects of strategy formulation (Burnes, 2000). The individualistic perspective school is split into two camps regarding human behavior, the Behaviorists and the Gestalt-field psychologists, according to Burnes (2000). The Behaviorists view behavior as a result of an individual's interaction with their environment, while the Gestalt-field psychologists argue that behavior is the product of environment and reason. One of the basic principles of the Behaviorists is that human action is conditioned by expected consequences, and reward plays an important role in forming human behavior. From the Gestalt-field perspective, human behavior is heavily influenced by how the individual uses reason to interpret stimuli from the environment.

Expectancy theory, belonging to the Behaviorists' field, is a cognitive approach to understanding human behavior, and it focuses upon external motivation as the source of human behavior (Baron, 1989). This view suggests that motivation is a question of being pulled towards behavior by expectations of attaining desired outcomes or positive incentives (Baron, 1989). Regarding work motivation or the tendency to use energy and efforts in one's job, Baron (1989) claims that people only demonstrate a high level of work motivation when (1) they believe that working hard will improve their performance, (2) they believe that high performance will yield various rewards, and (3) these rewards are ones that they value.

Deci (1996) does not agree with this view of human motivation as externally initiated, as he states that self-motivation, rather than external motivation, is the heart of creativity and responsibility. Intrinsic motivation is when the only reward is the activity in itself, and intrinsic motivation has to do with being wholly involved in the activity itself and not with reaching a goal (Deci, 1996). The reward linked to intrinsic motivation is the feeling of enjoyment and accomplishment that accrue spontaneously as a person engages freely in the target activities (Deci, 1996).

This view is supported by Bandura, when he states (1977: p. vii): '*Recognition of people's self-directing capacities provided the impetus for self-regulatory paradigms of research in which individuals themselves serve as the principal agents of their own change'*. Bandura (1977) claims that people are neither powerless objects controlled by environmental forces, nor free agents who can become whatever they want. Both people and environment are reciprocal determinants of each other. Images of desired futures encourage courses of action designed to lead towards more distant goals (Bandura, 1977). Even so, humans do not simply respond to stimuli; they also interpret them (Bandura, 1977).

A change in human behavior is mediated through cognitive processes, and motivation is primarily concerned with how behavior is activated and maintained (Bandura, 1977). Meaningful choices engender willingness by encouraging people to fully endorse what they are doing (Deci, 1996). Individual cognition and interpretation is the key to understanding change (Wilson, 1992). People differ in the degree to which their behavior is guided by modeling influences, and responses to modeling cues are largely determined by three factors. These three factors include the characteristics of the model, the attributes of the observer, and the consequences associated with the behavior (Bandura, 1977). Choice enhances peoples' intrinsic motivation and intrinsic motivation is associated with richer experience, better conceptual understanding, greater creativity, and improved problem solving capacities, relative to external control (Deci, 1996). What fundamentally matters are the cognitive and interpretive processes by which individuals support change (Wilson, 1992).

2.2.3 Basic assumptions in intrapreneurship studies

The core of the field of intrapreneurship is the independent employee, acting independently of the corporate strategy (Pinchot, 1985). Employees pursue self-interest, and that self-interest is expressed as a wish for recognition or monetary rewards (Pinchot and Pellman, 1999). Intrapreneurship does not imply that the initiative of the employee is necessarily aligned with the strategy of the organization (Campbell, 2000). The intrapreneurship perspective focuses on traits or characteristics of the employee in an attempt to explain why the employee behaves in an intrapreneurial manner.

Intrapreneurial studies tend to assume that change is aggregated to a multi-level, cross-organizational process that unfolds in an iterative and unpredictable fashion over time. Further, it assumes that change is a political process and not an analytical-rational one. Organizational change through innovation is a continuous incremental process aimed at matching the organization's

capabilities to the requirements of a dynamic and uncertain environment. Furthermore, it tends to assume that all organizations operate in a turbulent and dynamic environment in which long range planning is impossible and inappropriate. The role of managers in such a system is to create or foster organizational structures and climates which encourage and sustain experimenting, learning and risk-taking. The workforce is to take responsibility for identifying the need for change and for implementing it (Burnes, 2000).

2.2.4 Process initiators, process ownership, and main contributors in the intrapreneurship perspective

Intrapreneurs appoint themselves to their roles and seek the corporation's blessing for their tasks afterwards (Pinchot and Pellman, 1999). According to Pinchot and Pellman (1999), intrapreneurs gather resources from wherever they can, and the sponsors of the intrapreneurial team allocate resources to the intrapreneurial team according to the team's eagerness and according to the sponsor's faith in the intrapreneurial team. They further argue that the shared vision of the intrapreneurial team should be the intrapreneurial team's guide for the activities conducted. The leader of the intrapreneurial team should be chosen by the members of the intrapreneurial team itself. What is more, they argue that members of the intrapreneurial team should be picked by the original intrapreneur according to their complementary knowledge base and their devotion to a shared vision.

The main contributor to innovation through intrapreneurship is then, the employee, who through his or her own initiative seeks innovation on behalf of the employing organization, regardless of the difficulties encountered in this task. The initiative can be inspired from a market demand or from a technical puzzle. Moreover, the behavior may be driven by a need to pursue an innovation idea generated by the intrapreneur, or it may be driven by a wish for monetary

reward. Further, the behavior may or may not be appreciated by top management, and may even be unknown to the leaders of the organization.

2.2.5 Entrepreneurial orientation and intrapreneurship

People differ in their experience, personality and background. This may explain why people perceive stimuli different, and act differently to the same stimuli. Traits are personality dimensions (Jennings, Cox and Cooper, 1994), and personality is considered to be a reasonable stable personal characteristic, within a given setting. Personality serves as a unifying theme providing meaning, direction, and mobilization for the individual (Morris et al., 1994). There are several personal traits and background variables that are claimed to be related to, and contribute to intrapreneurship (Kuratko and Hodgetts, 1998). Proactivity is one such individual characteristic. Deci (1996) claims that people are inherently proactive and inclined to operate in relation to their environment in order to bring about effects, and that the reason for this behavior is their need to learn and to grow. Morris et al. (1994) find that the individual matters in innovation implementation in organizations. They advise that the individual should be given the incentive and autonomy to identify opportunities in order to champion innovative products and processes in organizations.

An intrapreneur is an internal change agent, and intrapreneurs initiate action rather than respond to circumstances; they are restless, active and persistent (Wilson, 1992). Campbell (2000) claims that proactivity is one of the traits associated with intrapreneurship. Pinchot (1985) supports this view by claiming that intrapreneurs tend to be action-oriented. Becherer and Mauer (1999) show that proactivity and entrepreneurship shares some common characteristics, such as the propensity to want to change the environment. An intrapreneur is a person who works within and around the system to accomplish his or her vision, and is adept at getting others to agree to a private vision (Pinchot, 1985). This fits with the personal disposition toward proactive behavior as it attempts to identify

differences among people to the extent to which they take action in order to influence their environments (Crant, 1996). Personal disposition toward proactive behavior is defined as the relatively stable tendency to effect environmental change (Bateman and Crant, 1993).

Gartner (1990) argues that it is wrong to try to explain entrepreneurship as a function of core human attributes. Shane (2003) suggests that the reason for it being wrong is that people engage in entrepreneurial behavior at just a few particular points in time. He argues that it is therefore impossible to account for entrepreneurship solely by examining factors that influence all human action in the same way all the time. Regarding personal traits and employee innovation behavior, this may not be the case. Employees have the opportunity to engage in innovation behavior at their employer's much more frequently than people have the opportunity to engage in the establishment of a firm. This is an argument for introducing personality traits in the study of innovation behavior among employees in organizations, even though studies focusing upon the personality traits of entrepreneurs have lost some momentum (Crant, 1996).

2.2.6 Intended system output of intrapreneurship studies and initiatives

In recent years, the literature in the field of intrapreneurship has mostly dealt with intrapreneurship from the firm's point of view (Carrier, 1994). Intrapreneurs create an intraprise, an enterprise inside the company, whether the end result is a new product, new service, new process, new venture, or even cost reduction initiatives (Pinchot and Pellman, 1999). Spilling (1998) argues that this new business must be a spin-off or at least generate a new department in order to be labeled "intrapreneurship". However, even though Pinchot (1985) often refers to the result of the entrepreneurial act as a new division of the firm, the result may not necessarily be materialized in such a way (Carrier, 1996). The reason for this is that the original organization may not be big enough for divisionalization, or the product may not be different enough from the product

portfolio to justify divisionalization. A new division is not a necessary condition in order to label the innovation intrapreneurship. This is because even the most minor innovation represents a small intrapreneurial act (Pinchot and Pellman, 1999). In the first phases of the initiative, when the intrapreneur is still developing his or her idea and gathering support for it, there may be no formal structure at all. Pinchot (1985) advises the intrapreneur to consider developing a business plan, but only as a tool for clarifying his thoughts about how to accomplish his or her goal. The business plan is only for internal use inside the intrapreneurial team.

Intrapreneurship implies employees behaving in a way that may include altering routines and production methods (Pinchot and Pellman, 1999). Among other subjects, intrapreneurship can focus on operational efficiency (Cunningham and Lischeron, 1991). Carrier (1996) shows that intrapreneurship can generate many different forms of well-defined innovations in a small business context and that the innovation introduced may possibly foster or reinforce the firm's competitive strength. Intrapreneurship is an essential vehicle for the success of established organizations, and intrapreneurship is an important element in organizational and economic development (Antoncic and Hisrich, 2004). The intended outcome from the intrapreneur point of view is recognition or monetary reward (Pinchot, 1985; Carrier, 1994, Carrier, 1996; Pinchot and Pellman, 1999) or the intrinsic reward of a mastered challenge (Kanter, 1984).

In intrapreneurship research, adoption is initially desired from within the adoption unit, and the interesting research theme is how the adoption unit i.e. the intrapreneurs overcome resistance from the surroundings (Pinchot and Pellman, 1999). Some researchers have conducted studies showing how the intrapreneurial result impacts on the organization (Campbell, 2000). This, together with studies about what rewards incite intrapreneurs to pursue innovation on behalf of their organizations, is the aim of research into intrapreneurship.

2.2.7 Unit of analysis and methodology in intrapreneurship studies

Approaches to organizational change by innovation that presuppose that change can be planned from management and implemented as a strategy differ from those approaches that view change as an emerging process. The chosen perspective differentiates which issues are viewed as important in the understanding of organizational change (Wilson, 1992). Furthermore, the chosen perspective differentiates which unit of analysis is adopted in studies of organizational change.

Behavioral theory regards the entrepreneur as an individual and suggests that entrepreneurial behavior depends on personal motivation, which in term depends on environmental characteristics (McClelland, 1961). Carrier (1996) used the individual employee as the unit of analysis in her case-based investigation of intrapreneurship in Canadian firms. Greene et al. (1999) argue for using the individual as unit of analysis in studies of the intrapreneur or the innovation champion, when claiming that the role of the individual(s) in the start-up process is underdeveloped, as the intrapreneurial process is the creation of new business by employees in existing firms. In a self-selection study of intrapreneurial librarians, Cottam (1987) used the individual librarian as unit of analysis. His exploratory and tentative findings suggest that the intrapreneurial librarian is self-confident, energetic and achieving.

Stevenson and Jarillo (1990: p. 24) stated, "*The level of entrepreneurship within the firm is critically dependent on the attitude of individuals within the firm, below the ranks of top management*". Hornsby et al. (2002) claim there is a paucity of empirical studies investigating intrapreneurship / corporate entrepreneurship with the individual as the unit of analysis. Even so, there are some examples of such designs, see table 2 for examples of unit of analysis in research about intrapreneurship.

Table 2 Examples of unit of analysis in intrapreneurship research.

Author(s)	Publication and publication year	Unit of analysis	Respondents	Research aim
Cottam.	Journal of Library Administration, 1987.	Individual.	19 librarians.	To reveal how librarians in organizational life become intrapreneurs.
Seibert, Kraimer, and Crant.	Personnel Psychology, 2001.	Individual.	180 alumni from business and engineering schools.	Linking proactivity to career success.
Carrier.	Entrepreneurship Theory and Practice, 1996.	Individual.	5 intrapreneurs and their bosses.	The examination of the factors governing the emergence of intrapreneurship in small businesses.

2.2.8 Limitations in the intrapreneurship perspective

Monetary reward is presupposed by the research community to be a strong motivator for the potential intrapreneur. This results in confusing findings regarding the motivation of innovation behavior among employees. In her case study, Carrier (1996) reports that intrapreneurs desire both monetary and non-monetary compensation. Others report that the hope of obtaining conventional rewards seems to play very little role in stimulating innovativeness (Kanter, 1984). It is argued that participation is sufficient reward alone for carrying out innovation behavior (Kanter, 1984). Some research concludes that the firm does not need to offer specific, extrinsic rewards for new-business activities (Block and MacMillan, 1993). Block and Ornati (1987) found no evidence that special reward systems encouraged new-business development. Given the absence of data establishing a clear correlation between reward and innovativeness, it is difficult to reach firm conclusions regarding the significance of incentives and rewards (Block and MacMillan, 1993). Kanter (1984) claims that rewards play a role in promoting innovativeness but conclude that how the reward system

works is still unclear. How to make people go on being challenged should remain a priority issue for organizations (Baden-Fuller and Stopford, 1992).

The intrapreneurship perspective lacks a clear link between the organization's overall well-being and the intrapreneurial initiative, such as how small and incremental local independent initiatives combine towards realizing a common organizational goal, the survival of the organization. As the traits or the characteristics of the potential intrapreneur explain the behavior or the lack of behavior, the impact from the strategy of the organization is unaccounted for. When the intrapreneurial perspective lacks a connection between the environment of the intrapreneur and the intrapreneur, it hinders the possibility of investigating whether certain combinations of environments trigger the potential intrapreneur to carry out intrapreneurial deeds.

2.3 The corporate entrepreneurship perspective and the intrapreneurship perspective combined

Hume's guillotine is the proposition that "*one cannot deduce ought from is*", according to Blaug (1992). In justifying this claim it was argued that "is" is true or false and true scientifically, and "ought" is about values and thereby belongs to art or politics. Blaug (1992) argues that even when we describe social "facts", we interpret the world using a specific frame of reference; hence research is never purely normative nor positive. He claims that there can never be a value free social science, the best one can do is to try to expose one's assumptions, so that the reader could make his or her own judgments. When carrying out research, one has to consider that there is a trade-off between rigor and relevance. Blaug (1992) claims that theories that are truly rigorous are rarely practically relevant, and theories that are eminently relevant are rarely analytically rigorous. Rigorous models may be applicable in many different cases, but practical case relevant information is meant for solving or explaining one particular problem. This implies that the models and constructions used to

study or describe a situation should fit reasonably well with the situation or case studied. This also holds for research into intrapreneurship and corporate entrepreneurship.

2.3.1 The purist problem

Astley and Van de Ven (1983) claim that authors have used social determinism and freewill to categorize organizational theories – man and his institutions are either determined by exogenous given forces or represent an autonomous choice created by man. According to Astley and Van de Ven (1983), research designs stemming from a voluntaristic orientation view the individual and the created institutions as autonomous, proactive, self-directed agents, and should then use the individual as a unit of analysis. The individual is then regarded as the source of change in the organization. Further, in a deterministic orientation, the focus is on structural properties of the context surrounding the behavior. The behavior of the individual is then regarded as directed by, and responding to structural arrangements.

The intrapreneurship and corporate entrepreneurship perspective are approaches to describing how employees contribute to the development of the organization in which they are employed. The corporate entrepreneurship and the intrapreneurship perspective both share innovation as their theoretical base. The perspectives differ in who is introducing the innovation to whom. The distinction between intrapreneurship and corporate entrepreneurship should be of interest as the concept are used to decide some important issues in research regarding employees who involve themselves in introducing new technology in their organizations. It involves such issues as: who gains from the initiatives? who is in control of the process? and whose interests are seen as valuable (Mintzberg, 1994)? These are some of the reasons why it is sometimes important to differentiate the concept of intrapreneurship from the concept of corporate entrepreneurship.

This discussion shows that it may be useful to differentiate between the two concepts describing employee contribution toward organizational change. The use of the concept of intrapreneurship can arguably prove most suitable in situations in which employee contribution happens regardless of the wish of the organization, and the concept of corporate entrepreneurship is argued to be most suitable in situations in which the employee contribution is an answer to an organizational request. It is hard for a purist to determine whether an innovation initiative from an employee was the result of the call from above for a corporate entrepreneurship initiative or whether the same action was solely the result of an employee's individual inner drive.

2.3.2 The need for a clarifying of organizational change related concepts

The term "intrapreneurship" has several related terms, such as; corporate venturing, corporate entrepreneurship, business renewal, strategic renewal, business development, entrepreneurial organizations, championing, taking charge, extrarole behavior, citizenship behavior and the management of innovations (Organ, 1988; Block and MacMillan, 1993; Shane, 1995; Greene et al., 1999; Sharma and Chrisman, 1999; Morrison and Phelps, 1999; Volberda, Baden-Fuller, van den Bosch, 2001, Kuratko et al., 2004). All these terms aim to explain the process of renewal of the organization through innovation initiatives from the employees. So the term "intrapreneur" is also related to terms like corporate entrepreneur (Kanter, 1984), and innovators (Kirton, 1988). Antoncic and Hisrich (2003) relate corporate entrepreneurship to entrepreneurial behaviors in large firms, and intrapreneurship to entrepreneurial behaviors in firms of all sizes. Even so, they relate intrapreneurship to emergent behavioral intentions and behavior in an organization related to departures from the customary. The term corporate entrepreneurship is becoming commonplace, but is still ill-defined (Stopford and Baden-Fuller, 1994). Even if the terms are related, they are slightly different and describe the phenomenon of renewal of

the organization through innovation initiatives from the employees from different viewpoints (Greene et al., 1999). Even though the interest in corporate entrepreneurship and employee innovation related behavior is growing (Janssen and van Yperen, 2004), there still is a lack of a consensus as to what the terms really mean and / or should mean (Drejer et al., 2004). Guth and Ginsberg (1990: p. 6) state it more harshly, "*despite the growing interest in corporate entrepreneurship, there appears to be nothing near a consensus about what it is*".

When concepts or constructs are broadly defined, they have the tendency to exhibit low internal consistency and researchers have difficulties using them adequately. It is therefore valuable to specify and narrow down the concepts used, and to contrast the used concept with related concepts. Furthermore, it is valuable to contrast the used concept with concepts sometimes used interchangeably. The scope and aim of a research study determines the necessary level of accuracy needed when specifying a concept. Whether or not using a concept interchangeably is confusing or not, depends on the research question and the setting for the research.

This dissertation is one of few studies looking at dimensions in which the intrapreneurship perspective differs from the corporate entrepreneurship perspective. This dissertation argues that the intrapreneurship perspective differs from the corporate entrepreneurship perspective in the matter of process ownership, and that the interesting research theme in the intrapreneurship perspective is how the intrapreneur overcomes the resistance from the organization, in contradiction to the interesting research theme in the corporate entrepreneurship perspective which is how to persuade the employees to bring new business ideas up to management level for approval.

2.4 Employee innovation behavior

Behavioral approaches together with structural and cultural approaches are claimed to be useful for understanding organizational change (Wilson, 1992). Change can either emerge in the organization or it can be planned by management. Furthermore, it can either be a process or it can be described as a strategy of implementation (Wilson, 1992). Mintzberg and Quinn (1996) do not agree that the strategy process in an organization is separated or dichotomous like this. They claim that reality lies somewhere between the top-down and the bottom-up process. They further claim that the most effective strategies combine deliberation and control with flexibility and organizational learning.

2.4.1 The employee innovation behavior construct defined

Entrepreneurship is multi-faceted but the common theme is that entrepreneurship is concerned with the discovery and exploitation of profitable opportunities (Shane and Venkatarman, 2000). According to Schumpeter (1934), the entrepreneur is the one who tends to break the equilibrium by introducing innovation into the system in the form of new products, new markets or new methods of productions. Employee innovation behavior is defined as behavior from an employee towards developing new products, developing new markets, or improving business routines in their employing organization.

The initiative can be inspired from a market demand or from a technical puzzle. Moreover, the behavior may be a response to a management request for corporate entrepreneurship or may be a completely autonomous intrapreneurial initiative. Furthermore, the behavior may or may not be appreciated by top management, and may even be unknown to the leaders of the organization. Under the present circumstances, all employee initiatives concerning the development of new processes, new products, new market or combinations of such, or new cost reducing routines, count as innovative behavior. Employee

innovation behavior does not differ according to where the initiative is rooted. Such a construct may prove useful, as it may be hard for the purist to determine whether an employee's innovation behavior was a reply to a corporate entrepreneurship strategy or if the same action was due to an employee's own initiative alone.

2.4.2 Basic assumptions in studies investigating employee innovation behavior

Research into employee innovation behavior attempts to explain the assumed rational action of the actors and therefore assumes that some independent variables influence the dependent variable. The action is the dependent variable, and in employee innovation behavior related research, the action is the employee's innovation behavior. In employee innovation behavior research, the innovation action under scrutiny is the employee championing the implementation of a new idea in the organization. The employee innovation behavior related idea might be a new business unit, a new product, a new market, a new combination of product / market or a new cost reduction routine. For the idea to be new, it is enough for it to be new for the business unit in which it is presented. The independent variables are then the employees' own attitudes, perceptions or beliefs influencing the action of the employee.

Blaug (1992) describes the Popperian principle of methodological individualism as asserting that the explanation of social, political, or economical phenomena can only be regarded as adequate if the explanation runs in terms of beliefs, attitudes, and decisions of individuals. This contrasts with methodological holism, according to which social wholes are postulated to have purposes or functions which cannot be reduced to beliefs, attitudes, and the actions of the individuals involved. Research into employee innovation behavior field is methodologically in the individualistic / voluntaristic position. This, as concepts related to the individual (characteristics of the employee or the employee's own perceptions of the environment) explains (or describes) a social

phenomenon (employee innovation behavior). One uses intentional explanations, the employee acted as he or she did, in order to gain this and that.

It is believed that the employee acts according to his or her perception of the situation, not based on an objective truth. This follows the hermeneutical research tradition. In the hermeneutical research tradition, it is the perception of the individual of the actual situation, which the individual himself believes to be the root of action under scrutiny, that should be investigated (Andersen, 1994). The situation which is thought to be considered by the potentially innovative employee, is the perception of the potentially innovative employee's own skills (Ajzen, 1991), his perception of the social acceptance of conducting intrapreneurial actions (Kanter, 1984), his proactivity (Crant, 1996), his innovation history in the organization (Pinchot and Pellman, 1999), and the individual's potential gain by conducting innovation behavior (Carrier, 1996) and the individual's own perception of the chance of success (Morrison and Phelps, 1999). It is also believed that the employee with potential innovation behavior considers the organizational context. As Wilson (1992: p. 84) states it: "*Unfortunately for the student of change ... it is not the interaction between individual behavior, perception and organizational structure that has to be taken into account. The wider context in which the organization operates also casts its influence*."

The employee innovation behavior construct assumes that employees are recognized as self-responsible people who define and develop their own individual expertise and who are supposed to be involved in the development of the firm in which they are employed. Even so, the behavior of the employee is dependent on the barter between the employee and the employer (Sundbo, 1999). The organization requires the employee to be flexible and to involve him- / herself in innovation activities and to engage him- / herself in such innovation activities. Likewise, the employee presents his / her demands in response to such work assignments. Basically it is assumed that the potentially innovating

employee bears a cost / value evaluation in which the employee knows his / her preferences and that the likelihood of all the potential outcomes is known. The aim is to explain human behavior, and the actors are expected to make rational choices. But as Harrè and Gillett (1994: p.120) express it; ”*a person is equipped with a disposition to respond to certain conditions in certain ways but is not causally compelled to do so*”. This discussion of factors influencing employee innovation behavior can be presented as in figure 2.

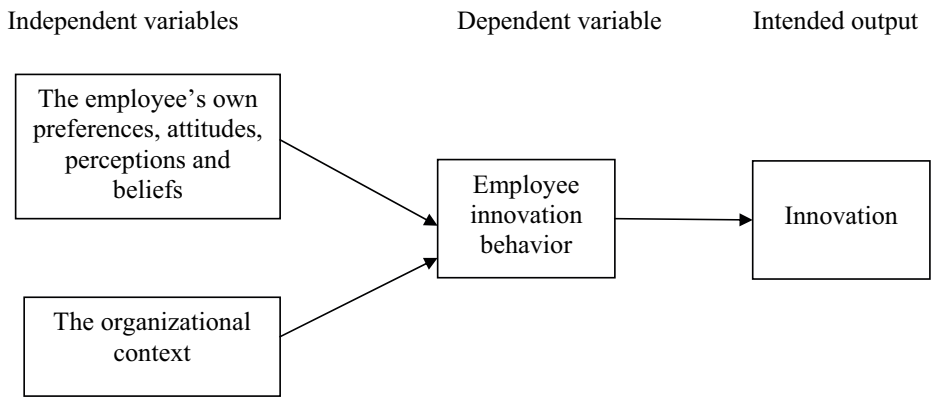


Figure 2 The core in studies of employee innovation behavior.

Corporate entrepreneurship and intrapreneurship share some basic assumptions with employee innovation behavior. They all share the basic assumption of the employee gaining intrinsic worth from a mastered challenge. Intrapreneurship is alone regarding the assumption that the need for this feeling is so great, that if the employee is not allowed to be innovative in the present organization, the employee leaves for an organization friendlier towards intrapreneurial behavior. Pinchot and Pellman (1999) claim that those who do not have a strong enough need towards pursuing their innovation idea regardless of the cost cannot be regarded as true intrapreneurs.

The employee innovation construct assumes quite rational actors, who respond to some motivational factors. This assumption is shared by the intrapreneurship and the corporate entrepreneurship theoretical perspectives. Intrapreneurship research uses neo-classical presumptions; the ontology is individualism, the actors are rational (as rational as man can be), the actors maximize their value through exchange (time and engagement for intrinsic and extrinsic value), the actors have the ability to predict the outcome of an act (or at least they act as if they do). A part of the buffer zone around this core discusses what the kind of motivational factors that actually predict intrapreneurial or entrepreneurial action.

2.4.3 Employee innovation behavior - process initiators, process ownership, and main contributors

The employee innovation behavior construct does not imply an employee acting independently of the corporate strategy, nor does it imply that management is in full control of the innovative behavior of the employee. Mintzberg and Quinn (1996) point to the "adhocracy" organization as an organization in which the strategy formulation cycles between focusing its strategy and redesigning its strategy as a response to new impulses. The actual strategy formulation is a combination of top-down and bottom up approaches. Sundbo (1999) argues that an arrangement in which employees pursue their innovation ideas and participate in development work as well as carrying out their normal functions, is the best way of organizing innovation and development activities within a small and medium sized organization. This is due to small and medium-sized organizations usually not being able to establish large development departments.

Management facilitates employee innovation behavior by stating that they want such a contribution to the development of the organization, and by acting on this. Employees decide whether providing the organization with innovation behavior is suitable or not. Some argue that employee innovation behavior

favors organizational revitalization as it is incremental and does not question the purpose and the path of the organization (Baden-Fuller and Volberda, 1997). Others, such as Sundbo (1999), argue that such an innovation process is a balancing act. On the one hand management exercises its prerogative to control the innovation process, and on the other hand also delegates power to the employee. The employees are empowered to put forward ideas and contribute with effort and time in the innovation development process. When the employees exercise this power, they decide to a certain extent the innovation direction. Sundbo (1999) argues that this implies two organizational structures; the management structure to control and guide the innovation process i.e. the corporate entrepreneurship structure, and the structure of employees who function as intrapreneurs.

The main contributor to employee innovation is the employee providing innovation behavior potentially benefiting the organization. Management also contributes as an important facilitator of employee innovation behavior by stimulating the employees to conduct innovation behavior and by guiding the employee as to which innovations are desirable from the organization's point of view. Even so, it is the employee through his / her innovation behavior who controls the innovation process.

2.4.4 Entrepreneurial orientation and employee innovation behavior

The employee innovation behavior construct presumes the employee to be a potential proactive human actor. This means that employees, just like other humans beings, differ in their proactiveness and how they perceive the cues they pick up from the environment. The intrapreneurship perspective views the intrapreneurial employee as a proactive actor with a strong need to pursue innovative ideas inside the borders of the organization. In the corporate entrepreneurship perspective, the purposefulness of a corporate strategy assumes that the mission statement liberates the innovative ideas of the employees.

Further, the corporate entrepreneurship perspective implies that employees are satisfied with just handing ideas over to management level for the management to decide the ideas' future life. When investigating employee innovation behavior, both these patterns of behavior can be found. Most likely is the scenario in which the employee provides innovative ideas in line with the strategy of the organization, and that the employee, in one way or another, would like to participate in the realization of the idea. This implies that proactivity could play a part in how the employee perceives the strategy of the organization, how suitable the strategy is for the well-being of the organization, and how the well-being of the organization should be achieved. It is also possible that the employee questions whether management has a suitable vision for the organization.

2.4.5 System output of employee innovation behavior

The output of employee innovation behavior is twofold. For the organization, the subsequent change process resulting from employee innovation behavior may be incremental, or have a profound direct effect on the organization. The end result can be a spin-off organization, a new product, a new market, an implemented cost-reducing routine, or a complete failure. The intended outcome of employee innovation behavior, from the employee perspective, is often new processes, new products, a new market or combinations of such, or a new implemented cost-reducing routine. Employee innovation behavior should also benefit the employee in one way or another. The employee may wish to gain both extrinsic and intrinsic rewards for his / her efforts; the rewards may amongst other things consist of recognition, a monetary reward or the possibility to exercise or expand their skills.

2.4.6 Unit of analysis and methodology in employee innovation studies

As the researched subject is employee innovation behavior and this behavior may be influenced by individual characteristics and environmental factors as perceived by the individual, there are several useful research approaches. Most of these approaches include the employee's perception of characteristics of himself / herself and the employee's perception of the environment influencing the employee's behavior. This raises some problems for research concerning employee innovation behavior, as it is argued that cognitions are inaccessible except through untrustworthy self-reports (Bandura, 1977). This is a problem that has to be addressed in employee innovation research. But as the definition of employee innovation behavior is based on initiatives from the employee, an initiative which may not even be asked for or approved by management, it can be argued that it is appropriate to ask the respondents themselves, despite the risks associated with self-reporting. The manager or the co-worker might not know or approve the intrapreneurial behavior, and thus not be able to, or willing to report a truer picture of the behavior than that presented by the employees themselves (Thornberry, 2003).

2.4.7 Limitation in the employee innovation behavior construct

The construct of employee innovation behavior shares some of the limitations of the intrapreneurship perspective and the corporate entrepreneurship perspective. The construct presupposes rational actors pursuing a personal goal. This personal goal is not that attached to monetary reward as in the intrapreneurship perspective, but still there is an assumption of an anticipated positive outcome for the innovative employee. The assumption that an expressed corporate strategy guides the behavior of the employee is shared with the corporate entrepreneurship perspective (Mintzberg, 1994). However, the link between the corporate strategy and idea generation and submission is stronger in the corporate entrepreneurship perspective.

The employee innovation behavior construct assumes that the employee's perception of the organization's strategy influences the link between corporate entrepreneurship strategy and the innovative behavior of the employee. The employee innovation behavior construct assumes that the employee considers how suitable it is to respond to the request. Furthermore, it is assumed that the characteristics of the employee also influence the employee's decision regarding involvement in innovation activities. The corporate entrepreneurship perspective does not presume such a link.

The intrapreneurship perspective relates some characteristics of the individual to innovation behavior. Research regarding employee innovation behavior also investigates the relation between characteristics of the individual and innovation behavior. Further, the intrapreneurship perspective suggests that some motivational factors influence the innovation decision of the employee. Research regarding intrapreneurship investigates a broad set of motivators; even so, the key motivator amongst these is financial incentives. Research on employee innovation behavior focuses more on intrinsic motivators to innovation behavior, as it is suggested that employees desire interesting work in which they are challenged to develop their skills and competencies (Sundbo, 1999).

Research regarding employee innovative behavior does not assume that the end result has to be beneficial for the organization (Campbell, 2000). The end result could be failure or it could be counterproductive regarding the profitability of the organization. Nevertheless the intention of the innovative initiative is to benefit the organization and the employee (Sundbo, 1999). Seen from the perspective of the employee, employee innovation behavior is intended to benefit the organization. Whether this perception is shared at management level or not, is not given in advance. Further, how incremental change such as employee innovation behavior accumulates and influences organizational change in the long run cannot be predicted. Branscomb and Florida (1998) argue

that the emphasis on the use of teams, a high degree of task integration, decentralized decision-making, continuous innovation, and organizational learning blur the picture of how innovations come about in organizations.

2.5 Perspectives related to corporate entrepreneurship and intrapreneurship

There are several constructs or perspectives describing organizational change through innovation in which the employees are supposed to contribute in one way or another. It is impossible to discuss every one of these constructs here, or to detail every aspect of the constructs that are discussed below. The constructs chosen involve innovation behavior among employees and organizational change by innovation and are commonly used in research concerning innovation and entrepreneurship. The discussion of the chosen constructs or perspectives focuses on issues in which the constructs relate or differ from the constructs of employee innovation behavior as offered in this dissertation. This discussion is summed up in a table pointing to important issues in relation to which the discussed constructs relate or differ.

2.5.1 Strategic renewal

Strategic renewal is defined as the activities an organization undertakes to alter its path dependence (Hayton, 2005). Strategic renewal goes beyond merely adjusting processes to fundamentally rethinking how the firm competes (Dess et al., 2003). Strategic renewal is a combination of environmental selection of the best organizations and managerial adaptation. Strategic renewal is an ongoing journey towards aligned competencies with the environment and increased competitive advantages (Volberda et al., 2001). Organizational strategic renewal is a more extensive notion of a complete business altering its resource pattern to achieve improved and sustainable overall economic performance (Stopford and Baden-Fuller, 1994). Management level at head quarters and in the business

units is the participator in strategic renewal. Strategic renewal depends on the strategic intent of the management. Furthermore, the strategic intent should be based on superior industry foresight. Compared to corporate entrepreneurship, strategic renewal aims for a more radical change in the product / market / production mix. Strategic renewal is more related to rejuvenation, industry redefinition and Schumpeterian entrepreneurship (Stopford and Baden-Fuller, 1990; 1994). Industry redefinition is when an innovation replaces earlier products or routines in a way that redefines the whole industry; an example of such is the introduction of the Compact Disc. The Compact Disk totally replaced the tape cassette as a medium for storing and retrieving music.

2.5.2 Corporate venturing

The construct "corporate venturing" emphasizes generation of a new business entity (Hayton, 2005). Corporate venturing (Block and MacMillan, 1993) is internally generated new businesses and refers to the process of creating new business within established firms to improve organizational profitability and enhance a company's competitive position (Zahra, 1991). The management level provides the desired direction for the growth and development of the organization, and asks for ideas that contribute in this direction. Lower level management is supposed to contribute to the development of the organization with an idea for a new business outlined in a business plan. The business plan may be compared with some predefined acceptance criteria, and the business plan is a tool for control and guides the activities in the new business venture (Block and MacMillan, 1993). The lower level manager leaves the idea at top management level, and then returns to ordinary work. Baden-Fuller and Volberda (1997) classify business venturing as a process of reordering core competencies and routines. Corporate venturing similarly to corporate entrepreneurship is initiated from the top, the progress and the destiny of the

idea is decided at management level. The intended outcome of corporate venturing is usually a spin-off organization (Block and MacMillan, 1993).

2.5.3 Championing

The description of intrapreneurs as someone pursuing the implementation of their ideas in the organization in which they work is quite similar to the definition of a champion presented by Shane (1995). A champion is an advocate whose goal is to promote an innovation and to convince people to support the innovation. The champion garners resources and support for the innovation idea. One of the differences between champions and intrapreneurs are that champions are managers (Beath, 1991), while intrapreneurs could be all types of employees (Pinchot and Pellman, 1999). Another difference is in the origin of the business idea. An intrapreneur promotes his own idea, while a champion can also promote somebody else's idea. A champion pursues a business idea and tries to convince others to contribute towards the realization of the idea. A champion then pursues the idea on behalf of the organization, and not so much for personal gain. If the champion becomes personally involved in the idea, he / she invests more time and effort in realizing the idea. The interesting research theme is then, what promotes "championing behavior" (Shane, 1995; Kleysen and Street, 2001). The idea that the champion pursues may be large or small and the end result could be anything that benefits the organization. Innovation championing is related to business development. Termed business development, this has been used as a description of the disciplined processes, tools and organizational structures necessary to support the development of new products to new markets (Karol, Loeser and Tait, 2002).

2.5.4 Extra-role behavior and taking charge

Tepper and Taylor (2003) distinguish between required or in-role behavior and discretionary or extra-role behavior. Extra-role behavior is behavior exceeding

job requirements. Taking charge is discretionary behavior intended to effect organizationally functional change (Morrison and Phelps, 1999). Taking charge involves employees bringing about improvement within their organization. Taking charge is employee behavior that goes beyond role expectations in a way that is organizationally functional. The management concludes whether the change is considered to be organizationally functional and an improvement in the routines conducted. Taking charge is voluntary change-oriented behavior at work. Taking charge is motivated by an employee's desire for organizational improvement and is not necessarily rooted in a belief that current routines or practices are bad or wrong. Taking charge occurs solely through internal and organizationally sanctioned tactics (Morrison and Phelps, 1999). Taking charge focuses on the internal means for accomplishing organizational goals, such as work methods, policies, and procedures.

Taking charge is the result of a calculated, deliberate decision process by an employee. The employee considers the anticipated consequences and the anticipated benefits of the results of the behavior in the decision to take charge. The propensity to take charge will vary depending on the situation; it is not a stable personal characteristic (Morrison and Phelps, 1999). Morrison and Phelps (1999) claim that work group norms supporting and encouraging change also motivate employees to take charge. Morrison and Phelps (1999) found that employees were more likely to take charge when they perceived top management as open to employee suggestions and to employee-initiated change. Taking charge entails voluntary and constructive efforts, by individual employees, to effect organizationally functional change with respect to how work is executed within the context of their jobs, work units, or organization. Yet, relatively little is known about what motivates extrarole behavior (Morrison and Phelps, 1999).

2.5.5 Citizenship behavior

Employees pursue organizational citizenship behavior to reciprocate the treatment they receive from their employer (Organ, 1988). Organ (1990: p. 46) defined organizational citizenship behavior as ""*those organizationally beneficial behaviors and gestures that can neither be enforced on the basis of formal obligations nor elicited by contractual guarantee or recompose*". Organizational citizenship behavior is modest, even trivial behavior sustaining the status quo (Morrison and Phelps, 1999). Morrison and Phelps (1999) claim that organizational citizenship behavior and taking charge differ in respect to whether employees taking charge are willing to challenge the present state of operations in order to bring about constructive change. Taking charge involves voluntary and constructive efforts, by individual employees, to effect organizationally functional change with respect to how work is executed within the context of their jobs, work units, or organization. Unlike organizational citizenship behavior, taking charge is change oriented and aimed at improvements.

Tepper and Taylor (2003) conclude that organizations can facilitate organizational citizenship behavior performance by enhancing employees' justice perception and by persuading employees to define organizational citizenship behavior as in-role. Deckop, Mangel and Circa (1999) show that value alignment between the organization and the organizational member moderates the impact of pay-for-performance on extrarole behavior. They also claim that there is a potential downside of pay-for-performance, as clearly specifying behavior and outputs that will be rewarded may discourage organizational members from engaging in behavior not directly linked to monetary rewards. The goal of a pay-for-performance system is to maximize the employee's individual performance, or in-role effort. Deckop, et al. (1999) in their study of white-collar employees used the individual as a unit of analysis to show that the stronger employee's perception of the performance-pay link was,

the less likely they were to engage in organizational citizenship behavior, but less so for the more value-committed employees.

2.5.6 Conclusive remarks on concepts and perspectives related to employee innovation behavior

The dissertation focuses on comparing the corporate entrepreneurship and intrapreneurship theoretical perspectives and builds upon them to investigate employee innovation behavior. These two theoretical perspectives were chosen as the foundation as these two perspectives are the most commonly used in research investigations related to innovation behavior among employees. As intrapreneurship and corporate entrepreneurship are most commonly used, these perspectives are more discussed and defined in the research literature. The constructs of strategic renewal, corporate venturing, innovation championing, taking charge, extrarole behavior and organizational citizenship behavior are also related to employee innovation behavior, but less extensive. This is because these constructs are less discussed in the research literature and that they differ more from employee innovation behavior than do corporate entrepreneurship and intrapreneurship with respect to the purpose of this dissertation.

Employee innovation behavior embraces organizational citizen behavior as it includes extrarole behavior to do work more effectively. It also embraces taking charge, as it allows altering current routines in order to improve the way work is performed. Employee innovation behavior differs from organizational citizen behavior and taking charge as it extends the limit of the employee's degrees of freedom. Employee innovation behavior includes introducing new markets, new products and combinations of products / markets to the organization. Employee innovation behavior allows the employee more room to be autonomous in his / her decisions than organizational citizen behavior and taking charge does. Taking charge and organizational citizenship can be compared to Kirton's (1988) adopters. It focuses on doing things better.

Employee innovation behavior is more in line with Kirton's (1988) innovator, as employee conducting employee innovation behavior tries to do things differently and is more likely, in the pursuit of change, to reconstruct the problem. Employee innovation behavior and organizational citizenship / taking charge can also differ with respect to who the process initiator might be; employee innovation behavior allows for both management and the employee to make the first call. Organizational citizen behavior, extrarole behavior and taking charge presuppose the employee him- / herself to be the origin of the initiative. The common research theme in organizational citizenship behavior is how to persuade the employees to find ways of doing their current job more efficiently, whereas the employee innovation behavior construct and extrarole behavior / taking charge construct focuses on why the employee contributes towards innovation in the employing organization. The employee innovation behavior construct and extrarole behavior / taking charge construct also share the same factors as motivation for the employee, whereas organizational citizenship behavior assumes that the employee has aligned goals with the organization.

Strategic renewal and employee innovation behavior relates to organizational change in two different ways. Strategic renewal focuses on the organization and how the organization should utilize its resources and / or gain access to new resources in order better to respond to the challenges of the environment. Strategic renewal seeks to describe or prescribe where and how the management of an organization should restructure the whole or a substantial part of the organization in order to encounter an actual or a potential threat to the organization. The employee innovation behavior construct does not presuppose a grand plan for the organization. The employee innovation behavior construct seeks to describe why employees provide their organization with innovation behavior.

The corporate venturing construct focuses on new business generation and how established businesses generate spin-off organizations. Employee innovation behavior can result in an innovation big enough to generate a new business venture, but may also result in no particular change at all for the organization. The corporate venturing construct presumes that ideas for new businesses are generated by middle mangers, whereas employee innovation behavior does not assume that such behavior is limited to the management cadre. The employee innovation behavior construct also allows the personal characteristics or the traits of the employee, and the employee's own perceptions of his / hers environment to play a role in explaining the behavior. The corporate venturing construct mainly focuses on the characteristics of the organization when explaining new business generation.

Hayes (2005) points to another aspect where business venturing and employee innovation behavior differs. While all employees may be encouraged and have the opportunity to engage in employee innovation behavior, the opportunity to engage in business venturing may be more limited. Innovation championship studies assume that innovation initiatives originate from the management level where the employee innovation construct assumes that all employees are capable of innovation in some way or another. The innovation champion champions someone else's innovation idea, and the interesting research agenda is what personal traits or characteristics foster such behavior. Employee innovation behavior does not assume that it is the idea of the employee him- or herself that is the root of the behavior. It could be someone else's idea or it could be the employee's own idea. Even so, it is the employee's perception of how suitable the behavior is in the organization that matters. The discussion above can be summed up in a table such as in table 3.

Table 3 : Similarities and differences in some dimensions between strategic renewal, corporate venturing, corporate entrepreneurship, championship, employee innovation behavior, intrapreneurship, extrarole behavior / taking charge and organizational citizenship behavior, sorted by intending change and impact on the organization. (Part 1).

Concept / Dimension	Strategic renewal	Corporate Venturing	Corporate Entrepreneurship	Championship	Employee innovation behavior
Process initiator	Management	Management	Management	Employee	Both
Process ownership	Management	Management	Management	Management	Employee
Process evaluator	Management	Management	Management	Management	Management
System output	A changed core of the business, renewed and revitalized	New business unit	New business unit or New marked, product or cost reducing routines	Implemented innovation	New market, product or cost reducing routines
Common research theme	Which competences and resource combinations match the environment of the organization	How to persuade the middle manager to bring new business ideas up to the management level for approval / evaluation	How to persuade the employees to bring new business ideas up to the management level for approval / evaluation	How the champion overcomes resistance from his organization in promoting the idea	Why the employee contributes with innovation to the employing organization
Who contribute	Managers	Middle managers	Employee	Managers	Employee
Unit of analysis	Organization	Organization	Organization	Individual	Individual
Investigated	Organizational impediments and motivators	Organizational impediments and motivators	Organizational impediments and motivators	Personal traits	Organizational and personal impediments and motivators
Motivation for the contributing individual	The managers have aligned goals with the organization	Intrinsic value, money and promotion	Intrinsic value, money and promotion	Intrinsic value, money and promotion	Intrinsic value, money and promotion

Table 3 (continued) :Similarities and differences in some dimensions between strategic renewal, corporate venturing, corporate entrepreneurship, championship, employee innovation behavior, intrapreneurship, extrarole behavior / taking charge and organizational citizenship behavior, sorted by intending change and impact on the organization. (Part 2).

Concept / Dimension	Intrapreneurship	Extra-role behavior	Taking charge	Organizational citizenship behavior
Process initiator	Employee	Employee	Employee	Employee
Process ownership	Employee	Employee	Employee	Employee
Process evaluator	Employee	Management	Management	Management
System output	New market, product or cost reducing routines	Organizationally functional change with respect to how work is executed within the job description but exceeding job requirements	Organizationally functional change with respect to how work is executed within the job description	Modest and trivial changes in work processes within the job description
Common research theme	How the intrapreneur overcomes resistance from his organization in promoting his idea	Why the employee contributes with extra-role behavior to the employing organization	Why the employee contributes with taking charge behavior to the employing organization	How to persuade the employees to find ways of doing their current job more efficiently
Who contribute	Employee	Employee	Employee	Employee
Unit of analysis	Individual	Individual	Individual	Individual
Investigated	Personal traits	Organizational and personal impediments and motivators	Organizational and personal impediments and motivators	Organizational and personal impediments and motivators
Motivation for the contributing individual	Intrinsic value, money and promotion	A desire for improvements at the workplace an possibly intrinsic value, money and promotion	A desire for improvements at the workplace an possibly intrinsic value, money and promotion	The employee has aligned goals with the organization and a sense of fairness

2.6 The gap in the knowledge related to employee innovation behavior

Stevenson and Jarillo (1990) divide research on entrepreneurship into three main categories; what happens when entrepreneurs act, why they act and how they act. The discussion so far has pointed to some gaps in knowledge related to how, and why employees contribute with innovation in their employing organization, and what happens when they provide such innovative behavior to their employers. Some of these gaps in our knowledge about employee innovation behavior are specified and addressed here.

The next four sections point to gaps in our knowledge with regard to employee innovation behavior. The four proposed knowledge gaps are discussed in separate sections, and the sections conclude with proposed research themes or questions. The research questions that are developed are then addressed in the papers enclosed in this dissertation.

2.6.1 Which perspective to use when investigating employee innovation behavior

Employee behavior related to innovation has been investigated as corporate entrepreneurship and as intrapreneurship. The previous discussion has shown that corporate entrepreneurship focuses on the impact from the strategy whereas intrapreneurship focuses on the impact from the traits and the characteristics of the employee when explaining employee innovation behavior. How to combine these two approaches towards employee behavior related to innovation represents a gap in our knowledge regarding continued entrepreneurship and organizational change by innovation.

Organizations can and often do change (Aldrich, 1999). Corporate entrepreneurs are authors of quiet innovations. They are the ones who translate strategy – decided at the top – into actual practice (Kanter, 1984). A strategy is a rule that tells player *i* which action to choose at each instant in the game, given player *i*'s information set (Rasmussen, 1994). Business leaders are supposed to

make a deliberate and conscious articulation of a direction (Kanter, 1984). An expressed strategy could be seen as a guideline for creating the process that will enable an organization to generate a continuing stream of innovation including setting the overall direction for its venturing efforts (Block and MacMillan, 1993). The strategy is set by top management as a guide to middle management and lower level employees to tell them the overall purpose of the organization and to help them understand how to align their efforts towards a common goal.

Even so, people differ with respect to the cues they respond to, and they also differ in the way they respond to these cues. People are different, and act differently towards the same stimulus. The same individual may even act differently to the same stimulus when the situation or the individual changes. The response to a given stimulus may be different over time for the same person, even though nothing has changed. Even so, personal background, personality or personal traits all influence behavior. Personality serves as a unifying theme providing meaning, direction, and mobilization for the individual (Morris et al., 1994). Intrapreneurial orientation (Pinchot, 1985) is a personal characteristic claimed to capture some of the attitude that separates employees with innovative behavior from those without.

There is a lack of empirical evidence exploring the links between employee innovation behavior and intrapreneurship / corporate entrepreneurship. A research theme derived from the discussion this far, could be stated as follows: Does the intrapreneurial perspective outperform the corporate entrepreneurship perspective in explaining innovation related behavior from employees, or is innovation related behavior from employees best understood by combining the corporate entrepreneurship perspective and the intrapreneurial perspective?

2.6.2 The relative influence from strategy and traits on employee innovation behavior

Preiss and Spooner (2003: p. 202) state it; "*One of the reasons that a condition for innovation creation is not optimised is that we do not understand as well as we should those factors that lead to innovation creation*". Our understanding has become better as to how and why managers and middle managers involve themselves in behavior related to corporate entrepreneurship and intrapreneurship (Hornsby et al., 1993; Hornsby et al., 2002). Studies on the work-force contribution toward organizational development have not been addressed to the same extent. The link between individual employee contributions and organizational level phenomena remains largely untested in subject literature. Hayton (2005) argues that the reason for this may be twofold; the complexities of conducting cross-level research in general and the challenge of obtaining large enough samples.

According to the corporate entrepreneurship perspective, the organization's strategy towards corporate entrepreneurship determines the innovation rate in the organization, and determines what kinds of innovations are pursued within the organization. The management task is then to determine the desired future for the organization. A part of this task is to decide which innovations those are suitable for implementation in order to reach the required future of the organization.

Jennings et al. (1994) conducted a case study based on investigation of differences and similarities between elite entrepreneurs and elite intrapreneurs, and reports among other findings that all the interviewees in their study were highly proactive and responsive to challenge. Personality is a reasonably stable personal characteristic or trait, within a given setting, in our case, the business organization. Traits are personality dimensions (Jennings et al., 1994), and it is possible to select those appropriate for the purpose of a study and produce a profile of the individual. Bateman and Crant (1993) ask for research into how

the proactive personality disposition relates to behavior such as idea championing, innovation and intrapreneurship. Proactive behavior is behavior that directly alters environments.

Hornsby et al. (1993) argue that many organizations do not objectively assess the personality characteristics of either current or potential employees, and it is important to recognize the influence of individual differences in innovative behavior. Other researchers advocate the influence from organizations' competitive strategy and the influence from corporate entrepreneurship strategy on the propensity of the employee to provide innovative behavior to their employer. An interesting research question originating from the literature review would be: How strong is the relative influence from intrapreneurship and corporate entrepreneurship on employee innovation behavior?

2.6.3 The influence from management and colleagues on employee innovation behavior

A corporate entrepreneurship program is a strategy that management can utilize in order to change the way work is done by encouraging individuals within the organization to become more imaginative, creative, innovative and entrepreneurial to benefit the organization. Many corporate entrepreneurship programs in which the management asks for innovation behavior from the employees, do not achieve the desired enhanced organizational change (Zahra, 1991; Wesorick, 2002). Some employees immediately buy the idea of the corporate entrepreneurship program, whereas others are skeptical (Lindholm and Udèn, 2001). This implies that there is a gap in our knowledge regarding how employees perceive a mission statement from management requesting innovation behavior. The hierarchical position and the expressed goals of the organization are examples of issues in which organizational theory can explain the motivation of individuals inside an organization (Landström, 2000).

Furthermore, we do not know enough about how the attitude of colleagues influences an employee's propensity to provide the employer with employee innovation behavior.

Rogers (1995) defines an innovation as an idea, practice or object perceived as new by an individual or other unit of adoption. In understanding an organizational mission statement requesting the employee to provide innovation behavior to the organization as the innovation, Rogers (1995) definition of diffusion can come in handy when discussing communication of the idea that the organization wants innovation behavior from its employees. Rogers (1995: p. 5) defines diffusion as "*the process by which an innovation is communicated through certain channels over time among the members of a social system*". Change agents and opinion leaders are important for a successful diffusion of innovations within an organization (Rogers, 1995). In a corporate entrepreneurship context, the organization or work group can be regarded as the social system.

In corporate entrepreneurship, the idea diffused from top management to the employees is that innovation behavior is desirable. In this way, top management functions as the change agency, the unit which initially wants social change to happen. The middle manager can then be regarded as a change agent, an individual increasing the employee's propensity to provide innovation behavior. A change agent can be regarded as a person promoting an idea to be adopted by another person or group.

The influence from peer colleagues on the employee towards employee innovation behavior may or may not be intended. A description of the influence from colleagues on employee innovation behavior could be the influence engendered from opinion leaders. The greatest response to a change effort occurs when opinion leaders adopt and lead in the adoption process; this is because opinion leaders have strong informal influence on the group's norm (Rogers, 1995). The opinion leader have a strong informal influence on the

group's norm as the employee voluntarily and without considered intention aligns his or her behavior in order to behave more like the opinion leader in the work group. The notion of "significant others" refers to influential individuals in a social system (Denzin, 1966). A research question stemming from this discussion may be stated as follows: Could it be that the employee behaves differently based on his or her position in the hierarchy regarding who is the "significant other", when the employee decides if employee innovation behavior is looked upon as desirable?

2.6.4 Motivation for employee innovation behavior

Compensation and reward are two of the most studied aspects of corporate entrepreneurship from a human relation perspective (Hayes, 2005). These studies have focused on pay practices, and then how key personnel regarding innovation respond to different pay schemes. The key personnel studied are often scientists or engineers directly involved in the innovation process or the CEO's who monitor and control the innovation process. Even so, Hayes (2005) claim that these studies provide important insight that may be extrapolated to show how compensation influences all employees who are expected to contribute with innovation behavior.

Reports conflicts as to how rewards promote employee innovation behavior. Some, like Davenport (1993), report that monetary rewards including gain sharing are found to be an effective motivational technique for workers. Others, such as Kanter (1984), claim that for a while, participation is sufficiently rewarding in and by itself as regards employee innovation behavior. Some claim there to be an urgent need for tangible rewards, or else employees feel exhausted and demoralized (Baden-Fuller and Stopford, 1992). Others, as Block and MacMillan (1993) opposes this view by claiming that the firm does not need to offer specific, extrinsic rewards for innovation activities. Feeling competent at the task in hand is valued by employees and an important aspect of one's

intrinsic motivation (Deci, 1996). Kanter (1984) claims that rewards play a role in promoting innovativeness but conclude that how the reward system works still remains unclear.

How to make people go on being challenged should remain a priority issue for organizations (Baden-Fuller and Stopford, 1992). Companies need employees who are capable and willing to use their skills and abilities to the advantage of the company and who can motivate the whole company to reach the set goals (Roos, Roos, Dragonetti and Edvinson, 1997). One of the interesting research subjects may be why employees act as they do when they are intrapreneuring (Pinchot and Pellman, 1999).

In capitalist societies, most people work for a living. To attract and hold members, organizations must reward them with income and other incentives (Aldrich, 1999). Where people have a choice of how to spend their time and energies, rewards have a direct influence on that choice (Baden-Fuller and Stopford, 1992). The incentive schemes and the reward system to a great extent decide which initiatives are pursued and which are left behind (von Hippel, 1988). Once participation leaves the experimental stage and becomes routine, compensation and recognition have to be made more formal. Organizations should offer rewards that balance risk and should acknowledge extraordinary contributions, according to Pinchot (1985). Pinchot (1985) recommends different types of rewards for the intrapreneur; he recommends recognition by superiors, promotion, monetary bonuses, discretionary budget to draw upon for future intrapreneurial projects, and sabbatical time.

Intellectual capital pays attention to collective arrangements in which individuals interact with one another and use organizational structures to encompass a given organizational goal. Intellectual capital has been defined as the sum of knowledge, information, intellectual property and experience held by everybody in a company, put to use to create a competitive edge (Stewart, 1998). The capacity of individuals within the organization to transform

knowledge and experience into new and improved products and processes is a valuable resource for the organization. Knowledge management is about creating, sharing and using employee knowledge effectively (Davenport, Long and Beers, 1998). Learning in organizations occurs when individuals within an organization experience a problematical situation and inquire into the problem on the organization's behalf (Argyris and Schön, 1996).

Intellectual capital is the accumulated knowledge and experience useful for the organization. This knowledge resides inside an employee (Gottschalk, 1999). The part of the intellectual capital that a specific employee possesses is this employee's personal intellectual capital. Individuals have to be the learning agents of the organization (Mouritsen and Flagstad, 2004). Good learning conditions are facilitated by introducing organizational structures that encourage the individual's wish and ability to enquire (Argris and Schön, 1996).

In today's competition for knowledge workers, an organization has to provide the employee with incentive factors, incentive factors such as interesting jobs, further education and participation in decision processes at the workplace (Thorbjørnsen and Mouritsen, 2003). The motive for an employee to engage in organizational learning can be externally or internally motivated. Kanter (1984) also reports that employees were autonomous, seeking innovation opportunities in order to gain time to do even more – if the tasks were likely to be rewarded. Pay is claimed to be highly significant as a reward for knowledge workers, as pay carries both economic and symbolic meaning (May, Korczynski and Frenkel, 2002).

For many people, non-financial incentives may be more important than financial ones (Block and MacMillan, 1993). Intrinsic motivation has been associated with a person's need for personal development (Deci, 1996). The reward linked to intrinsic motivation is the feeling of enjoyment and accomplishment that accrue spontaneously as a person engages freely in the target activities (Deci, 1996). Kanter (1984) reported that employees were most

satisfied when they got the “go ahead” signal from their superior, and that employees valued feedback also during the innovation project. Knowledge workers are claimed to be expected to be self-reliant for their own career development and employability, both inside and outside the organization (May et al., 2002). Furthermore, knowledge workers are claimed to use strategies to maximize their economic and symbolic rewards (May et al., 2002).

As shown, there is still a research knowledge gap related to employee innovation behavior and rewards. It has not been fully investigated whether and how rewards contribute towards more employee innovation related behavior, nor has it been fully investigated what kind of rewards that employees in different organizational settings find motivating with regards to participating in employee innovation behavior. This leads to the research question addressed in the fourth paper: what motivates knowledge workers to engage themselves in innovation behavior?

3 Methodologies

This chapter on methodology will justify the unit of analysis and the chosen approach to the study. Furthermore, the setting of the research will also be explained. What is more, this chapter argues why the dissertation consists of four papers and why the four papers utilize different research methods. Finally, the chapter gives the reader a more thorough insight into the four studies than the length and structure of each paper allows.

3.1 The choice of unit of analysis

Astley and Van de Ven (1983) claim that according to 'action theory', organizations are in constant change as a result of the actor's definition of the situation and the actions these situations demand. Weick (1995) claims that people create and interact with their perceived environments, and by acting upon the environment, they create and alter the environment. This fits with Buttney's view (1993: p. 2) when he claims '*people are self-interpreting creatures of their own and others' actions*'.

This interactionist view is also held by others investigating why and how employees and other people act as they do in given situations (Crant, 1996; Fay and Frese, 2001). Based on the interactionist view, the employees' own perception of the situation becomes important to study. According to the hermeneutical research tradition, it is the individual's own perception of the situation that influences his / her action. It is then this perception that should be analyzed when investigating human behavior (Andersen, 1994). In employee innovation behavior research, the innovation action under scrutiny is the employee promoting the implementation of a new idea in the organization.

This dissertation differs from other research on corporate entrepreneurship as work on corporate entrepreneurship is mainly done with the organization as the unit of analysis. The individual was chosen as a unit of analysis in all the four papers that this dissertation is based on. The reason for choosing the

employee as research object is simple. According to the hermeneutical research tradition, the individual acts according to his perception of the situation. This dissertation differs from most research on intrapreneurship as this research includes the individual's perception of organizational characteristics. The research aim of this dissertation is to reveal what factors are associated with increased levels of employee innovation behavior. The dissertation reveals some of the factors that employees find motivating regarding to moving beyond the minimum job requirement and creating new products, new markets or cost reducing routines to benefit their organization. Likewise, the dissertation also intends to contribute to the understanding of what theoretical perspectives to use in which situations, when investigating employee innovation related behavior.

Stevenson and Jarillo (1990) divide research concerning entrepreneurship into three main categories; what happens when entrepreneurs act, why they act, and how they act. This dissertation investigates why entrepreneurial employees act, as it investigates what employees find motivating towards engaging in employee innovation behavior. This dissertation uses the individual employee as the unit of analysis in four papers, telling how the entrepreneurial employee pursues an idea for an implemented solution, who the innovative employee is, and what he / she find motivating for the behavior. Using the individual as unit of analysis seems appropriate when seeking reasons employees give for participating in innovation behavior. This is because the individual employee decides the level of involvement and energy to put into a work task. This is the case even if the employee is assigned from management to participate in innovation related tasks.

3.2 The reason for exploring innovation behavior among employees in Norway

The research on intrapreneurship and corporate entrepreneurship is mainly done in a North-American context. Although there is a vast body of theoretical and

empirical work on entrepreneurship and corporate entrepreneurship, much research on intrapreneurship is rather qualitative and explorative. Moreover, the main body of research on intrapreneurship and corporate entrepreneurship has been conducted in organizations in North America with the organization as the unit of analysis. According to Ingelhart, Basañez and Moreno (1998) there are differences between Norway and North America along several cultural dimensions, and these differences may have an influence on some aspects of the innovation process (Shane, 1995). These differences can imply that the previous reported findings on intrapreneurship and corporate entrepreneurship on organizations from North America are not fully applicable when explaining employee innovation behavior in Norway. Dess et al. (2003) ask for research on the effect of different national cultures in promoting corporate entrepreneurship in organizations.

The subject of employee innovation behavior in a Norwegian context is also interesting as job autonomy is found to be higher in the Nordic countries than in US, Canada and Australia (Dobbin and Boychuk, 1999). A short power distance is an inducement to a participative decision style. There is a shorter power distance in the Scandinavian culture than in the USA (Bjerke, 1999). In Scandinavia, people select themselves for organizational development programs (Lindkvist, 1988). In USA, the initiative towards employee participation in organizational development programs is supposed to be taken by the manager (Hofstede, 1984). Participants are ear-marked, not self-selected in the USA (Bjerke, 1999). Employee innovation is perhaps particularly relevant in Scandinavia where there has been a long tradition for involvement of employees and a flat hierarchy (Sundbo, 1999). As the cultures differ, it should not be taken for granted that the theories developed in USA describing economic life, are also applicable elsewhere (Bjerke, 1999). This line of argument makes it appropriate to investigate why and how Norwegian and Scandinavian employees involve themselves in innovation behavior in an organizational setting.

3.3 A description of the research process leading to these four papers

This study utilizes both explorative and explanative approaches to employee innovation behavior research, aiming at investigating aspects of when, why and how, with regard to employee innovation behavior. Three papers are quantitative and provide a picture of a general situation. One paper is based on qualitative data and tells a specific story. This will enrich the data and give faces to the numbers.

The intrapreneurship and the corporate entrepreneurship perspectives both try to explain why an employee contributes with innovation behavior, even if the two perspectives differ in some important aspects. The common theme in the intrapreneurship and the corporate entrepreneurship perspective is the employee providing innovation behavior, behavior that potentially benefits the employing organization. The two perspectives share a focus on the innovation behavior from the employee. As there are two perspectives to utilize for understanding one type of behavior, this raises the issue: What perspective of intrapreneurship and corporate entrepreneurship is most suitable for explaining employee innovation behavior? This research question was pursued in the first paper. The result from the first paper suggests that the corporate entrepreneurship perspective explains employee innovation behavior better than the intrapreneurship perspective measured with Pinchot's (1985) "Are you an Intrapreneur" test. The strategy for corporate entrepreneurship was measured using questions asking the employee to indicate how he / she perceived the organizations wish for innovations. Innovation behavior was measured by a self-report of innovation behavior using a 5-point numerical scale.

The corporate entrepreneurship perspective focuses on the strategies of the organization as the provider of employee innovation behavior, and the intrapreneurship perspective focuses on the characteristics of the employee as the root of employee innovation related behavior. The results reported in the first paper show that a combination of the corporate entrepreneurship and the

intrapreneurship model performs best in explaining employee innovation behavior. This model, combining intrapreneurship and corporate entrepreneurship, explains most of the variance in employee innovation behavior.

Some questions were still unsolved after the first paper. The "Are you an Intrapreneur" test of Pinchot (1985) did not perform well. The factor loadings and the commonalities were low on some of the items in the intrapreneurship construction derived from the "Are you an Intrapreneur-test?". Another measure of characteristics or a trait linking into intrapreneurship was asked for. Furthermore, the question about the relative impact from strategy and the impact from characteristics or a trait were unsolved. One of the research questions addressed in the second paper was then: Are there some personal characteristics or traits that contribute to employee innovation behavior that perform better than Pinchot's (1985) "Are you an Intrapreneur?" test? As Seibert et al. (2001) link proactivity to entrepreneurship and ask for future research to test whether proactivity also links to intrapreneurship, proactivity was chosen as a potential replacement for the "Are you an Intrapreneur?" test.

The first paper established that both the characteristics of the organization and the employee had to be taken account of when predicting the employees' propensity to engage in employee innovation behavior. Wunderer (2001) claims that basic and relatively stable attitudes are more important for encouraging intrapreneurial behavior than situational dependent motivation are. The first paper gave indications of the opposite view. One question raised from this contradiction is; is there an imbalance in the strength of the influence between the influence from the characteristics of the organization and the influence from the personality of the employee on the employee's propensity to engage in innovation behavior? The question of which of the organizational characteristics (measured as organizational strategies) or the personal characteristics of the employee (measured by proactivity) has the strongest influence on the

employee's propensity to provide employee innovation behavior, was addressed. This was then the second research question in the second paper. The second paper indicates that, for white-collar employees, the organizational strategy has the strongest influence on employee innovation behavior. Even so, a proactive personality of the employee is also related to a propensity to engage in innovation behavior. The employees' work-related experience is not related to the propensity to engage in employee innovation behavior. Of course, further research has to be conducted to reveal if the findings reported in this paper are valid with other measures and in other populations, before firm conclusions can be drawn.

One of the questions left unanswered by the second paper is how the strategy of the organization is communicated and absorbed in the organization. The third paper indicates that the strategy of the organization is communicated via the middle management to lower level employees. Further, the paper reports that the informal leaders of the work group also have a strong influence on the employee's innovation behavior. The work group's shared culture for innovation behavior has a strong influence on the propensity for the innovation behavior of a member of the work group. The culture for innovation of the work group was measured as how the employee perceived the innovation behavior of colleagues in the work group. The paper reports the finding that the lower ranked the respondent was in the organization, the more influenced the respondent was by the work group's culture for innovation. The higher ranked in the organization, the more one is influenced by the management's expressed wishes in relation to employee innovation behavior. A third finding reported in this paper was that all levels of the organization felt that they contributed with innovation behavior. A question was then – why? Why do employees at all levels of the organization wish to contribute to their organization through innovation behavior, when it is not compulsory or formally rewarded?

The fourth paper provides some answers regarding what an employee finds motivating in relation to contributing through employee innovation behavior in their organization. This paper reports from a case study of employees who voluntarily enrolled themselves in a state initiated development program. The program was named VeRDI, in order to indicate added value through the use of e-commerce in the small and medium sized firms involved. Four employees from three firms joined the program. The findings indicate that employees regarded the development program as an opportunity for learning, and that learning was their main motivation for joining the program. When viewing the learning situation in a knowledge management perspective, it can be argued that employees wanted to participate in this innovation project because they considered participation as an opportunity to add to their personal intellectual capital. This paper does not investigate whether the employees wanted to trade this added personal intellectual capital into monetary remuneration at a later stage, or whether the intrinsic reward of learning experience was the employee's ultimate goal. The research questions the objectives and the hypothesis pursued in the four papers can be summed as in table 4.

Table 4 The research questions, the objectives and the hypothesis explored in the four papers presented.

Paper #	The research question, the objectives and the hypothesis pursued
1	1) Controlling for relevant factors, a strategic orientation towards corporate entrepreneurship is significantly positively related to innovation behavior in organizations. 2) Controlling for relevant factors, intrapreneurial personality (as measured by Pinchot (1985) test: "Are you an intrapreneur?"), is significantly positively related to innovation behavior in organizations. 3) Does a model that combines corporate entrepreneurship strategy and individual intrapreneurial personality explain a significantly higher proportion of variance in innovation behavior than any of the two models separately.
2	1) The more the organization exhibits a differentiation competitive strategy, the more the organization will desire their employees to report innovation behavior. 2) The more the organization exhibits a cost reduction competitive strategy, the more the organization will desire their employees to report innovation behavior. 3) Employees working in organizations that actively encourage employee innovation behavior will report higher levels of innovation behavior. 4) Employees exhibiting high levels of proactivity will report higher levels of innovation behavior. 5) Employees with more diverse work experience will report higher levels of innovation behavior. 6) Employees with more lengthy work experience will report higher levels of innovation behavior.
3	1) The higher ranked in the hierarchy, the more management encouragement of innovation behavior is associated with the employee's own innovation behavior. 2) The lower the ranking is in the hierarchy, the more colleagues' innovation behavior is associated with the employee's own innovation behavior.
4	The main research question of this paper is: what motivates knowledge workers to get involved in innovation behavior in organizations? To answer the research questions, four objectives are addressed: 1) To identify and describe the link between employee innovation behavior and an increase in the employees' knowledge base. 2) To identify the link between corporate entrepreneurship strategy and intellectual capital. 3) To identify the link between the employees' knowledge base and employee reward. 4) To propose a conceptual model of innovation management and knowledge management that includes the employee perspective.

3.4 Arguments for the chosen research methods

The first paper applied a statistical analytical approach with hierarchical regressions. Such an approach enables the testing of the explanation power of competing models aimed at explaining the same phenomenon. The goal of the paper was to test the explanation power of the intrapreneurship perspective and compare this with the explanation power of the corporate entrepreneurship perspective regarding employee innovation behavior. In a test like this, the competing models have to be measured by the same respondents using the same data set.

When reading Pinchot (1985), it seemed straightforward to operationalize a characteristic of an intrapreneurial employee. But as the Pinchot 'Are you an intrapreneur?' measure did not perform well, another measure of intrapreneurial disposition was utilized in the next paper. The new measure was proactivity, and it was measured with regard to a scale developed by Bateman and Crant (1993) and revised by Seibert et al. (2001).

The first paper did not pursue the "new cost reducing routine" aspect of employee innovation behavior. The second survey did. The second survey was used to investigate the relative influence from the perceived strategy of the organization and to compare this influence with the influence from an intrapreneurial orientation on employee propensity to engage in innovation behavior. This was done using a structural equation model of employee innovation behavior developed for this study. Structural equation modeling is well-suited for comparing the relative influence of different aspects of a model. The findings in paper 1 and 2 suggest that the influence from the strategy of the organization is stronger than the impact of an intrapreneurial orientation on employee innovation behavior. Even so, the influence from the employee's personality on the propensity to provide employee innovation behavior was also solid. The conclusion was that both factors had a significant and strong influence on innovation behavior of the employee.

The questions measuring employee innovation behavior were altered from the first to the second survey. One conclusion from the second paper was that the question about new cost reduction routines did not perform well together with the other questions measuring employee innovation behavior. When pre-testing the expanded version of employee innovation behavior on nurses, nurse aides and unskilled health care workers, they did not understand at all the questions previously used in the studies addressing business graduates. The items had to be rewritten in order to become easier to understand, but still the items had to capture the essence of employee innovation behavior. The interest was in revealing how the corporate strategy rippled down the organizational hierarchy and how the mission statement was acted upon. The aim of this paper was to investigate the influence from the hierarchy on the propensity of the employee towards innovation behavior. The paper uses multiple regressions and compares the standardized beta values when analyzing the results.

As the literature review shows, the previous reported findings differ greatly with regard to what employees find motivating as regards contributing with innovation behavior. During the literature review for this study, good measures were not found to cover all potential relevant kinds of rewards, nor was it possible to find evidence about what kind of rewards employees find motivating for innovation behavior. It was easier to just ask the employees themselves, than to operationalize a multiple of intrinsic and extrinsic rewards in a questionnaire and hope to cover all potential motivating factors. The chosen design was a longitudinal extreme case study. It is longitudinal, as it follows the respondents over 18 months. It is an extreme case study, as it includes an intrapreneurial employee, employees invited in a corporate entrepreneurial manner and an employee that is hard to classify either as an intrapreneur or as a corporate entrepreneur. The research methods utilized to answer the research questions addressed and the number of respondents is summarized in table 5.

Table 5 The research methods utilized to answer the research questions addressed and the number of respondents analyzed in each paper.

Paper #	# of respondents	Research methods utilized to pursue the research questions addressed
1	634	Questionnaire. Hierarchical regressions. Averaged indexes.
2	153	Questionnaire. Structural equation modeling. Principal Component Analysis with Varimax rotation.
3	555	Questionnaire. Multiple regressions. Principal Component Analysis with Varimax rotation.
4	4	Structured face-to-face interview. Longitudinal extreme case study.

3.5 Reliability and validity in the studies conducted

The aim of this section of the text is to explain the methods used and the choices taken in the papers, better than the word limit of the papers and the structure of the papers allow for. This implies a discussion of reliability and validity in the four papers. The reliability of a measure is defined as the extent to which it is free from a random error component, and validity is the extent to which a measure only reflects the desired construct without contamination from other systematically varying constructs (Judd, Smith and Kidder, 1991).

Paper 1 – Testing different theoretical approaches to employee innovation behavior

The first paper compares three models explaining how employees contribute to innovation in their organization. The base model describes the intrapreneur through his / her position in the hierarchy, gender, age, education and tenure. Model one explains the intrapreneurial contribution by focusing on a personal

trait. The trait investigated is derived from Pinchot (1985) and Pinchot and Pellman (1999) describing the intrapreneur. The second model is derived from Kanter (1984) who describes the corporate entrepreneur and the corporate environment of the corporate entrepreneur. The fourth and last model combines these three models.

The study reports from the "Kandidatundersøkelsen 2001" survey. The main intention of the "Kandidatundersøkelsen 2001" was to investigate where the former students of Bodø Graduate School of Business were employed and how much money they earned. This information is used by Bodø Graduate School of Business to attract potential students to the graduate school. Some questions were added for the purpose of the study reported in this paper. The questionnaire consisted of a total of 99 questions; of them this study included 45. As the questionnaire was mailed to the whole population of former graduates from a business school, the findings in the paper are related to a certain group of employees. The employees targeted with the questionnaire all have solid education in management and have good knowledge of theories about management. This could influence how they choose to answer the questionnaire; other employees without the same educational background would possibly perceive the questions and the researcher's intentions with the questions differently. The reliability of the findings and the transferability of the implications from the study should be considered bearing this in mind.

Some caveats are in order when considering applying the findings reported in this paper in an organizational setting. Because all the variables are self-reported measures, common-method variance could be a possibility and influence the results. The cross-sectional design does not permit the interference of the causal-effect relationship. Longitudinal research designs are needed to establish the direction of causality, if there are any to be found. An additional limitation of this study is that, because data was not collected over time, the results fail to reflect the dynamic nature of the decision about whether to

conduct innovation behavior. It is also possible that there are feedback loops in this process and that the decision of involvement in innovation behavior is heavily influenced by the success of past efforts in conducting innovation behavior.

Paper 2 – Testing the influence from organizational and individual characteristics on employee innovation behavior

The second study also utilizes responses from former business students from Bodø Graduate School of Business. This paper is based on the "Kandidatundersøkelsen 2003" survey, and paper 2 shares the same limitations as paper one. Both this and the previous paper may potentially suffer from common source bias.

Another bias potentially shared with the previous paper is social desirability bias. This is due to the respondents to a certain extent knowing the 'right' answers to the questions offered. To be innovative and helpful towards benefiting your employer is desirable, and the respondents might be tempted to report such behavior. It must also be recognized that innovation behavior is behavior deviating from prescribed roles and, consequently, that in some instances be considered threatening by peers and supervisors. These two papers investigate the employee's innovation behavior at the workplace, and this behavior could be unknown to the managers or the colleagues or the behavior could be regarded as threatening by the employee's managers and colleagues (Thornberry, 2003). Given this alternative, the author(s) then chose to rely on self-reported data.

Paper 3 – Testing the influence from significant others versus level of hierarchy on employee innovation behavior

This paper is based on the response to a survey mailed to 1452 health care workers in 12 Norwegian municipalities. The introduction letter in the questionnaire refers to a collaboration program between the worker unions and the municipalities aiming at empowering health care workers. How the health care worker responded to the questionnaire may have been influenced by this setting. Social desirability bias and self report bias are also issues in this paper.

The items in the questionnaire measuring employee innovation behavior that had been used in the previous two papers had to be altered. A pre-test indicated that health care workers did not understand the wording. Expressions such as 'improve the administrative routines of the organization' were not in their vocabulary. Even after the wording in the survey was changed, it was noticed that health care workers with non-Norwegian names were less likely to answer the questionnaire. It is not known how the addressed but non-responding health care workers are situated in the hierarchy, and the researchers do not possess any other demographic information about the non-responding respondents, so it was impossible to conduct an analysis of response bias.

The results reported in the third paper are a comparison of the impact from management and colleagues on different groups of respondents' own employee innovation behavior. The impact is measured as the standardized beta values for nurses, nurse aides and unskilled health care workers with regard to the influence management and colleagues have on their own employee innovation behavior. Another approach would have provided the reader with greater assurance of findings, but the addressed journal did not want too heavy statistics applied in the paper.

It is possible to compare the size of unstandardized beta-values or the size of the constants in two independent regression analyses by utilizing a two-sample *t* test (Kleinbaum, Kupper, Muller and Nizam, 1998). In comparing the

size of unstandardized beta-values, one tests whether the unstandardized beta values are statistically significantly unequal enough to declare a difference. The formula to use when testing for parallelism in two regression lines is (Kleinbaum et al., 1998: p. 324):

$$T_{df,(1-p)} = (\beta_n - \beta_{na}) / S_{\beta n - \beta na}$$

β_n = the unstandardized beta value for impact from management on nurses' innovation behavior as calculated in regression analysis,

where $S^2_{\beta n - \beta na} = PE^2 [(1 / ((n_n-1)S^2_n)) - (1 / ((n_{na}-1)S^2_{na}))]$

S^2_n = the variance in manager support as perceived by nurses.

The PE is calculated as follows:

$$PE^2 = [(n_n-2) RMSE_n) + (n_{na}-2)RMSE_{na})] / (n_n + n_{na}-4)$$

$RMSE_n$ = Residual mean-square error for nurse data. In a SPSS output file, this value is found in the ANNOVA[b] table in the intersection between Mean Square and Residual.

Degrees of freedom, df is set by using the formula: $df = n_n + n_{na} - 4$.

In the formula, the β_n would be the unstandardized beta value of the influence from the management on nurse own innovation behavior, and the β_{na} would likewise be the unstandardized beta value of the influence from the management on nurse aides' own innovation behavior. Further, the n_n would be the number of responses used from nurses, and the n_{na} would be the number of responses used from nurse aides in regressions. The variance in the independent

variable studied for nurses would be labeled S^2_n. The chosen level of significance could be set as $p = 0.05$. As n_n equals 120 and n_{na} equals 309, the degrees of freedom are then 425. This implies that calculated T values greater than 1.645 (Lillestøl, 1982) indicate a significantly greater impact from management on nurses than on nurse aides in the two regressions displayed in table 6. The calculated T value in this case is 1.93 and greater than 1.645 indicating that management influence on nurses' innovation behavior is stronger than management's influence on innovation behavior of nurse aides.

Table 6 An example of an alternative calculation of differences in impact on employee innovation behavior regarding management encouragement of nurses contra nurse aides.

	Nurses $n_n = 120$		**Nurse Aides $n_{na} = 309$**	
	Unstandardized Beta value	Residual Mean Square Error	Unstandardized Beta value	Residual Mean Square Error
Influence from management on own innovation behavior	$\beta_n = .492$	$RMSE_n = .402$	$\beta_n = .381$	$RMSE_{na} = .560$
Variance in perceived management support	$S^2_n = .894$		$S^2_{na} = 1.082$	

Paper 4 – Exploring motivation for employee innovation behavior

According to Yin (1989: p. 23), Schramm (1971) claims that case studies seek to enlighten decisions and why the decisions are made. Chetty (1996) recommends explorative case studies where existing theory is inadequate and claims that case studies provide the best possibility to study an organization from several perspectives. According to Saunders, Lewis and Thornhill (2000), interviews provide the most suitable research tool in situations where one needs to understand the background for respondents' decisions or attitudes.

Given the transcripts from the interviews, another researcher could have used other theories to explain the behavior and the motivation for this behavior. Other interpretations of the data and other conclusions are possible; the presented paper is just one of many approaches to employee innovation behavior motivation. Even so, this approach was chosen as the existing research on employee innovation behavior motivation gave confusing signals of what factors mattered for the employee when deciding to get involved in employee innovation behavior or not. By asking the respondents about their perceptions and their opinions concerning reasons for behavior, the findings and the conclusions in this study rely on how the respondents choose to tell about their experience and their perception of what happened, and why it happened.

The researcher has to be prepared to defend the choices regarding which theory to apply in order to describe a phenomenon. The choice was not obvious ahead of the study reported in paper four. As previous research has focused on monetary remuneration as the motivator for employee innovation behavior, this alley of theoretical explanation was pursued. The alley of monetary remuneration alone appeared to be a dead-end street. The respondents did not consider or expect conventional remuneration. They pursued a learning opportunity. Knowledge management theory was chosen in order to bind rewards, learning opportunities and innovation together.

3.6 The operationalization of the constructs utilized in the studies conducted

The operationalization of employee innovation behavior changed during this academic journey. The first paper operationalized employee innovation behavior based on Pinchot (1985), asking the respondents questions concerning to what extent they contributed to new product development, contributed to the development of new product-market combinations, to development projects, to

the development of new venture ideas and to what extent they contributed to the development of new markets for the employing organization.

The second paper left out the question of participation in development projects and added a question about to what extent the respondent contributed to more cost efficient production processes in their employing organization. The third paper addressed a population not accustomed to such mercantile and elaborate language. A pre-test showed that nurses, nurse aides and unskilled health care workers did not understand the wording of the questionnaire used for business graduates. The items were rewritten to fit this group of respondents. The questionnaire explained innovation and employee innovation behavior as improvements at work. The questionnaire consisted of three items measuring how much the respondents were involved in improvements at work. The fourth paper had a different approach, the respondents were asked open-ended questions and the respondents were encouraged to describe the problem they wanted to solve when participating in the VeRDI project. How the operationalization of the end dependent variable, employee innovation behavior, developed over time in the four papers presented in table 7.

Table 7 The development in the operationalization of the concept of employee innovation behavior during the four studies conducted.

Paper #	Paper name	The operationalization of employee innovation behavior
1	Organizational strategy, individual personality and innovation behaviour.	(1): To what extent do you contribute to new product development in the organization in which you are employed? (2): To what extent do you contribute to the development of new product-market combinations in the organization in which you are employed? (3): To what extent do you contribute to development projects in the organization in which you are employed? (4): To what extent do you contribute to the development of new venture ideas in the organization in which you are employed? (5): To what extent do you contribute to the development of new markets for the organization in which you are employed? The five items were measured along a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).
2	The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behaviour.	The same questions as used in paper 1 with one additional question: (6) To what extent do you contribute to more cost-efficient production processes in your organization? (X) But without question (3) in the first survey: "To what extent do you contribute to development projects in the organization in which you are employed?" which was left out. The five items was measured along a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).
3	Employee innovation behaviour in health care: The influence from management and colleagues.	Innovation was put in plain words as "*improvements at work*", and in the questionnaire the respondent was asked to think about improvements at work as "*everything from altering routines or taking use of new remedies, to simplifying work, to improving the service provided to the end user, or to be able to give the end-user new offers*." The questions used were: (1) I participate in discussions regarding improvements at work. (2) I invite others into discussions regarding improvements at work. (3) I like to work with issues related to improvements at work. The three items were measured along a 7-point numerical scale (from 1 = very little extent, to 7 = very large extent).
4	What motivates knowledge workers to involve themselves in employee innovation behaviour?	The respondent was asked open-ended questions. Some of these questions were: (1) Have you initiated changes in the product range, the customer group, or cost-reductions for your organization during the last two years? (2) Where did the ideas for those changes originate? What problem is to be solved by participating in the VeRDI project?

Likewise, there were developments in the independent variables utilized in order to answer the research questions addressed. The first paper operationalized an intrapreneurial personality along the line of Pinchot (1985) when customizing his "Are you an Intrapreneur" test. The first paper addressed the corporate entrepreneurship strategy of the organization with a construct mirroring the dependent variable. The second paper also addressed the corporate entrepreneurship strategy of the organization with a mirror of the dependent variable, but as the dependent variable changed, so did the independent variable measuring the corporate entrepreneurship strategy. The second paper related the competitive strategy of the organization to the organization's strategy of corporate entrepreneurship. The second paper also anticipated that the employee's work experience was related to employee innovation behavior. The measure of intrapreneurial personality was altered in the second paper. The second paper measured intrapreneurial personality as the propensity towards proactive behavior as presented by Seibert et al. (2001). The third paper related management encouragement and colleagues' innovation behavior to own innovation behavior, and investigated whether organizational rank influenced the strength of these factors. The concepts used to explain employee innovation behavior during the four studies conducted, and references to previous studies using a similar operationalization the four papers are presented in table 8.

Table 8 The concepts used to explain employee innovation behavior during the four studies conducted, and references to previous studies using similar operationalization.

Paper #	Paper name	Concept	Derived from / previous used by
1	Organizational strategy, individual personality and innovative behaviour.	Intrapreneurial personality.	Pinchot (1985).
		Strategic orientation towards corporate entrepreneurship.	A measure mirroring the concept of employee innovation behavior based on Kanter (1984) and developed for this study.
2	The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behaviour.	Competitive strategy of differentiation.	Chandler and Hanks (1994).
		Competitive strategy of cost leadership.	
		The organizations desire for employee innovation behavior.	A measure mirroring the concept of employee innovation behavior based on Kanter (1984) and developed for this study.
		Proactivity.	Seibert et al. (2001).
		Varied work experience.	# of different jobs the respondents reported to have had, - developed for this study.
		Length of work experience.	# of years the employee had been working for the present employer, - developed for this study.
3	Employee innovation behaviour in health care: The influence from management and colleagues.	Management encouragement towards innovation behavior.	Own measure - developed for this study.
		Colleagues' innovation behavior.	Own measure - developed for this study.
4	What motivates knowledge workers to involve themselves in employee innovation behaviour?.	Organizational goals.	
		Corporate entrepreneurship strategy.	
		Knowledge management.	
		Intellectual capital.	
		Personal intellectual capital.	
		Increased employee knowledge.	
		Intrinsic and extrinsic reward.	
		Motivation.	
		Innovation.	

4 Key Contributions and Future Directions

This chapter points to the key contributions of the research reported in this dissertation. The chapter summarizes the findings from the four papers the dissertation is based on, and shows how these findings fit together. This chapter also presents an overview of the factors associated with increased levels of employee innovation behavior. Furthermore, this chapter points to unresolved issues in our knowledge about employee innovation behavior, and provides directions for future research concerning the topic.

4.1 Introduction to the findings on employee innovation behavior

This study points to a gap in our knowledge about how adequately to describe innovation behavior among employees, and this study addresses this gap in our knowledge. The purpose of this dissertation is to advance our knowledge about factors associated with increased levels of employee innovation behavior. This means looking into several under-researched areas, areas relating to how to combine the corporate entrepreneurship perspective with the intrapreneurship perspective when researching employee innovation behavior; how the corporate strategy set at the top ripples down the organizational hierarchy; how characteristics of the innovation, the organization, the employee, the intersection between the organization and the employee all influence the employee's innovation behavior. In addition the following areas are studied: The relative influence from organizational strategy and employee characteristics on the propensity to carry out employee innovation behavior; the influence from colleagues on employee innovation behavior and research about what the employee finds motivating with regard to employee innovation behavior.

As a result of the research reported in this dissertation, a new construct of employee innovation behavior appropriate for research regarding innovation behavior among employee is presented. This new construct is then compared to several other related concepts in a classification scheme. A classification scheme

discussing similarities and differences concerning concepts about innovation involving employees, may be useful for researchers investigating such issues. As the aim of this dissertation is to advance our knowledge regarding factors associated with increased levels of employee innovation behavior, then factors associated with increased commitment amongst employees to innovation behavior are presented. Further, this dissertation represents a new and novel approach to organizational change by presenting organizational change from the perspective of the employee. Among other things, this dissertation reveals what employees find motivating as regards engaging in innovation.

By addressing the basic assumptions and the theoretical core of concepts and perspectives associated with employee innovation behavior, this dissertation makes a methodological contribution. The findings are portrayed in a figure linking the goals of the organization to its corporate entrepreneurship strategy, and linking this strategy to knowledge management and the organization's need for intellectual capital. The knowledge the employee possesses and that is valuable for the organization is the employee's personal intellectual capital. The employee views an increase in knowledge valuable for the organization as a reward, motivating for further innovation behavior. Moreover, the employee's innovation behavior is influenced by the proactivity of the employee, the social acceptance in the work group, and the hierarchical level at which the employee is situated.

At the practical level, this dissertation contributes by pointing to ways in which organizations can encourage employees to bring about employee innovation behavior in their organization. The results presented here suggest that management can encourage more employee innovation by conveying that it is open for initiatives from below and by behaving in a way that signalizes this desire. Organizing for learning opportunities is one way of spurring employee innovation behavior. Likewise, policy makers initiating a regional development

program may also utilize findings reported here in order to engage employees in the participating program to involve in innovation.

4.2 Key findings

The key findings reported in this dissertation are:

Paper 1 It is expedient to combine the corporate entrepreneurship perspective focusing on the strategy of the organization, and the intrapreneurship perspective focusing on the traits and characteristics of the employee, when exploring employee innovation behavior. Combining these two perspectives improves the explanatory power of investigated employee behavior.

Paper 2 The organizational strategy as perceived by the employee influences the employee's propensity to engage in employee innovation behavior. Further, the individual characteristics of the employee also influence employee innovation behavior. Moreover, with the measures applied, the findings suggest that organizational strategy has a stronger impact on employee innovation behavior than do the individual characteristics of the employee. The main conclusion is that both the characteristics of the employee and the strategy of the organization should be considered when investigating employee innovation behavior.

Paper 3 The position in the organizational hierarchy influences employees' innovation behavior. The higher the rank the employee holds in the hierarchy, the more the employee is influenced by the organization's mission statements regarding corporate entrepreneurship. Likewise, the lower the rank in the hierarchy; the more the employee is influenced by the innovation behavior of colleagues in the employee's work group.

Paper 4 The employees find learning opportunities embedded in the innovation process motivating regarding innovation behavior. The employees value the opportunity of engaging in employee innovation behavior as a way of increasing their personal intellectual capital and as a way of proving their competence for the organization.

One of the implications from the findings in paper 1 is that a construct on employee innovation behavior combining intrapreneurship and corporate entrepreneurship is required in order better to understand, predict and foster innovation behavior from employees at all levels of the organization. This research then presents a new construct designed for research into innovation behavior among employees. The dissertation argues for the need for this new construct, while claiming that the existing concepts either:

- only imply utilizing the organization as the unit of analysis when studying how the organization should meet future challenges from a changing environment,
- or disregard the impact from the strategy of the employing organization when explaining innovation-related behavior among employees,
- or ignore the impact from the traits or the personal characteristics of the employee when explaining innovation behavior among employees,
- or define the employee contribution to organizational change through innovation too narrow, only allowing the employee to involve in the "fine tuning" of existing routines,
- or focus on minor improvements not intended to result in organizational change,
- or only regard grand, revolutionary over-arching organizational changes as important,
- or solely rely on initiatives from management for innovation behavior.

Employee innovation behavior is contrasted and related to the most commonly utilized concepts describing organizational change through innovation or organizational development associated with innovation behavior among employees. The refining and clarifying of concepts associated with innovation behavior among employees is necessary for a researcher wanting to make more informed choices regarding research design in research about innovation behavior among employees. Researchers aiming at disclosing nuances may encounter difficulties when concepts are vaguely or broadly defined. Concepts have to be adequately specified as the concepts are the academic "glasses" worn in order to model the world.

Utilizing the construct of employee innovation behavior in four papers provided findings that can be aggregated to provide a better understanding of the factors associated with increased levels of employee innovation behavior. Some characteristics of the organization are associated with increased levels of employee innovation behavior. When correlating the findings from paper 1, paper 2 and paper 3 regarding the impact of organizational strategy on the employee's propensity to engage in employee innovation behavior some aggregated conclusions emerge. The strategy of the organization, as perceived by the employee, has a strong influence on the employee. The employee aligns the innovation effort along the lines of the organization's strategy. Paper 1 indicates that the employee's innovation behavior is also related to the size of the organization. The bigger the organization is, the more employee innovation behavior the employee engages in.

Some characteristics of the intersection between the employee and the employer are associated with increased levels of employee innovation behavior. Paper 2 shows that the organization's desire for employee innovation behavior strongly influences the employee's propensity to engage in employee innovation behavior. Paper 3 indicates that the middle manager plays a major role in communicating the organizational strategy to the employees. One can also

deliberate as to whether the middle manager may also play a role in translating the overarching organizational strategy to operational targets for the work group. Paper 3 further indicates that the innovation culture of the work group has a strong influence on the innovation behavior of the employee belonging to this work group. Furthermore, paper 3 indicates that employees employed at lower hierarchical levels are more influenced by the culture of the work group than employees employed at higher hierarchical levels. The findings in paper 1 indicate that the level of specialization in the work function the employee holds also influences the employee's propensity to engage in innovation behavior.

Moreover, there are certain characteristics of the employee also associated with increased levels of employee innovation behavior. Paper 1 and 2 use different ways of measuring employee traits associated with increased levels of employee innovation behavior. Both a proactive personality and an intrapreneurial personality are associated with higher levels of innovation behavior. The findings in paper 1 indicate that the age of the employee also influences the employee's propensity to engage in innovation behavior. Paper 4 strongly indicates that the employee's eagerness to exploit the learning potential embedded in an innovation process is also associated with increased levels of employee innovation behavior.

Furthermore, factors inherent in the innovation itself are associated with increased levels of innovation behavior. Paper 4 indicates that some employees respond to the learning experience perceived embedded in the innovation process. The four employees interviewed in the fourth paper all pursued innovation on behalf of their employer as they valued the learning opportunity they perceived embedded in realizing and implementing innovation. The finding in paper 2 that there is a strong relationship between the organization's desire for employee innovation behavior and the actual behavior, indicates that the employees aligns their innovation behavior according to the desire of the organization and pursue innovation according to the needs of the organization.

Factors found to be positively associated with increased commitment to innovation behavior in this dissertation are summed in table 9.

Table 9 Factors found to be positively associated with increased commitment to innovation behavior.

Type	Factors associated with increased commitment to innovation behavior.
Organizational.	Organizational strategy measured as: 1) Corporate entrepreneurship strategy. 2) Differentiation strategy. 3) Cost leadership strategy. 4) The size of the organization.
The intersection between the employee and the employer.	Characteristics of the innovation context: 1) The rank the employee holds in the organizational hierarchy. 2) The organization's desire for employee innovation behavior. 3) The innovation behavior of colleagues in the work group. 4) The level of specialization in the job function the employee holds.
Individual.	Individual characteristics measured as: 1) Proactivity. 2) Intrapreneurial trait. 3) Eagerness to exploit learning potentials. 4) Age.
Innovation.	Characteristics related to the innovation: 1) The learning potential on the innovation occasion. 2) An innovation aligned with the goals of the organization.

4.3 Novel contributions

This dissertation represents a new and novel approach to organizational change. This dissertation views organizational change through innovation from the perspective of the employee and investigates what employees find motivating regarding contributing to organizational change. The papers emphasize that the employee's perception of the strategies of the organization and the employee's perception of his / her own characteristics provide the foundation for the

employee's decision whether or not to engage in innovation behavior. The employee considers whether such behavior is adequate and acceptable in the present organization and situation. This perspective offers a novel contribution, as previous research either takes employee innovation for granted when the organization calls for such initiatives, or takes employee innovation behavior for granted, when the employee possesses certain traits.

Another novel contribution is the classification scheme that this dissertation provides. The classification scheme of employee innovation-related behavior is presented in table 3. The dissertation provides a discussion of the basic assumptions and the theoretical core of concepts previously related to innovation behavior among employees. The scheme identifies and details important dimension of these concepts, allowing a researcher to apply an adequate level of concept specification. Such a multi-faceted mental toolbox for research into innovation behavior among employees has not been provided to the research community before.

The main contribution of this dissertation is that it provides insight into relatively unexplored issues and issues that are previously not well understood. The purpose of the dissertation is to provide new insight into employee innovation behavior. This is done as the findings reported in the papers represent a new contribution to our knowledge concerning employee innovation behavior. The knowledge on employee innovation behavior has been expanded by the four papers as the papers address issues such as (1) what theoretical perspective is best suited for use when explaining employee innovation behavior?; (2) what influence does the corporate entrepreneurship strategy have and what influence do the intrapreneurial traits of the employee have on the employees propensity to engage in employee innovation behavior?; (3) how does position in the organizational hierarchy influence on employee innovation behavior?; and (4) what does the employee find motivating with regard to engaging in employee innovation behavior?

4.4 Implications for research

This dissertation also makes a methodological contribution to literature concerning employee innovation-related behavior, as it addresses the basic assumptions and the theoretical core of concepts associated with innovation behavior among employees. Furthermore, this dissertation displays and refines important dimensions of these concepts. Secondly, a theoretical rationale has been developed, before it is shown empirically, that research on employee innovation behavior gains from utilizing thoroughly defined concepts. By doing so, the dissertation demonstrates the value of the offered classification scheme of employee innovation related concepts.

This dissertation contributes to the literature on employee innovation behavior in several ways. Firstly, this is done by testing opposite theoretical perspectives previously used to explain innovation behavior among employees. Paper 1 shows that the explanatory power is strongest when combining the corporate entrepreneurship perspective and the intrapreneurship perspective in a single aggregated model of employee innovation behavior; that is when applying the measures of corporate entrepreneurship and intrapreneurship as used in the study. Secondly, a contribution is made by demonstrating that education and tenure are not significantly related to employee innovation behavior. This finding contradicts the previously proposed association between education, tenure and intrapreneurship (Pinchot, 1985; Pinchot and Pellman, 1999).

Furthermore, this dissertation contributes toward our understanding of organizational change, as paper 2 clearly signals that white collar employees also contribute through employee innovation behavior. This finding provokes previously established truths that only the management cadre is capable of innovation. Secondly, the second paper supports the finding reported in paper one, that education and tenure are not significantly related to employee innovation behavior. Thirdly, the finding that suggests that the influence from organizational strategy toward corporate entrepreneurship is relatively stronger

than the influence from the trait of the employee also provides a contribution. Fourthly, the finding that proactivity is significantly positively associated with employee innovation behavior supports the suggestion of Crant (1996) that intrapreneurship and proactivity are linked.

This dissertation extends our knowledge about how significant others and change agents influence employee innovation behavior. This is done in the third paper that this dissertation is based on. Firstly, the paper contributes by showing that both management and colleagues in the work group are considered as significant other persons influencing the employees' innovation behavior. Secondly, the finding that highly ranking employees in the organizational hierarchy are more influenced than lower ranking employees by the mission statement of management is a contribution to the literature regarding organizational strategies. Thirdly, combining this finding with the hypothesed and confirmed finding that low-ranking employees, more than high-ranking employees are influenced by the behavior of the colleagues in the work group is an important contribution to our understanding of how mission statements ripple down the organization. Fourthly, the third paper confirms the finding in the second paper that also lower ranking employees contribute through employee innovation behavior. This is an important contribution to the literature on employee innovation behavior. This as the third paper reports from a variety of health care workers in contrast to the two previous studies that investigated highly educated business graduates, and the papers still reaches the same conclusion.

What is more, this dissertation contributes to the literature on knowledge management as it shows empirically what employees find motivating with regard to engaging in employee innovation behavior. This is done in paper 4. Paper 4 links the goal of the organization with the organization's strategy towards corporate entrepreneurship and confirms that the innovative capability of the organization depends on the organization's stock of intellectual capital.

Secondly, the paper contributes by providing a concept of personal intellectual capital. Such a construct enables the linking of employee innovation behavior and reward. The paper demonstrates what employees find motivating with regard to engaging in employee innovation behavior. Thirdly, the potential learning embedded in the innovation occasion is valued by the employee and works as a motivator for the employee towards contributing to employee innovation behavior. Fourthly, this paper provides evidence that the organization benefits when employees increase their personal intellectual capital. This increase in the individual employee's personal intellectual capital also increases the organization's stock of intellectual capital, and through this increases the organization's ability to engage in further organizational change. Fifthly, this paper also provides evidence that employees carry out employee innovation behavior resulting in implemented innovations intended to benefit the organization.

The findings from paper 4 can be looked at together with the findings in paper 1, 2 and 3 as in figure 3. Figure 3 links organizational goals via the strategy of the organization to the request for intellectual capital as the employee perceives it. Learning increases the employee's knowledge, i.e. the employee's personal intellectual capital. Personal intellectual capital is, then, the knowledge the employee possesses and that which is valued by the organization. The employee regards this increase in personal intellectual capital as a reward, which motivates and spurs further innovation behavior. The work group's social acceptance of innovation behavior influences the employee's innovation behavior. A proactive or an intrapreneurial personality also makes an important contribution with regard to employee innovation behavior. The intended outcome of employee innovation behavior is innovation.

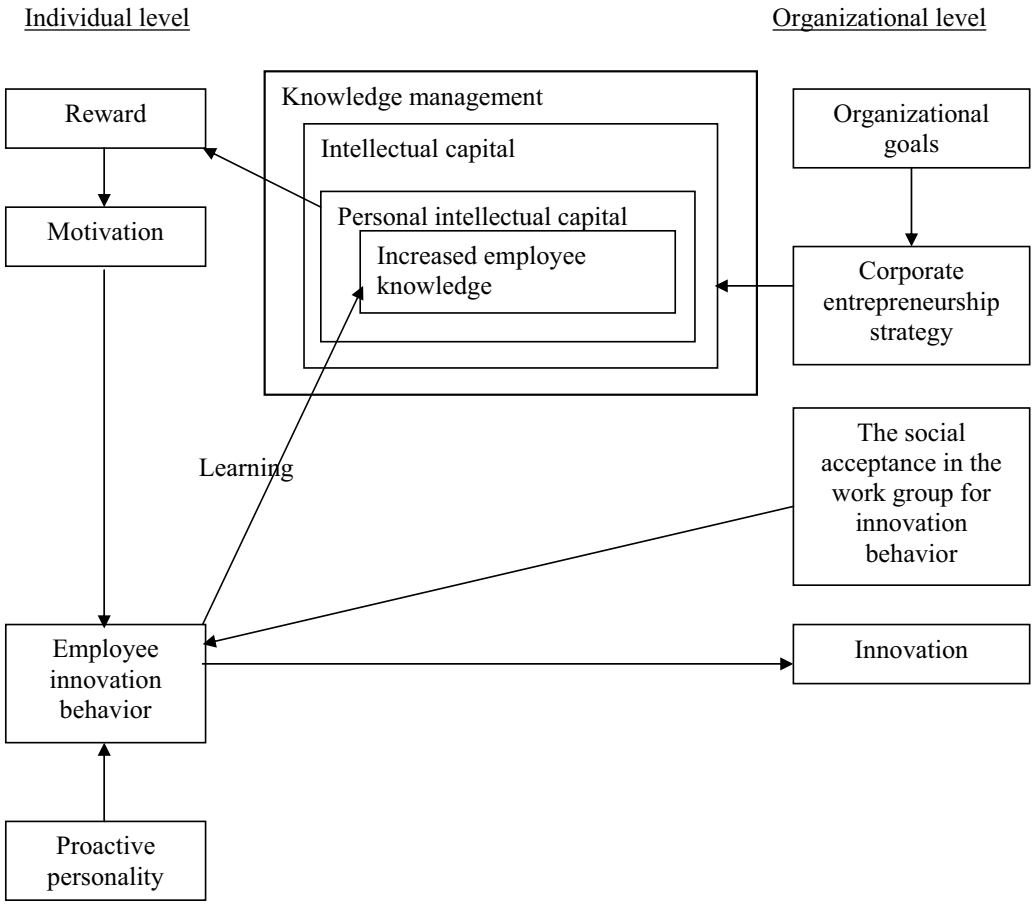


Figure 3 The concluding model of employee innovation behavior.

It is possible to relate the concluding model of employee innovation behavior, as portrayed in figure 3, to figure 2 which presents the core in studies of employee innovation behavior. The independent variables indicated by the findings presented in the four papers, are the employee's perception of aspects of the organization, the relationship between employee and employer, the individual him- / herself, and the innovation in question. The findings from the four papers are aggregated and displayed in figure 4. Figure 4 shows that characteristics of the organization, of the relationship between the employee and

the employer, the employee him- / herself, and of the innovation, as perceived by the employee, all positively influence the employee's decision regarding involvement in innovation behavior.

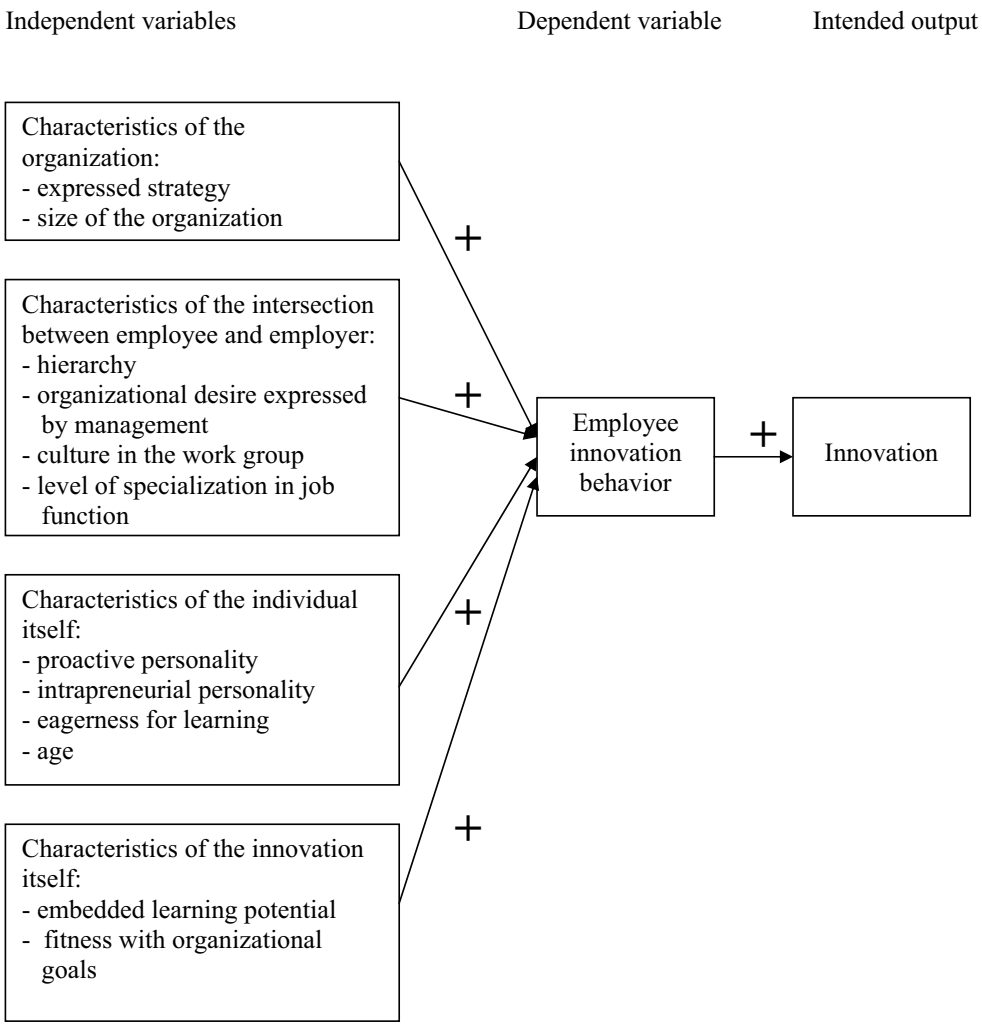


Figure 4 A conceptual model of employee innovation behavior.

The dissertation shows the research community how the employee innovation behavior measure is refined and how it relates to familiar concepts.

Secondly, this dissertation provides two levels of accuracy regarding the measure of employee innovation behavior. An aggregated measure is provided in paper 3, and tested in a health care setting on employees with a wide variety of educational and tenure background. Paper 2 provides the research community with a measure that could easily be extended to measure different aspects of employee innovation behavior with regard to new products, new markets or new cost reduction routines. The dissertation also makes several contributions in its attempts to conceptualize and measure concepts such as colleagues' employee innovation behavior, management encouragement towards employee innovation behavior, an organization's desire for employee innovation behavior, corporate entrepreneurship strategy, intrapreneurship and work experience. Further contributions are made by applying measures of concepts like differentiation strategy, cost leadership strategy and proactivity in a Norwegian context.

Moreover, this dissertation contributes to our understanding of how factors embedded in the innovation itself are associated with increased levels of employee innovation behavior. The finding that the individual employee values the learning opportunity embedded in the innovation is a contribution to motivation theory. This finding provides links between motivational theory and theory concerning innovation and organizational change.

The findings reported in the dissertation demonstrate that the result from both an intrapreneurial initiative and a response towards a corporate entrepreneurial request may be regarded as an employee contribution towards organizational change through innovation. The dissertation provides some indications as to why some innovation contributions must be asked for, and some occur anyway. The dissertation indicates that the strategy of the organization, the innovation itself, the position the employee holds in the organizational hierarchy, the innovation culture of the work group, and the personal traits of the employee influence such contributions.

4.5 Implications for practice

One of the interesting results of this study is the finding that employees are loyal to their employer. To a great extent, they contribute to innovation when they are asked to do so. The implications based on the findings reported in this dissertation are two-fold for managers and practitioners. Firstly, the dissertation shows that the expressed strategy for innovations has importance for the level of employee innovation behavior in an organization. An expressed strategy works as a motivator by telling the employee the kind of innovation knowledge valued by the organization and by telling the employees where the organization is heading. The advice to management desiring innovation behavior would then be to express the strategy of the organization clearer and to all levels of the organization. The employees value the learning opportunity embedded in the innovation process. It then helps to organize for learning experience in the way work is done. Secondly, reward and employee innovation behavior are related. Employees want to be rewarded for initiating innovation on behalf of their organization. An increase in the employee's personal intellectual capital is valued, perhaps because it can be transformed into an increase in pay and into more interesting tasks.

Concerning employee innovation behavior, it seems as though the employee mostly does what he is told to do. There is some diversification from this rule; some do more than their share and others do less. This dissertation shows that this diversification may in part be due to a proactive or an intrapreneurial personality of the employee. In order to achieve innovation behavior among employees, organizations are well advised to implement a strategy of corporate entrepreneurship, to recruit employees with proactive or intrapreneurial personalities or train their current employees in innovation and entrepreneurship. Management seeking employees with a high propensity to provide innovation behavior may find it useful to investigate the employee's track record for innovation behavior.

As the employees in the sample addressed in the second paper seem to react more on the stimuli from the organization's desire for employee innovation behavior, than on their personal traits, management can improve the innovation behavior of their present employees. The findings suggest that the relative importance of strategy for corporate entrepreneurship measured as the organization's desire for employee innovation behavior is stronger than the importance of intrapreneurship measured as the personal traits of the employee on innovation behavior reported by white-collar workers. This indicates that the management can gain by giving a clearer message to the employee as to what behavior to offer and how to offer it. This also put a stress on the management's responsibility to provide the employees with a clear message about what they want the organization to accomplish and how to reach the goals of the organization. On the pull-side of employee innovation behavior, management can organize for learning opportunities in the way work is arranged.

If a manager believes that his / her organization needs innovation at all levels of operation, the manager should address all hierarchical levels within the organization. When investigating the intrapreneurial motivation and actions of the employees in the case study reported in paper 3, it seems as though the less empowered employees were heavily influenced by their peer workers regarding what actions to take. The advice to management extracted from the results of this dissertation can then be stated as: If requiring innovation behavior from low-ranked employees; find the opinion-leader among colleagues in the work group and let this person convince the rest to contribute with innovation behavior. Both the way management asks for innovation behavior, and whom management asks for innovation behavior can be changed. A better organized invitation to the employees to provide innovation behavior may be welcomed by the employees.

Policy-makers initiating a regional development program will also gain by taking account of the findings reported in this dissertation. Employees want to

engage themselves in situations in which there is a potential for learning. This is because learning increases their value as employees. A regional development program should then include and focus upon learning possibilities for the employees in the organizations concerned.

4.6 Limitations

No construction can be claimed to be totally true, those who argue for a construction have to rely on persuasion and proven usefulness in their line of reasoning. This goes for these results too. The results in the papers and the dissertation are just another human construction. The reader cannot be forced to accept the analysis or the argument on the basis of intangible evidence. The results must hold water and prove useful.

Attitudes, opinions, and decisions are dynamic in nature, not static. Some of the studies reported in this dissertation have a weakness because they are not longitudinal. The judgment of respondents and changing preferences are not shown in the quantitative papers. As a result of this, a research design like this will not necessary catch the complexity and the different stages involved in the decision process of employee innovation behavior. Even if one of the papers has followed the respondent through most of the process, this dissertation does not fully pinpoint how the opinion of the respondent changes and matures over time. Results from non-standardized research design are not necessary meant to be replicable; as they reflect the reality at the point of time and location they were gathered. The situation and the respondent's opinion may have changed after the data was gathered.

Furthermore, the findings reported and the conclusions reached in these four studies build upon a specific set of respondents. Even though the respondents have different educational and professional backgrounds, they are all Norwegians. This paper argues that Norwegian culture may influence the way the organizations ask for employee innovation related behavior, and that

Norwegian culture may influence how employees perceive the wish from the organization regarding employee innovation-related behavior. This implies that the findings may not be fully applicable in other cultures.

4.7 Future research

As it is argued that this study suffers from the limitation of just utilizing Norwegian employees, the dissertation asks for future research in other cultural settings to test the feasibility of generalizing these findings. A truly longitudinal research study regarding employee innovation behavior, designed to reveal the dynamics in the decision process whether or not to engage in employee innovation behavior may prove useful in further increasing our understanding of this behavior. Such a research study would also have to include situations in which the respondent declined to engage in employee innovation behavior. Such events are difficult to spot, as there is no point in time at which a spectator is able to localize such an event without the employee disclosing it voluntarily and openly. The entire process of evaluating whether providing employee innovation behavior is favorable occurs inside the head of the employee.

It is possible to extend the model tested in paper 2, in an effort to explain more of the variance in innovation behavior amongst white collar workers. A model of the work environment in this setting could possible contain variables such as the strategy the organization has adopted towards corporate entrepreneurship. Utilizing other statistical tools than AMOS may in addition enable the inclusion of dichotomous variables and categorical variables. This would let the researcher test the influence from factors such as gender, work group size, the function the respondents have in the organization, the tasks the employee is mainly required to solve, the industry the organization operates in, and what kind of environment the organization has to challenge with regard to employee innovation behavior. A model of the characteristics of the individual

would then contain the elements that the individual could take with him or her to a new organization.

An important call for future research is that the way of measuring employee innovation behavior needs further refinement. The measure of employee innovation behavior utilized in paper 2 indicated that employee innovation behavior can consist of several aspects. If employee innovation behavior consists of three factors or principal components, (1) new product, (2) new markets and (3) new cost reducing routines, this may have theoretical and practical implications. As indicated by paper 2, a competitive strategy of cost leadership may lead the organization to ask for cost reduction initiatives, and thus cause the employees to provide purely cost reduction innovation behavior. To capture such effects, the measures used must reflect this possibility. A further specification of the measure of employee innovation behavior as used in paper 2 offers this possibility; whereas the measured used in the hierarchy study reported in paper 3 does not. The hierarchy study reported in paper 3 takes advantage of a measure of employee innovation behavior that is not as specified as the measure used in paper 1 and 2. It could be interesting to compare the more general measure with the more specified measures in the same survey and see if they are interchangeable, thus indicating that employee innovation behavior is a single construct. If employee innovation behavior is a single construct, employees do not differ between providing innovations related to new products, new markets or new cost reducing routines.

The findings reported in this dissertation need to be verified by other studies using other samples and other measures. As proposed, the used measure of employee innovation behavior could benefit from further refinement. Other measures of the organization's wish for employee innovation behavior and other measures of the characteristics of the employee could test the finding that the strategy of the organization has a stronger impact on the innovation behavior of the employee than does the characteristics of the employee. Likewise, there may

be other measures of training or education that may be related to increased employee innovation behavior.

4.8 Some unresolved questions regarding employee innovation related behavior

There are some definitional problems remaining. One is, whether the "right" motivational factors have been revealed and how these factors make the employee contribute with new business ideas. When these factors are found, and the organization provides and takes advantage of these motivational factors, is then intrapreneurship equal to corporate entrepreneurship? This dissertation argues that the answer to this question may be: According to Pinchot and Pellman (1999), the best management can do to promote intrapreneurial initiatives, is to provide a focusing vision that guides the intrapreneurial energy of the organization and liberates the intrapreneurs to achieve that vision. One does not know, and one cannot plan where and when a random act occurs. This is different from corporate entrepreneurship, as it predicts that there will be a flow of ideas from the employees to the management level given the right strategy mix.

Another definitional problem might be - is the label "intrapreneur" stamped on a person, or a combination of a person and a situation? Personal traits are stable, but employed in different organizations; the individual's own perception of the impediments given by their organization might even vary for people with the same traits. If one does not discover some intrapreneurial acts in an organization, does this means that there is a lack of intrapreneurs or a lack of a combination of people with intrapreneurial predispositions and organizational conditions, allowing space for intrapreneurial initiatives?

Although the studies reported in paper 1 through 4 provide a useful first step towards understanding the construct of innovation behavior, it is important to recognize that it assessed only a few of the many variables involving

employee innovation behavior. Future research should focus on identifying a broader set of predictors, especially those that are counterintuitive or novel.

Only future research will reveal if the "employee innovation behavior" construct is fruitful enough to be acknowledged and established as a new theoretical perspective competing with intrapreneurship and corporate entrepreneurship in explaining and predicting innovation behavior among employees. If so, this dissertation suggests that both management and employees could be regarded as process initiator in research utilizing such a theoretical perspective of employee innovation behavior. Likewise, the employee should then be regarded as the process owner, and management as the process evaluator. The main contributor is then the employee. As a starting point, intrinsic rewards, money and promotion could all be regarded as potential motivators for the contributing employee. The unit of analysis should then be the individual and future research could address organizational and personal impediments and motivators regarding engagement in innovation behavior.

These initial studies reported here also leave unanswered some important questions about the employee innovation construct. One such question relates to the organizational implications of this activity. These studies argue that employee innovation behavior is intended to benefit the organization. Yet this argument is somewhat simplistic. In most cases, it is impossible to predict or even audit with certainty whether the outcome of an action is beneficial or not. Thus an action intended to bring about beneficial organizational change by innovation may in some cases have a dysfunctional effect. Furthermore, as organizations are characterized as consisting of multiple stakeholders with multiple goals, an outcome regarded as beneficial from the perspective of one stakeholder or goal may be viewed as negative from the perspective of another.

5 The papers

This chapter presents the four papers that this dissertation is founded on. The front page of each paper informs about the publishing status of the paper.

5.1 Paper 1 - Organizational strategy, individual personality and innovation behavior

Journal of Enterprising Culture, 2005, Vol. 13, No. 1, pp. 7-20.

5.2 Paper 2 - The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behaviour.

International Journal of Innovation and Learning, Accepted.

5.3 Paper 3 - Employee innovation behaviour in health care: The influence from management and colleagues.

International Nursing Review, Accepted.

5.4 Paper 4 – What motivates knowledge workers to involve themselves in employee innovation behaviour?

International Journal of Knowledge Management Studies, Accepted.

Journal of Enterprising Culture
Vol. 13, No. 1 (March 2005) 7-20

ORGANIZATIONAL STRATEGY, INDIVIDUAL PERSONALITY AND INNOVATION BEHAVIOR

BJØRN WILLY ÅMO
Research fellow
Bodø Graduate School of Business
Norway

and

LARS KOLVEREID
Professor
Bodø Graduate School of Business
Norway

Two competing models of innovation behavior in organizations are tested. The first model is derived from the corporate entrepreneurship literature, suggesting that the extent to which the organization has a deliberate entrepreneurship strategy determine employees' involvement in innovation and change (Kanter, 1984). The competing model is derived from the intrapreneurship literature, primarily Pinchot (1985) and Pinchot and Pellman (1999), where the emphasis is on the employee's individual personality measured by items derived from Pinchot's (1985) test: "Are you an intrapreneur?" Both models are compared to a base model that contains relevant control variables. Finally, a fourth model, which combines all variables are compared to the other three. The models are tested using a sample of 634 business graduates employed in a diverse set of occupations and organizations. The results indicate that both the strategy and personality models outperform the base model. Moreover, the model that combines the personality of the individual and the strategy of the organization performs even better than the each of the two models separately.

INTRODUCTION

Allowing employees to introduce and implement innovation in the organization may be a way of fostering growth in large as well as in small businesses (Bosjtan and Hisrich, 2001). Many authors have suggested corpo-

rate entrepreneurship and intrapreneurship as methods of stimulating innovation and utilizing the creative energy of employees (Chisholm, 1987; McGinnis and Verney, 1987; Kuratko *et al*, 1990; Carrier, 1996). However, as Stevenson and Jarillo (1990) and Hornsby *et al*, (2002) argue, there is still much to be learned about the substance and process of corporate entrepreneurship and intrapreneurship. There is a paucity of empirical studies on the topics. Moreover, most previous research has used the firm as the unit of analysis and has not been able to explain variations in innovation behavior among individuals in organizations. Under the present circumstances the individual is the unit of analysis, and the dependent variable is innovation behavior.

Innovation behavior can be conceived as an initiative from employees concerning the introduction of new processes, new products, new markets or combinations of such into the organization. The initiative can be inspired from a market demand or from a technical puzzle. Moreover, the behavior may be a response to a management request for corporate entrepreneurship or may a complete autonomous intrapreneurial initiative. Further, the behavior may or may not be appreciated by top management, and may even be unknown to the leaders of the organization. The subsequent change process may be incremental, or have direct profound effect on the organization. The end result can be a spin off, a new product, a new market or a complete failure. Under the present circumstances, all employee initiatives concerning the development of new processes, new products, new market or combinations of such, count as innovation behavior.

THEORETICAL FRAMEWORK

The term intrapreneur is short for intra corporate entrepreneur (Pinchot and Pellman, 1999). According to Jennings *et al*, (1994), the term intrapreneur appeared for the first time in an article by Macrae (1976) in *The Economist* about the "coming entrepreneurial revolution". The term was later developed and popularized by Pinchot (1985). Kanter (1984) uses the term "corporate entrepreneur" for the corporate equivalent for an entrepreneur. The desired result of corporate entrepreneurship as well as intrapreneurship is innovation behavior among employees.

Corporate entrepreneurship and intrapreneurship represent incremental processes of renewal in organizations through innovation initiatives from employees (Floyd and Wooldrigde, 1999; Pinchot and Pellman, 1999). Even if the terms corporate entrepreneurship and intrapreneurship

are related, they represent slightly different phenomena of organizational renewal (Greene *et al*, 1999). However, there is a striking lack of consistency in the manner in which these activities have been defined (Sharma and Chrisman, 1999; Stopford and Baden-Fuller, 1994; Russell, 1999).

Corporate Entrepreneurship

Corporate entrepreneurship concerns how companies stimulate innovation, enterprise, and initiative from people in the company, and the subsequent contribution of individual behavior to organizational success (Kanter, 1984). Corporate entrepreneurship can be defined as the transformation of organizations through strategic renewal (Dess *et al*, 1999) and can be regarded as a strategy for the development and implementation of new ideas (Hornsby *et al*, 2002). Business leaders are supposed to articulate deliberately and consciously the direction they want their business to head (Kanter, 1984), and management should impose a strategy on the organization where employees and middle managers respond by creating a flow of innovative ideas for the best of the firm (Block and MacMillian, 1993). One of the interesting themes in corporate entrepreneurship research is how the strategy should be designed in order to fit the organization's present needs and future visions.

As corporate entrepreneurship is initiated and evaluated from the top, management is assumed to name and give content to the initiative - and assign members, responsibilities and resources to the venture group. A new venture manager is appointed by top management to lead the initiative (Block and MacMillan, 1993). A solid knowledge base in management is an appreciated personal characteristic of the new venture manager. In most cases corporate entrepreneurship is a group process, but there are some part of the process that will benefit from an individual leading and giving direction to the entrepreneurial process (Morris *et al*, 1994). Green *et al*, (1999), use a resource-based approach when they describe the corporate entrepreneurship champion. They suggest that the corporate entrepreneur uses his or hers individual human and social resources to discover new business opportunities and to leverage support for the corporate entrepreneurial initiative.

According to Kanter (1984), the environment, rather than the individual determine the employees' involvement in innovation and change. She claims, that an environment that stimulate people to act, is an environment that give people power to act. Innovating companies provide the freedom to act, which arouses the desire to act. Corporate entrepreneurs can find

opportunities for innovation in nearly any setting, but opportunities are most abundant in particular domains depending on the company and the industry. The highest proportion of corporate entrepreneurship accomplishments are found in companies and work groups with low degree of segmentation (or functional specialization) and in companies that have integrative structures. According to Kanter (1984) employees' perception of the extent to which the organization encourages innovation determines the inputs from potential corporate entrepreneurs. The corporate entrepreneurship literature leads us to the first hypothesis to be tested in the present study:

Hypothesis 1. Controlling for relevant factors, a strategic orientation toward corporate entrepreneurship is significantly positively related to innovation behavior in organizations.

Intrapreneurship

The intrapreneurship literature focuses more on independent initiatives from employees than the corporate entrepreneurship literature does. According to Pinchot and Pellman (1999), intrapreneurs appoint themselves to their role and seek the corporation's blessing for their accomplishments afterwards. Intrapreneurship is about the implementation of innovations in organizations, where employees initiate the process in a bottom-up way (Block and MacMillan, 1993). Top management may not even appreciate the initiative in the first place (Carrier, 1996). Kuratko *et al*, (1990), define intrapreneurship as autonomous strategic behavior by employees to exploit a given business opportunity. In the intrapreneurship literature the adoption of an innovation is initially wanted from inside the adoption unit, and the interesting research theme is how intrapreneurs overcome resistance from surroundings (Pinchot and Pellman, 1999).

According to Pinchot and Pellman (1999), intrapreneurs acquire resources from wherever they can, and the sponsors should be allocating resources to the intrapreneurial team according to the team's eagerness and according to the sponsor's faith in the team. They further argue that the shared vision of the intrapreneurial team should guide their activities, and that the leader of the team should be chosen by and among the team members. They also state that the initial intrapreneur will select members to the venture team according to their complementing knowledge base and devotion to the vision. According to the intrapreneurship literature, innovation behavior in organizations is primarily a result of initiatives from people with an intrapreneurial personality. Pinchot (1985:31) offers an "Are You

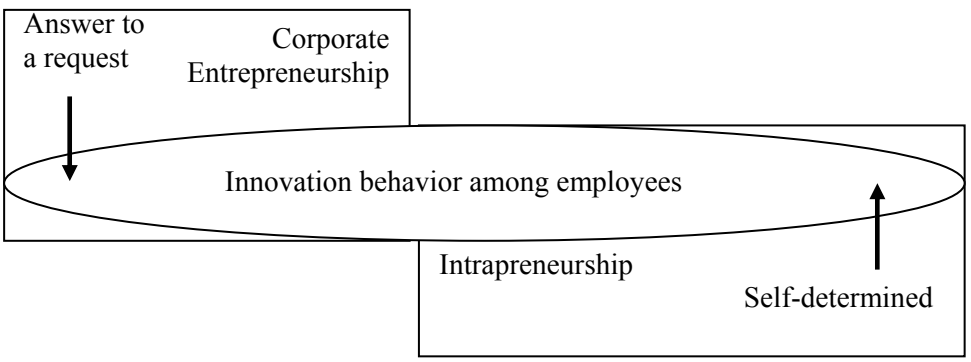
an Intrapreneur" test consisting of 12 questions to find out whether a person is an intrapreneur or not. According to Pinchot (1985) intrapreneurs are self-appointed to their tasks. They are self-determined goal setters who often take the initiative to do things no one have asked them to do. Intrapreneurs also tend to be confident with their skills and to be action oriented. The second hypothesis to be tested in the present study is derived from the intrapreneurship literature:

Hypothesis 2: Controlling for relevant factors, intrapreneurial personality (as measured by Pinchot (1985) test: "Are you an intrapreneur?"), is significantly positively related to innovation behavior in organizations.

Corporate Entrepreneurship and Intrapreneurship Combined

Both the corporate entrepreneurship literature and the intrapreneurship literature is concerned about innovative behavior among employees (Kanter, 1984; Pinchot, 1985; Kuratko et al., 1990; Pinchot and Pellman, 1999). Corporate entrepreneurship and intrapreneurship both represents processes of renewal of the organization through innovation initiatives from employees (Floyd and Wooldridge, 1999; Pinchot and Pellman, 1999). It can be argued that the desired results of a corporate entrepreneurship strategy are intrapreneurial initiatives from employees. The corporate entrepreneurship literature embraces innovative initiatives from employees when the initiatives are responses to requests, and when the answers coincide with the strategy of the organization. Similarly, from an intrapreneurship perspective, the same initiative can be conceived as something rooted in the individual itself. The difference and the connection between corporate entrepreneurship intrapreneurship and is illustrated in figure 1 below.

Figure 1. An Illustration of Corporate Entrepreneurship and Intrapreneurship.



The third hypothesis to be tested in the present study emerges when arguments from the corporate entrepreneurship literature and arguments from the intrapreneurship literature are combined. According to the corporate entrepreneurship literature, having employees with intrapreneurial personalities is pointless or even counterproductive unless a deliberate corporate entrepreneurship strategy is in place (Champbell, 2000). Similarly, according to the intrapreneurship literature, a corporate entrepreneurship strategy is rather pointless in organizations that do not have employees with intrapreneurial personalities. Hence, there is reason to expect that a model that incorporates both approaches will perform better than any model based on only one of them.

Hypothesis 3: A model that combines corporate entrepreneurship strategy and individual intrapreneurial personality explains a significant higher proportion of the variance in innovation behavior than any of the two models separately.

METHOD

Sample

A questionnaire was mailed to the entire alumni of 1431 graduates holding a Masters degree in business from a college in Norway. A total of 772 respondents submitted completed questionnaires. Some respondents were excluded from the analysis since they could influence the results in an unforeseeable manner: (1) Individuals who had not completed their business degree, (2) respondents who were not full-time employed, (3) graduates who were employed abroad, (4) were self-employed, or (5) employed in a family firm (i.e. an organization owned by the respondent's parents or family). This procedure reduced the sample to 672 respondents. Respondents who failed to submit complete data sets were also excluded, reducing the sample to 634 individuals. Response bias tests did not reveal any significant differences between the 772 respondents and the 659 non-respondents. Moreover, statistical differences were not found between the 772 respondents and the final sample of 634 with regard to the independent and control variables. Hence, no severe response or sample selection bias was detected.

The final sample consisted of 424 men and 210 women. Among respondents, 41 were top managers, 332 middle managers and 261 white-

collar workers employed as executive officers, secretaries, etc. Of the 634 respondents, 189 where employed in a small or medium sized organization (employing less than 100 people), 236 worked in staff (as opposed to line), 137 had competed further education in addition to their Masters degree in business, and 88 had some kind of technical education or experience.

Dependent and Independent Variables

Innovation behavior was measured using the following five items along a 5-point numeric scale (from 1 = very little extent, to 5 = very large extent): (1): To which extent do you contribute to new product development in the organization where you are employed? (2): To which extent do you contribute to the development of new product-market combinations in the organization where you are employed? (3): To which extent do you contribute to development projects in the organization where you are employed? (4): To which extent do you contribute to the development of new venture ideas in the organization where you are employed? (5): To which extent do you contribute to the development of new markets for the organization where you are employed? The five items were averaged in order to obtain an index of intrapreneurial behavior (Cronbach's alpha=.91).

Intrapreneurial personality was measured by an instrument derived from Pinchot's (1985, p.31) test: "Are You an Intrapreneur?" The measure consisted of twelve questions. For each question, respondents were asked to indicate the extent to which the statement accurately described their personality (from 1=very little extent to 5=very large extent). A measure of intrapreneurial personality was calculated by averaging the 12 items (Cronbach's alpha =. 62). The reliability score indicates that the measure holds for an explorative study (Hair *et al*, 1998).

Strategic orientation toward corporate entrepreneurship was measured by five items, which concerned the organization's emphasis on innovative initiatives from employees. This measure mirrored the five items used to measure innovation behavior, only with a different wording. For example, the first item was: To which extent does your employer encourage employees to contribute to the development of new products? Responses were given along a 5-point numeric scale (from 1=very little extent, to 5=very large extent). The five items were averaged in order to arrive at an index of organizational emphasis on corporate entrepreneurship (Cronbach's alpha=.90).

Control Variables

The control variables fall into two different categories. The first category of control variables consists of demographic characteristics of the respondent, including indicators of human capital, such as experience and education. The second category of control variables included measures of job characteristics and organizational size.

Three different demographic dummy variables were included as controls: (1) gender (1=male, 0=female), (2) education after graduation (1=yes, 0=no), and (3) technical education or experience (1=yes, 0=no). Kanter (1984) claims that under certain circumstances will women behave more innovatively than men. Pinchot (1985) states that the level of education can have an influence on intrapreneurship. Pinchot (1985) also argues that work experience from technical oriented work will improve the likelihood of intrapreneurial behavior. Moreover, Pinchot (1985) claims that job rotation will improve the intrapreneurial behavior of the employees. Lee and Wong (2004) argue that organizational tenure is positively related to innovation behavior. Two measures capturing different aspects of work experience and training were therefore included: (1) How many times the respondent have changed employer, (2) and how many years the respondent have been employed in the current organization.

Organizational size was included as control because size may influence innovation behavior in organizations. Kanter (1984) argues that large organizations offer more opportunities for learning experiences, learning experiences that could be implemented in another functional or technical arena. Organizations size was measured in number of employees (1=1-49, 2= 50-99, 3=100-499, 4=500-999, 5=1000-4999, and 6=5000+). Intrapreneurial behavior may be more common among people who hold jobs in certain functional areas, and be more common among senior rather than junior managers (Pinchot, 1985). Kanter (1984) claims that corporate entrepreneurship is more likely to happen in less segmented functional areas. This was measured by creating a dichotomous variable indication less specialized functional areas (administration, management, advertising, external consulting, information technology = 1). The following job related control variables were included as dummy variables: Working in line (yes=1), working as senior manager (1=yes, 0 indicates that the respondent is either a middle manager or a white-collar worker), or middle manager (yes=1, 0= indicates that the respondent is either a senior manager or a white-collar worker).

FINDINGS

Table 1 shows the means, the standard deviations and the correlations among the analysis variables. The correlations between the explanatory variables (corporate entrepreneurship strategy and intrapreneurial personality) and innovation behavior are strong and in the expected direction, giving preliminary support for hypotheses 1 and 2. Table 1 also displays the VIF values that indicate that multicolinearity does not appear to be an issue. The maximum VIF value is 1.73, way under recommended maximum values (Hair *et al*, 1998).

The hypotheses were tested using hierarchical regression. First, a regression with only control variables was run including only measures describing the individual, the job and the organization. The regression shows that the most relevant control variables are those that describe the employee's relationship with the organization rather than individual demographic characteristics. Among these, the most important variables are those that describe the position the respondent holds in the organization. Respondents who reported to work in less segmented multitask functions were more likely to be involved in innovation behavior than those employed in more segmented functions. Being a senior or middle manager is also positively related to innovation behavior. Smaller organizations appear to foster more innovation behavior than larger organizations. The results also indicate that business graduates who have completed additional education are more likely to behave innovatively than other respondents.

The second regression included the measure of corporate entrepreneurship strategy in addition to the control variables. The results are shown in Table 2, 2nd column. To test the first hypothesis, the variance explained by this model was compared to the explanatory power of the base model, containing the control variables only. The R square improved from 0.23 to 0.44, and the F value increased from 17.81 to 41.26. This increase is highly significant and provides strong support for Hypothesis 1. A model including corporate entrepreneurship applying measures inspired by Kanter (1984), explains a significant higher proportion of the variance in innovation behavior in organizations than a base model consisting of control variables only.

Table 2. Four Models of Innovation behavior among Employees (n=634).

	Model 1 (Base model)	**Model 3 (Kanter, 1984)**	**Model 2 (Pinchot, 1985)**	**Model 4 (Pinchot and Kanter combined)**
Control variables				
Related to the employee				
Age	0.08	0.11**	0.08*	0.11**
Gender	0.06	0.07*	0.02	0.04
Additional education (yes=1)	0.11**	0.05	0.07*	0.03
Technical education/work experience (yes=1)	0.05	0.04	0.00	0.01
# times changed employer	-0.07	-0.07*	-0.07	-0.07
# of years with present employer	-0.05	0.00	-0.04	0.01
Related to the organization				
Size of organization	-0.10**	-0.08**	-0.10**	0.08**
Multitask function (yes=1)	0.27**	0.15**	0.21**	0.12**
Line (yes=1)	-0.08*	-0.07*	-0.08*	-0.07*
Manger (yes=1)	0.20**	0.15**	0.14**	0.11**
Middle manager (yes=1)	0.21**	0.16**	0.14**	0.12**
Individual personality				
"Are you an intrapreneur" test			0.36**	0.25**
Organizational Strategy				
Corporate entrepreneurship strategy		0.48**		0.42**
F	17.81**	41.26**	27.23**	45.57**
R	0.49	0.67	0.59	0.71
Adjusted R^2	0.23	0.44	0.34	0.49
Adjusted R^2 Change in relation to model 1		0.21	0.11	0.26
Adjusted R^2 Change in relation to model 2				0.13
Adjusted R^2 Change in relation to model 3				0.05
F Change in relation to model 1		225.08**	106.75**	154.90**
F Change in relation to model 2				172.66**
F Change in relation to model 3				61.96**

Note: The coefficients reported are standardized betas. Level of statistical significance: *indicates p≤.05; ** indicates p≤.01.

To test the second hypothesis, the model of control variables was compared with a model including the measure of intrapreneurial personality derived from Pinchot's (1985) test: "Are you an intrapreneur?" The

results are shown in Table 2, 3rd column. Supporting hypothesis 2, the model that includes the results from Pinchot' (1985) intrapreneurial personality test performed better than the model consisting of control variables only. The adjusted R square of the regression increased from 0.23 to 0.34 and the F value increased from 17.81 to 27.23. A model including intrapreneurship as measured by measures derived from Pinchot (1985) and Pinchot and Pellman (1999), explains a significant higher proportion of the variance in innovation behavior than a model containing control variables only.

The third hypothesis was tested in a similar manner. The inclusion of the corporate entrepreneurship strategy measure as well as the measure of intrapreneurial personality improved the R square and the F values significantly. The adjusted R square of this model was 0.49 and the F value was 45.57. Compared to the base model the F change was highly significant ($p \leq .01$). More importantly, the combined model explained a significant higher proportion of the variance in innovation behavior ($p \leq .01$) than the corporate entrepreneurship strategy model and the intrapreneurship model. These findings strongly support hypothesis 3.

CONCLUSIONS

All the three hypotheses suggested are supported. First, controlling for relevant factors, strategic orientation toward corporate entrepreneurship, is significantly positively related to innovation behavior in organizations. Second, controlling for relevant factors, intrapreneurial personality is significantly positively associated with innovation behavior in organizations. Finally, a model that combines strategic orientation toward corporate entrepreneurship and intrapreneurial personality explains a significant higher proportion of the variance in innovative behavior than any of the other models. Hence, in order to achieve innovation behavior among employees, organizations are well advised to put a corporate entrepreneurship strategy in place, to recruit individuals with intrapreneurial personalities or train their current employees in innovation and entrepreneurship.

While the corporate entrepreneurship model is found to explain a higher proportion of the variance of innovation behavior than the personality model, this does not necessarily mean that putting a corporate entrepreneurship strategy in place is more important than attracting and retaining personnel with intrapreneurial personalities. First, the corporate entrepreneurship measure applied corresponds much stronger to the dependent

variable than the intrapreneurial personality measure does. In fact, the measurement correspondence between the strategy and behavior measures is so high that common method variance may be a problem in the present survey. Moreover, there is certainly room for improvement of the measure of intrapreneurial personality used under the present circumstances. A principal components analysis revealed that the items included in Pinchots' (1985) intrapreneurship test loaded on four different components. Hence, intrapreneurial personality may be a multidimensional construct, consisting of factors such as creativity, proactivity, and need for achievement. Future research is clearly needed to improve the intrapreneurial personality measure.

In addition to the measurement problems described above, the present survey has other limitations. When using a cross-cultural design, causality can never be proven. The generalizability of the findings is uncertain since the present survey was carried out in Norway using a relatively homogenous sample of business graduates. It remains to be seen if the findings hold in other cultural settings and among people with different educational backgrounds.

While this survey has certain limitations, it also has strengths. The use of data obtained from an alumni, ensures respondents from a large variety of occupations and organizations. This approach also makes it possible to use the individual rather than the organization as the unit of analysis. During the literature search that was carried out in connection to the present survey, only one previous survey of intrapreneurial behavior using the individual as the unit of analysis was identified. The survey in question, carried out by Cottam (1987) on a small sample of librarians, was one of the most important sources of inspiration for the present survey. The present authors hope that researchers will continue studying innovation behavior in organizations using the individual as the unit of analysis.

REFERENCES

Block, Z., and MacMillan, I. C. (1993). *Corporate Venturing*. Boston, Massachusetts: Harvard Business School Press.

Bostjan, A. and Hisrich, R. D. (2001). Intrapreneurship: Construct Refinement and Cross-cultural Validation. *Journal of Business Venturing*, 16:5-495.

Campbell, D. J. (2000). The Proactive Employee: Managing Workplace Initiative. *Academy of Management Journal*, 14(3): 52-66.

Carrier, C. (1996). Intrapreneurship in Small Businesses: An Exploratory study. *Entrepreneurship Theory and Practice*, 21:1-5.

Chisholm, T. A. (1987). Intrapreneurship and Bureaucracy. *S.A.M. Advanced Management Journal*. 52:3-36.

Cottam, K. M. (1987). Professional Identity and "Intrapreneurial Behavior" *Journal of Library Administration*, 8(1): 29-40.

Dess, G. G., Lumpkin, G. T. and McGee, J. E. (1999). Linking Corporate Entrepreneurship to Strategy, Structure, and Process: Suggested Research Directions. *Entrepreneurship Theory and Practice*, 23: 3-85.

Floyd, S. W. and Wooldrigde, B. (1999). Knowledge Creation and Social Networks in Corporate Entrepreneurship: The Renewal of Organizational Capability. *Entrepreneurship Theory and Practice*, 23: 3-123.

Greene, P. G., Brush, C. G. and Hart, M. M. (1999). The Corporate Venture Champion: A Resource-based Approach to Role and Process. *Entrepreneurship Theory and Practice*, 23: 3-103.

Hair, J. F.jr., Anderson, R. E., Tatham, R. L. and Black, W. C. (1998). *Multivariate Analysis*, 5th Ed. Upper Saddle River, New Jersey: Prentice Hall.

Hornsby, J. S., Kuratko, D. F. and Zahra, S. A. (2002). Middle Manager's Perception of the Internal Environment for Corporate Entrepreneurship: Assessing a Measurement Scale. *Journal of Business Venturing,* 17: 1-253.

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F. and Montagno, R. V. (1993). An Interactive Model of the Corporate Entrepreneurship Process. *Entrepreneurship Theory and Practice,* 17: 2-29.

Kanter, R. M. (1984). *The Change Masters*. New York: Simon and Schuster.

Kuratko, D. F., Montagno, R. V. and Hornsby, J. S. (1990). Developing an Intrapreneurial Assessment Instrument for an Effective Corporate Entrepreneurial Environment. *Strategic Management Journal.* 11(summer): 28-49.

Lee, S. H. and Wong, P. K. (2004). An Exploratory Study of Technopreneurial Intentions: A Career Anchor Perspective. *Journal of Business Venturing*, 19: 7-28.

Macrae, N. (1976). The Coming Entrepreneurial Revolution: A Survey. *The Economist*, December 25.

McGinnis, M. A. and Verney, T. P. (1987). Innovation Management and Intrapreneurship. *S.A.M. Advanced Management Journal*, 52: 2-19.

Morris, M. H., Davis, D. L. and Allen, J. W. (1994). Fostering Corporate Entrepreneurship: Cross-cultural Comparison of the Importance of Individualism Versus Collectivism. *Journal of International Business Studies*, 25: 1-65.

Pinchot, G. (1985). *Intrapreneuring*. New York: Harper & Row.

Pinchot, G. and Pellman, R. (1999). *Intrapreneuring in Action; A Handbook for Business Innovation*. San Francisco, CA: Berret-Koehler Publishers Inc.

Rule, E. G. and Irwin, D. W. (1988). Fostering Intrapreneurship: The New competitive edge. *The Journal of Business Strategy*, 9: 3-44.

Russell, R. D. (1999). Developing a Process Model of Intrapreneurial Systems: A Cognitive Mapping Approach. *Entrepreneurship Theory and Practice*, 23: 3-65.

Sharma, P. and Chrisman, J. J. (1999). Toward a Reconciliation of the Definitional Issues in the Field of Corporate Entrepreneurship. *Entrepreneurship Theory and Practice*, 23: 3-11.

Stevenson, H. and Jarillo, J. (1990). A Paradigm of Entrepreneurship: Entrepreneurial Management. *Strategic Management Journal,* 11(summer): 17-27.

Stopford, J. M. and Baden-Fuller, C. W. F. (1994). Creating Corporate Entrepreneurship. *Strategic Management Journal*, 15: 7-521.

Table 1. Descriptive statistics and correlations among the analysis variables (n=634).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Control variables														
	Related to the employee														
1	Age	1													
2	Gender	0,07	1												
3	Additional education (yes=1)	0,19**	0,00	1											
4	Technical education / work experience (yes=1)	0,20**	0,09*	0,01	1										
5	# times changed employer	0,43**	-0,06	0,15**	0,04	1									
6	# of years with present employer	0,36**	-0,01	0,11**	0,07	-0,19	1								
	Related to the organization														
7	Size of organization	-0,01	0,00	0,04	0,02	-0,02	0,11**	1							
8	Multitask function (yes=1)	0,20**	-0,01	0,00	0,20**	0,08*	0,12**	-0,07	1						
9	Line (yes=1)	0,07	-0,05	-0,04	0,02	0,03	0,05	0,20**	-0,15**	1					
10	Senior manger (yes=1)	0,25**	0,17**	0,05	0,02	0,12**	0,06	-0,16**	0,21**	-0,10*	1				
11	Middle manager (yes=1)	0,33**	0,03	0,14**	0,09*	0,16**	0,24**	0,07	0,03	0,04	-0,28**	1			
	Individual personality														
12	"Are you an intrapreneur" test	0.16**	0.18**	0.16**	0.17**	0.06	0.08	0.03	0.20**	-0.06	0.17**	0.19**	1		
	Organizational strategy														
13	Corporate entrepreneurship strategy	0,04	-0,01	0,11**	0,06	0,08	-0,07	-0,08	0,29**	-0,09*	0,14**	0,05	0.32**	1	
	Dependent variable														
14	Innovation behavior	0,21**	0,11**	0,14**	0,15**	0,08*	0,07	-0,14**	0,37**	-0,17**	0,26**	0,16**	0.47**	0,56**	1
	Median	30,63	0,67	0,22	0,14	1,43	2,95	3,39	0,35	0,37	0,06	0,52	3.07	3,07	2,89
	SD	4,89	0,47	0,41	0,35	1,41	2,78	1,73	0,48	0,48	0,25	0,50	0.64	0,96	1,03
	VIF	1,73	1,09	1,09	1,13	1,41	1,47	1,09	1,21	1,09	1,38	1,39	1,30	1,22	

Note: The correlation coefficients reported are Spearman rank order correlations.
Level of statistical significance: * indicates p≤.05; ** indicates p≤.01 (two-tailed).

The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behaviour

Bjørn Willy Åmo

Bodø Graduate School of Business, N-8049 Bodø, Norway
Fax: +47-75517268 E-mail: bjoern.willy.aamo@hibo.no

Abstract: Scant attention has been directed toward exploring the entrepreneurial innovation behaviour of employees who are not managers. A two-level structural equation model of white-collar workers (n=153) shows that the organisations competitive strategies determine the organisations desire for employee innovation behaviour. The organisations desire for employee innovation behaviour together with an employee's proactivity determines the employee's innovation behaviour.

Keywords: business growth; corporate entrepreneurship; employee innovation behaviour; intrapreneurship; organisational desire for innovation; organisational strategy; proactivity; worker participation.

Reference to this paper should be made as follows: Åmo, B.W. (0000) 'The influence from corporate entrepreneurship and intrapreneurship on white-collar workers' employee innovation behaviour', *Int. J. Innovation and Learning*, Vol. 0, Nos. 0/0, pp.000–000.

Biographical notes: Bjørn Willy Åmo is a research fellow at Bodø Graduate School of Business in Bodø, Norway. His research is orientated towards understanding the role of corporate entrepreneurship and intrapreneurship in the development of the organisation. He focuses on the innovation behaviour of the employees.

1 Introduction

Scant attention has been directed toward exploring the entrepreneurial innovation behaviour of employees who are not managers. This is so, even as '*The level of entrepreneurship within the firm is critically dependent on the attitude of individuals within the firm, below the ranks of top management*' (Stevenson and Jarillo, 1990, p.24). Intrapreneurship relates to the autonomous strategic behaviour of the employee to exploit a given business opportunity (Kuratko et al., 1990). Corporate entrepreneurship focuses on how organisations can encourage their employees to cooperate in the creation of new resource combinations (Chung and Gibbons, 1997). Involving employees in the development of the organisation is attracting increased research and policy attention (Drejer, 2003; Drejer et al., 2004; Ferguson et al., 2004; Heijs, 2004; Hornsby et al., 1993; Hornsby et al., 2002; Janssen et al., 1998; Mouritsen and Flagstad, 2004; Paiva, 2003; Sharma and Chrisman, 1999). There is, however, a lack of empirical evidence exploring

the links between employee innovation behaviour and intrapreneurship and corporate entrepreneurship. As Preiss and Spooner (2003, p.202) state; '*One of the reasons that a condition for innovation creation is not optimised is that we do not understand as well as we should those factors that lead to innovation creation*'. Here, novel empirical evidence is presented.

Kanter (1984) claims that even if the employee's individual contributions may be minor; it may cumulatively be a major force of change. Substantial work has been done on how the organisation relates to corporate entrepreneurship or intrapreneurship (Knight, 1997). Furthermore, there is greater understanding as to how and why managers and middle managers involve themselves in behaviour related to corporate entrepreneurship and intrapreneurship (Hornsby et al., 1993, 2002). Studies on the work force toward organisational development have not been addressed to the same extent. There is less work describing why the individual as employees involve themselves in innovation behaviour. Preiss and Spooner (2003) claim that the recipe for success is for the organisation to focus on creative and innovative workforce.

Hornsby et al. (1993) argue that many organisations do not objectively assess the characteristics of either current or potential employees, and that it is important to recognise the influence of individual differences in innovation behaviour. Even if one claims that corporate entrepreneurship is a group process, there is some part of the process that could benefit from an individual leading and giving direction to the entrepreneurial process (Morris et al., 1994). According to Kanter (1984) even though intrapreneurship is often a collective work, an organisation needs personnel who are willing to create their own path and follow their own intuition.

Consequently, the research question of this paper is to analyse how the organisation's strategy for innovation and the characteristics of the employees relate to the employees' innovation behaviour.

2 Influences on employee innovation behaviour

We focus on three sets of components affecting employee innovation behaviour: corporate strategy, employee proactivity and employee working experience. In this paper, innovation behaviour is understood as behaviour from an employee toward developing new products, developing new markets, or to improve business routines. Innovation behaviour from employees is related to intrapreneurship and corporate entrepreneurship in several ways.

2.1 Intrapreneurship and corporate entrepreneurship differ

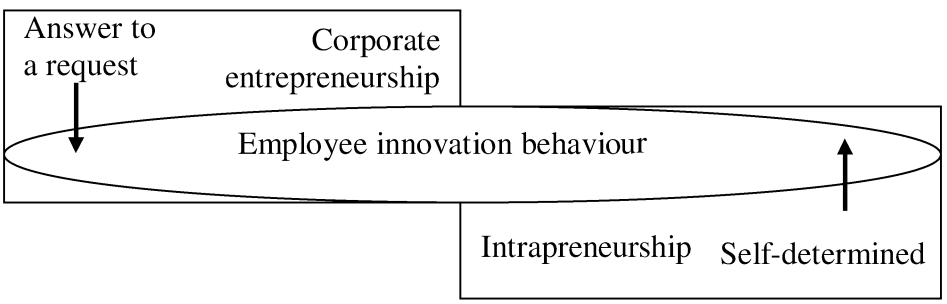
According to Pinchot and Pellman (1999), the best management can do to promote intrapreneurial behaviour, is to provide a focusing vision that guides the intrapreneurial energy of the organisation and liberates the intrapreneurs to achieve that vision. Kuratko et al. (1990) defines intrapreneurship as autonomous strategic employee behaviour to exploit a given business opportunity. Intrapreneurship indicates that employees behave in a way that may include altering routines and production methods (Pinchot and Pellman, 1999). Intrapreneurs appoint themselves to their roles and seek the corporation's blessing for their tasks afterwards (Pinchot and Pellman, 1999). Furthermore, intrapreneurship

implies the implementation of innovations within the organisations, where the adoption is initiated and wanted by an employee in a bottom-up way (Block and MacMillan, 1993). The management may not even want the behaviour in the first place (Carrier, 1996). Intrapreneurship focuses more on independent behaviour from the employee than corporate entrepreneurship.

Corporate entrepreneurship has been defined as the transformation of an organisation through strategic renewal (Dess et al., 1999); furthermore, corporate entrepreneurship could be regarded as a strategy for the development and implementation of new ideas (Hornsby et al., 2002). Kanter (1984) argues that corporate entrepreneurs find opportunities for innovation, and that they are the corporate equivalent of entrepreneurs, and corporate entrepreneurs can help their organisations to experiment in uncharted territory. Corporate entrepreneurship indicates that the top management can mould a business strategy so that the employees search for business opportunities on behalf of the employer. Furthermore, the concept of corporate entrepreneurship implies that the employees cooperate with the organisation in the successful creation of new resource combinations and the exploitation of the new combinations (Chung and Gibbons, 1997). The idea adopted by the employees in corporate entrepreneurships, indicates a contribution to the growth of the company by supplying the management level with business ideas to evaluate for exploitation.

Corporate entrepreneurship (Floyd and Wooldridge, 1999) and intrapreneurship (Pinchot and Pellman, 1999) both describe incremental processes of renewal of the organisation through innovation behaviour from employees. It could be argued that a corporate entrepreneurship strategy seeks employee innovation behaviour. Employee innovation behaviour would then be an answer to a request, and in line with the strategy of the organisation. Likewise, it could, from an intrapreneurship perspective, be argued that the same innovation behaviour cold be seen as stemming from the individual. The difference and the connection between intrapreneurship and corporate entrepreneurship could be depicted as in Figure 1.

Figure 1 The difference and the link between corporate entrepreneurship and intrapreneurship



2.2 Competitive strategies and the need for employee innovation behaviour

According to Porter (1985) competition is the core of the success or failure of firms, and a firm's competitive strategy aims at establishing a profitable and sustainable position among its rivals. A profitable and sustainable position is conditioned by a competitive advantage (Yang, 2004). A business strategy could then be understood as a description of the direction

and the tempo of where a business is heading. Porter (1985) claims that there are two basic types of competitive advantages: cost-leadership and differentiation. A cost-leadership strategy implies that the firm offers a product at a lower cost than its rivals, while a differentiation strategy implies that the firm offers a product that is unique in some way.

A successful differentiation strategy grows out of the coordinated actions of all parts of the firm (Porter, 1985). Campbell (2000) claims that one could expect that organisations pursuing a competitive advantage by means of a differentiation strategy would particularly welcome employees showing initiative and judgement in developing new products, markets or combinations of such. Likewise one could assume that an organisation pursuing a competitive advantage by the means of a strategy toward cost-leadership would have a desire for cost reducing related behaviour from their employees. A strategy of cost-leadership should then not solely focus on production costs, but also try to minimise costs related to marketing, service, infrastructure and other indirect costs (Porter, 1985). The above discussion suggests the following hypothesis:

Hypothesis 1: The more the organisation exhibits a differentiation competitive strategy, the more the organisation will desire their employees to report innovation behaviour.

Hypothesis 2: The more the organisation exhibits a cost reduction competitive strategy, the more the organisation will desire their employees to report innovation behaviour.

2.3 Corporate entrepreneurship as organisational encouragement fostering employee innovation behaviour

Everyone is capable of being creative (Pinchot and Pellman, 1999). Pinchot and Pellman (1999) suggest that the shortage of intrapreneurs is not the result of poor employee hiring. It is caused by a lack of sponsors to protect and encourage intrapreneurs, or it is caused by systems that counteract intrapreneurship. Organisational members follow the rules of the organisation regarding employee innovation behaviour, as the rules are perceived by the organisational member (Mouritsen and Flagstad, 2004). Kanter (1984) claims that employees exhibit entrepreneurial behaviour if the employer gives them the power to act. The degree to which the opportunity to use power effectively is granted or withheld from individuals is one operative difference between those organisations which stagnate and those which innovate (Kanter, 1984; Mouritsen and Flagstad, 2004). On the basis of these claims, one could postulate the following hypothesis:

Hypothesis 3: Employees working in organisations that actively encourage employee innovation behaviour will report higher levels of innovation behaviour.

2.4 Intrapreneurship as employee proactivity fostering employee innovation behaviour

Personality serves as a unifying theme that provides meaning, direction and mobilisation for the individual (Morris et al., 1994). Studies focusing upon the personality traits of entrepreneurs have lost some momentum (Crant, 1996). Nevertheless, there are several personal traits that are claimed to be associated with intrapreneurship (Kundu and Rani, 2004; Kuratko and Hodgetts, 1998). Campbell (2000) claims that one of these traits associated with intrapreneurship is proactivity. Pinchot (1985) supports this view by

claiming that intrapreneurs tend to be action-orientated. Kanter (1984) claims that there is one thing the corporate entrepreneurs have in common, the need to exercise skills in obtaining and using power in order to accomplish innovation. Becherer and Maurer (1999) show that proactivity and entrepreneurship share some common characteristics, such as the propensity to want to change the environment. An intrapreneur is a person who works within and around the system to accomplish his or her vision, and is adept at getting others to agree to a private vision (Pinchot, 1985). This fits with the personal disposition toward proactive behaviour as it intends to identify differences among people to the extent to which they take action to influence their environment (Crant, 1996). The personal disposition toward proactive behaviour is defined as the relatively stable tendency to effect environmental change (Bateman and Crant, 1993). On the basis of this, one could postulate the following hypothesis:

Hypothesis 4: Employees exhibiting high levels of proactivity will report higher levels of innovation behaviour.

2.5 Intrapreneurship and employee innovation behaviour stemming from the work experience of the employee

People differ in their experience and background. This might explain why people perceive stimuli differently, and act differently with regard to the same stimuli. Training can encourage employees to become intrapreneurs. Intrapreneurs learn from failures and successes and use their experiences to identify additional ideas for products, processes and new businesses (Pinchot, 1985). Pinchot and Pellman (1999) suggest that the corporate entrepreneur uses his or her individual human and social resources to discover new business opportunities.

Employees with particular educational and work experience profiles are more likely to become intrapreneurs and provide their employers with employee innovation initiatives (Camuffo and Comacchio, 2004; Pinchot and Pellman, 1999; Sahay et al., 2004). People who change jobs frequently have been found to be more likely to become corporate entrepreneurs (Kantre, 1984). Transferring people across the boundaries in the organisation, promotes intrapreneurship (Pinchot, 1985). Recruitment of new staff has also been suggested as a means for transferring new ideas to an organisation (Rule and Irwin, 1988). Tenure has been related to intrapreneurial behaviour (Lee and Wong, 2004). This discussion suggests the following hypothesis:

Hypothesis 5: Employees with more diverse work experience will report higher levels of innovation behaviour.

Hypothesis 6: Employees with more lengthy work experience will report higher levels of innovation behaviour.

3 Methodology

Data was gathered in March 2003 from all business students who graduated with a Master degree in management from a medium size graduate business school in Norway. A questionnaire was sent to all of the 1776 graduates, 31 letters were returned due to wrong

addresses. After one reminder, there were 877 respondents, which gave an initial response rate of 50.2%. Removing the respondents who reported not being employed full time as an employee at the present time, and removing those who reported being employed in a firm owned by them or by a close relative, gave 737 responses left. These 737 responses were from employees working as bosses (43), middle managers (354) and white-collar workers (340). There was a printing error in some of the questionnaires, reducing the data sets for white-collar workers to 164. Removing all the responses with missing data in some of the items used in some part of the analysis further reduced the sample of white-collar workers to 153. A one-sample t-test comparing the means of the full sample of 737 former graduates and the used sample of the 153 white-collar workers regarding gender and age of the respondents did not indicate that the two groups differed regarding gender, but the white-collar workers were younger (M=29.7 years) than the group of former graduates (M=32.1 years). A one-sample t-test comparing the means of the sample of 340 white-collar workers and the used sample of the 153 white-collar workers did not indicate that the two groups differed regarding to gender or age. The white-collar workers were employed in a wide range of organisations, working with a wide range of tasks.

3.1 Measures

3.1.1 Independent variable

The employer's organisational strategy was measured with measures introduced by Chandler and Hanks (1994). The competitive strategy of differentiation and the competitive strategy of cost leadership are both measured by a three-item scale, on a seven-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). Principal component analysis with Varimax rotation (PCA) was used to build the components. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is 0.76 and the variance explained is 70.0%. The Cronbach's alpha for the differentiation scale is 0.80, and the Cronbach's alpha for the cost leadership scale is 0.78.

3.1.2 Mediating dependent variable

The organisations desire for innovation was measured with a five-item measure derived from the definition of intrapreneurship provided by Pinchot (1985). See Appendix 1 for the items used and the communalities for each item. PCA was used. The questions measuring the employers' desire for employee innovation behaviour, loaded on one component. The KMO for the construct was 0.76. The variance explained with the construct was 67.2%. The Cronbach's alpha for the construct was 0.87. The loading on the one item capturing the desire for routine improving behaviour had a weak loading (0.320), lower than the recommendation of 0.5 (Hair et al., 1998). The item was kept as Kanter (1984) includes routine improvements in the concept of corporate entrepreneurship and Pinchot (1985), and Pinchot and Pellman (1999) includes routine improvements in the concept of intrapreneurship.

3.1.3 End dependent variable

The questions measuring how the employee contributes with employee innovation behaviour was also loading on one component. This measure mirrored the five items used to measure intrapreneurship described above, only with a slightly different wording. Both the constructs where measured with a five-point numeric scale ranging from 1=very little

extent, to 5=very large extent. PCA was used. KMO was 0.81, the variance explained was 68.6% and the Cronbach's alpha was 0.88. See Appendix 2 for the items used and the communalities for each item.

3.1.4 Independent variable

Proactivity was measured with regard to a scale developed by Bateman and Crant (1993) and revised by Seibert et al. (2001). Responses to each of the presented ten statements previously used by Seibert et al. (2001) were recorded on a seven-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). The items are set to load on one single component in a PCA to arrive at a proactive personality score. The KMO for the proactivity construct used in this study was 0.87, the variance explained was 47.8% and the Cronbach's alpha was 0.87.

Across different studies there is a wide variety of measures of work related experience (Reuber and Fischer, 1999). Reuber and Fischer (1999) suggest that studies with the individual as the level of analysis should focus on the stock of experience of the individual. They claim that the length and the variation of the work experience could be related to entrepreneurial behaviour. In this study work experience was operationalised with regard to two statements. One measure related to varied work experience whilst the other related to the length of the respondents' work experience. The measure of varied work experience was operationalised as the number of different jobs the respondents reported to have had. The length of work experience was measured as the number of years the employee had been working for their present employer.

3.2 Procedure

A structural equation model (SEM) was constructed to test the hypotheses. SEM was utilised to capture the simultaneous effect on exercised employee innovation behaviour from both the characteristics of the organisation as well as the employee. The intrapreneurship model was estimated as a path model using AMOS version 4. Hair et al. (1998) argues that SEM gives the most reliable results for sample sizes between 100 and 200; the sample size used in this study is 153.

A Kolmogorov-Smirnov test of the data shows that the proactivity construct, the construct of the organisations desire for employee innovation behaviour, the measure of employee innovation behaviour, the differentiation strategy and the cost leadership strategy were normally distributed. In order to improve the normal distribution of the work experience related constructs, the measure of the length of the work experience is transformed by taking the third root of the original variable. The varied work experience is transformed to improve the normality by squaring the original variable, and then taking the third root of it. The values of skewness and kurtosis are then well inside the acceptance criteria of +− 1 (Hair et al., 1998). This indicates that even if the data are not normally distributed, this does not imply any problems for the data analysis. A lack of multivariate normality is particularly troublesome because it inflates the chi-square statistics, and this may lead to a less significant model reported (Hair et al., 1998). Hair et al. (1998) suggest that increasing the ratio of respondents to parameters of up to 15 could be sufficient to adjust for departures from normality. This study has a ratio between respondents to parameters of over 25.

4 Results

Figure 2 provides an illustration of the structural path described in Hypotheses 1 to 6, and the corresponding standardised *t* values for the coefficients for those paths. In addition, Table 1 details the SEM statistics designed to assess the overall degree of fit between the model and the data. These statistics suggest that the model fits the data well. The X^2 statistics is 11.6, with a *p* value of 0.71 suggesting no significant difference between the data and the model. The goodness of fit (GFI = 0.98), adjusted goodness of fit (AGFI = 0.96), and normed fit (NFI = 0.92) are all better than the acceptance criterion of 0.8 (Becherer and Maurer, 1999). The root mean square error of approximation (RMSEA) is 0.00 and well below the acceptance criterion of 0.08 and even below the criterion of 0.05 indicating a close fit of the model in relation to the degrees of freedom (Arbuckle and Wothke, 1999). The degrees of freedom in this model are 15. The significant R2's for each of the indicators suggests that a substantial portion of the variation in the indicators is accounted for by the latent variables.

Figure 2 Structural Equation Model of components affecting employee innovation behaviour among white-collar workers in Norway (n=153). *p<0.10; **p<0.05; ***p<0.01 (one tailed)

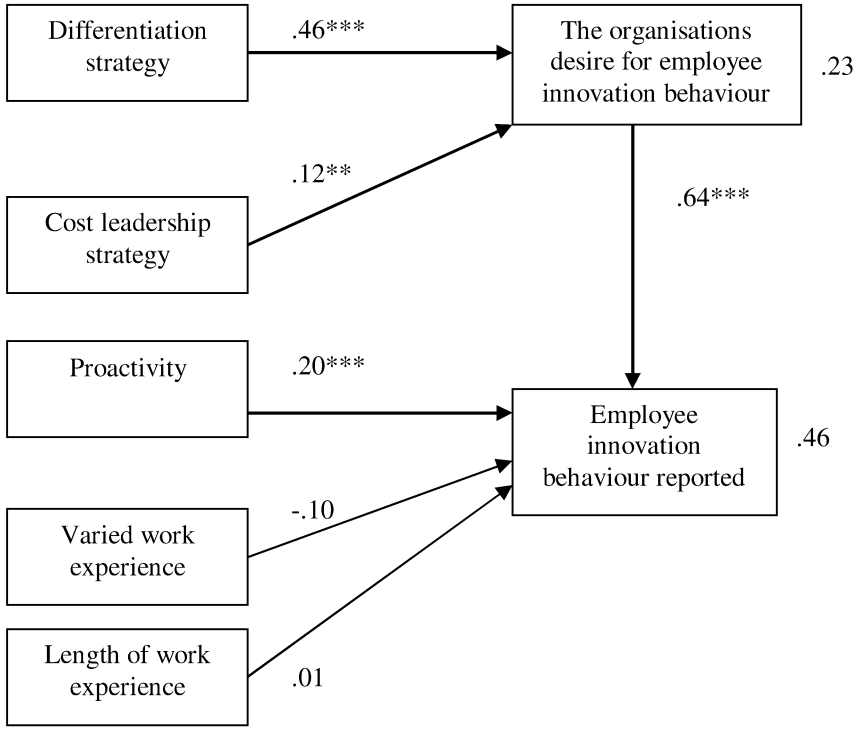


Table 1 AMOS model of innovation behaviour

Measures			*Incremental fit*		*Parsimonious fit*	
df		Absolute fit (chi-square)	GFI	RMSEA	NFI	AGFI
15		*11.6 (p<0.71)*	*0.98*	*0.00*	*0.92*	*0.96*
Dependent variable	R^2					
The organisations desire for employee innovation behaviour	0.23					
Employee innovation behaviour	0.46					

Note: Estimated using maximum likelihood, and no missing data, n=153.

As suggested, the model shows that the more the organisation exhibits a differentiation competitive strategy, the more the organisation will desire their employees to report innovation behaviour. Hypothesis 1 is then supported. The data indicates that the more the organisation exhibits a cost reduction competitive strategy, the more the organisation will desire their employees to report innovation behaviour. Hypothesis 2 is then supported. A differentiation strategy was more correlated (0.46) with a desire for employee innovation behaviour than a cost leadership strategy (0.12). The finding on the differentiation strategy was highly significant ($p<0.01$) and the finding for the cost leadership strategy ($p<0.05$) was also significant.

An examination of the structural path standardised coefficients depicted in Figure 2 concerning the amount of employee innovation behaviour reported by the employee; shows that the organisation's desire for employee innovation behaviour and the proactivity of the employee are correlated with the amount of employee innovation behaviour reported by the employee. There was a substantial (0.64) and highly correlated ($p<0.01$) relationship between the organisation's desire for employee innovation behaviour and the employee innovation behaviour, strongly supporting hypothesis 3. The data also supports hypothesis 4, that the employees exhibiting high levels of proactivity will report higher levels of innovation behaviour. There is a strongly (0.20) and highly significant ($p<0.01$) correlation between proactivity and the reported employee innovation behaviour.

The employee's amount of varied work experience or the length of the employee's working experience was not significant correlated with the employee innovation behaviour. There was a negatively and non-significant ($p<0.10$) correlation (-0.10) between the number of jobs after graduation and employee innovation behaviour. A measure for the length of work experience was not correlated (0.10) with employee innovation behaviour and was not significant at any normal criterion ($p<0.87$). A scan of the correlation matrix provides little evidence of multicollinearity (Hair et al., 1998).

Conclusions

Organisations with stronger competitive strategies are more likely to want their employees to exhibit innovation behaviour. Further, in organisations where the employees perceive a higher desire for innovation behaviour, the employees are more likely to behave accordingly. The more proactive the employee is reported to be, the more

innovation behaviour the employees reported. However, we noted that the employees' work experience was not correlated with innovation behaviour. The corporate entrepreneurial impact on employee innovative behaviour was stronger than the intrapreneurial impact on employee innovative behaviour.

5.1 Implications for researchers

The theoretical implications of the findings are summed up as an improved understanding of the reasons for work force involvement in organisational renewing. The paper points to the importance of a strategy for corporate entrepreneurship measured as the organisation's desire for innovation behaviour and the importance of the intrapreneurship measured as the employees' proactivity as to innovation behaviour. The paper also shows the relative importance of the organisation's desire and the employees' proactivity as to innovation behaviour.

Both the cost-leadership strategy and the differentiation strategy were positively and significantly correlated with a desire for employee innovation behaviour. The differentiation strategy had a stronger impact on the organisation's desire for employee innovation behaviour and was more significant, than the cost leadership strategy. This study did not aim at explaining why one competitive strategy has a stronger or a weaker impact on an organisation's desire for employee innovation behaviour than another; this is left for future research to investigate.

Corporate entrepreneurship measured as the organisation's desire for employee innovation behaviour had a highly significant impact on the level of employee innovation behaviour reported. This finding implies that even employees employed as white-collar workers contribute to the evolution or the development of the organisation. This study indicates that this contribution is aligned with the employees' perception of the strategy of the organisation. This is in line with the claim that well-managed firms are likely to use a combination of techniques to tell their employees what behaviour to show and the kinds of actions likely to be acceptable in specific situations.

Intrapreneurship measured as the personal characteristics of a disposition towards proactivity of the white-collar worker were highly significant and related strongly to employee innovation behaviour. This is in line with previous research on proactivity and entrepreneurship. This study shows a relationship between personal characteristics, measured as proactivity, and employee innovation behaviour.

None of the measures on work experience were positively correlated with exercised employee innovation behaviour reported by the white-collar workers in our sample. This could be due to the selected measures of work-related experience. The lack of correlation could also be a Norwegian phenomenon or a phenomenon concerning white-collar workers only, or it could be that the amount and the diversification of working experience is not positively correlated with the level of employee innovation behaviour. This investigation did not compare the type of employee innovation behaviour, with the type of work experience the employee possessed. Such an investigation could possibly reveal if work experience has an impact on the specific type of employee innovation behaviour the employee conducts. This paper proposes a suggestion for further research based on the findings in this paper and the theory discussion on employee innovation behaviour. The work experience the employee possesses could be operationalised as the number of different jobs the respondents' report to have had within the same organisation.

The results of this study can be generalised to some extent, as the respondents came from organisations within a variety of industries, from organisations of all sizes and the respondents were working with a variety of tasks. There were respondents from both the private and public sectors, respondents working in line and working in staff, and there were respondents working in organisations ranging from ten to over 5000 employees. Even so, the investigation suffers from having a sample of white-collar workers from Norway only, and that the respondents all had a business degree. These facts also demand research with other populations and in other regions.

The measure used for an organisation's desire for employee innovation behaviour, and the measure used for employee innovation behaviour failed to load enough on the item capturing improvements in business routines. This could imply that corporate entrepreneurship and intrapreneurship should be treated as a multifaceted construct. Corporate entrepreneurship and intrapreneurship could consist of a component of business routine improvement, and one or two components capturing behaviour toward providing new products or exploiting new markets.

5.2 Implications for practice

According to employee innovation behaviour, it seems as if the employee is doing what he is told to do. There is some diversification from this rule; some do more than their share and others do less. This paper shows that this diversification could be due to a proactive personality of the employee. Evidence suggests that managers should consider the strategy of the organisation when shaping the content and the borders of an employee's job. As proactivity was related to the innovation behaviour of the employee, management failing to provide a clear organisational strategy could imply unwanted employee initiatives.

The strategy regarding corporate entrepreneurship tells the employees the borders for what organisational behaviour that is valued and which is not. This finding in this study implies that white-collar workers contribute with innovation behaviour, and that this behaviour is aligned according to the perceived strategy of the organisation. A better organised invitation to the employees to provide innovation behaviour could be welcomed by the employees. The advice to the management based on the findings in this study would be to express the strategy of the organisation more clearly and to all the levels of the organisation. Both the way management asks for innovation behaviour, and whom management asks for innovation behaviour can be altered.

The employee innovation behaviour the employee expressed was not found to be correlated with the measures used for the work experience the employee possessed. There could be other measures of employee work experience that are correlated with innovation behaviour. Management seeking employees with a high propensity to provide innovation behaviour could perhaps find it useful to investigate the employee's track record for innovation behaviour. The advice for the management of an organisation would be to select proactive people for jobs where one wants more employee innovation behaviour, and to select employees less proactive in routine jobs where employee innovation behaviour is wanted less. As the employees in this sample seem to react more on the stimuli from the organisation's desire for employee innovation behaviour, than based on their proactivity, management could improve the innovation behaviour of their present employees. The paper shows that the relative importance of the strategy for corporate

entrepreneurship measured as the organisation's desire for employee innovation behaviour is much stronger than the importance of intrapreneurship measured as the personal traits of the employee on the innovation behaviour reported by the white-collar workers. This indicates that the management could gain much on giving a clearer message to the employee on what behaviour to offer and how to offer it. This also put stress on the management's responsibility to provide employees with a clear message about what they want the organisation to accomplish and how to reach the goals of the organisation.

Acknowledgements

The author would like to thank Professor Lars Kolvereid and Professor Paul Westhead for their continuous support, advice and help on this paper.

References

Arbuckle, J.L. and Wothke, W. (1999) *Amos 4.0 user guide*, Small Waters Corporation.

Bateman, T.S. and Crant, J.M. (1993) 'The proactive component of organisational behavior: a measure and correlates', *Journal of Organisational Behavior*, Vol. 14, pp.103–119.

Becherer, R.C. and Maurer, J.G. (1999) 'The proactivity personality disposition and entrepreneurial behavior among small scale company presidents', *Journal of Small Business Management*, Vol. 37, pp.28–36.

Block, Z. and MacMillan, I.C. (1993) *Corporate Venturing*, Harvard Business School Press.

Campbell, D.J. (2000) 'The proactive employee: managing workplace initiatives', *Academy of Management Review*, Vol. 14, pp.52–66.

Camuffo, A. and Comacchio, A. (2004) 'The competent middle manager: framing individual knowledge in north-east Italian SMEs', *International Journal of Innovation and Learning*, Vol. 1, pp.330–350.

Carrier, C. (1996) 'Intrapreneurship in small businesses: An exploratory study', *Entrepreneurship Theory and Practice*, Vol. 21, pp.5–20.

Chandler, G.N. and Hanks, S.H. (1994) 'Market attractiveness, resource-based capabilities, venture strategies, and venture performance', *Journal of Business Venturing*, Vol. 9, pp.331–349.

Chung, L.H. and Gibbons, P.T. (1997) 'Corporate entrepreneurship: the role of ideology and social capital', *Group & Organisation Management*, Vol. 22, pp.10–30.

Crant, M.J. (1996) 'The Proactive Personality Scale as a Predictor of entrepreneurial Intentions', *Journal of Small Business Management*, Vol. 34, pp.42–49.

Dess, G.G., Lumpkin, G.T. and McGee, J.E. (1999) 'Linking corporate entrepreneurship to strategy, structure, and process: Suggested research directions', *Entrepreneurship Theory and Practice*, Vol. 23, pp.85–102.

Drejer, A. (2003) 'Innovation and Learning', *International Journal of Innovation and Learning*, Vol.1, pp.9–23.

Drejer, A., Christensen, K.S. and Ulhøi, J.P. (2004) 'Understanding intrapreneurship by means of state-of-the-art knowledge management and organisational learning theory', *International Journal of Management and Enterprise Development*, Vol. 1, pp.102–119.

Ferguson, T., Lin, B. and Chen, J.H. (2004) 'Leveraging the work force using information technology: a financial service case study', *International Journal of Management and Enterprise Development*, Vol. 1, pp.316–332.

Floyd, S.W. and Wooldrigde, B. (1999) 'Knowledge creation and social networks in corporate entrepreneurship: The renewal of organisational capability', *Entrepreneurship Theory and Practice*, Vol. 23, pp.123–143.

Hair, J.F.jr., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998) *Multivariate Data Analysis*, 5th ed., Prentice Hall.

Heijs, J. (2004) 'Innovation capabilities and learning: a vicious circle', *International Journal of Innovation and Learning*, Vol. 1, pp.263–278.

Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002) 'Middle manager's perception of the internal environment for corporate entrepreneurship: Assessing a measurement scale', *Journal of Business Venturing*, Vol. 17, pp.253–273.

Hornsby, J.S., Naffziger, D.W., Kuratko, D.F. and Montagno, R.V. (1993) 'An interactive model of the corporate entrepreneurship process', *Entrepreneurship Theory and Practice*, Vol. 17, pp.29–37.

Janssen, O., de Vries, T. and Cozijnsen, A.J. (1998) 'Voicing by adapting and innovating employees: An empirical study on how personality and environment interact to affect voice behavior', *Human Relation*, Vol. 51, pp.945–967.

Kanter, R.M. (1984) *The Change Masters*, Simon and Schuster.

Knight, G.A. (1997) 'Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation', *Journal of Business Venturing*, Vol. 12, pp.213–225.

Kundu, S.C. and Rani, S. (2004) 'Entrepreneurial orientation of aspiring managers: a study', *International Journal of Management and Enterprise Development*, Vol. 1, pp.233–250.

Kuratko, D.F. and Hodgetts, R.M. (1998) *Entrepreneurship: A Contemporary Approach*, 4th ed., The Dryden Press.

Kuratko, D.F., Montagno, R.V. and Hornsby, J.S. (1990) 'Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment', *Strategic Management Journal*, Vol. 11, pp.49–58.

Lee, S.H. and Wong, P.K. (2004) 'An exploratory study of technopreneurial intentions: a career anchor perspective', *Journal of Business Venturing*, Vol. 19, pp.7–28.

Mentzas, G. (2004) 'A strategic management framework for leveraging knowledge assets', *International Journal of Innovation and Learning*, Vol. 1, pp.115–142.

Morris, M.H., Davis, D.L. and Allen, J.W. (1994) 'Fostering corporate entrepreneurship: Cross-cultural comparison of the importance of individualism versus collectivism', *Journal of International Business Studies*, Vol. 25, pp.65–89.

Mouritsen, J. and Flagstad, K. (2004) 'Managing organisational learning and intellectual capital', *International Journal of Learning and Intellectual Capital*, Vol. 1, pp.72–90.

Paiva, E.L. (2003) 'Integrating different types of knowledge: an empirical investigation', *International Journal of Innovation and Learning*, Vol. 1, pp.45–55.

Pinchot, G. (1985) *Intrapreneuring*, Harper & Row, Publishers.

Pinchot, G. and Pellman, R. (1999) *Intrapreneuring in Action; A Handbook for Business Innovation*, Berret-Koehler Publishers Inc.

Porter, M.E. (1985) *Competitive Advantage*, The Free Press.

Preiss, KJ. and Spooner, K. (2003) 'Innovation creation and diffusion in the Australian economy', *International Journal of Entrepreneurship and Innovation Management*, Vol. 3, pp.197–210.

Reuber, A.R. and Fischer, E. (1999) 'Understanding the consequence of founders' experience', *Journal of Small Business Management*, Vol. 37, pp.30–45.

Rule, E.G. and Irwin, D.W. (1988) 'Fostering intrapreneurship: the new competitive edge', *The Journal of Business Strategy*, Vol. 9, pp.44–47.

Sahay, B.S., Mohan, R. and Maini, A. (2004) 'Strategies for building a sustainable competitive edge', *International Journal of Innovation and Learning*, Vol. 1, pp.209–226.

Seibert, S.E., Kraimer, M.L. and Crant, J.M. (2001) 'What do proactive people do? A longitudinal model linking proactive personality and career success', *Personnel Psychology*, Vol. 54, pp.845–874.

Sharma, P. and Chrisman, J.J. (1999) 'Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship', *Entrepreneurship Theory and Practice*, Vol. 23, pp.11–27.

Smith, A.D. (2004) 'Manufacturing workers: Exploring the ability to change', *International Journal of Management and Enterprise Development*, Vol. 1, pp.251–267.

Stevenson, H. and Jarillo, J. (1990) 'A paradigm of entrepreneurship: Entrepreneurial management', *Strategic Management Journal*, Vol. 11, pp.17–27.

Yang, J. (2004) 'Knowledge management opportunities for cycle time reduction', *International Journal of Innovation and Learning*, Vol. 1, pp.192–207.

Appendices

Appendix 1 details the questions used to measure the organisations desire for innovation behaviour, and the innovation behaviour of the employee. Appendix 1 in the appendix also shows the communalities extracted for each item.

Appendix 1 Communalities reported when producing component scores, PCA and Varimax rotation (n=153)

Desired employee innovation behaviour	To what extent does your main employer encourage the employees to contribute to:	
Employee innovation behaviour reported		To what extent do you contribute to:
New product development in the business where you are employed?	0.803	0.744
The development of new product-market combinations in the business where you are employed?	0.795	0.835
The development of new venture ideas in the business where you are employed?	0.769	0.753
The development of new markets for the business where you are employed?	0.674	0.651
More cost efficient production processes in your organisation?	0.320	0.446

Appendix 2 Descriptive statistics and correlations among the analyses variables (n=153)

	1	*2*	*3*	*4*	*5*	*6*	*7*
Competitive strategy on organisational desire for employee innovation behaviour							
1 Differentiation strategy	1						
2 Cost-leadership strategy	0.00	1					
The corporate entrepreneurship contribution							
3 The organisations desire for employee innovation behaviour	0.44**	0.10	1				
The intrapreneurial contribution							
4 Proactivity	0.04	0.09	0.07	1			
5 Length of work experience	0.04	0.04	-0.01	0.07	1		
6 Varied work experience	0.03	0.07	−0.01	−0.04	−0.12	1	
The dependent variable							
7 Employee innovation behaviour reported	0.16	−0.04	0.60**	0.18*	0.05	−0.10	1
Median	0.14	0.02	−0.06	1.59	1.00	−0.07	−0.14
SD	1.00	1.00	1.00	0.93	0.25	1.00	1.00

Note: The correlation coefficients reported are Spearman rank order correlations. Level of statistical significance: * indicates p≤0.05; ** indicates p≤0.01 (two tailed).

Original Article

Employee innovation behaviour in health care: the influence from management and colleagues

B.W. Åmo

Research Fellow, Bodø Graduate School of Business, N-8049 Bodø, Norway

ÅMO B.W. (2005) Employee innovation behaviour in health care: the influence from management and colleagues. *International Nursing Review* **52**, ••–••

This article reports how 'important others' and position in the organizational hierarchy relate to employee innovation behaviour.

Aim: Empowerment of healthcare workers to engage in innovation behaviour is desired by management in Norwegian municipalities as it is regarded as a way of getting more health care for less money. Innovation behaviour is also desired by nurses' and other healthcare workers' professional organizations of as it is regarded as a way of improving the working conditions of the healthcare worker.

Background: The theoretical discussion in this paper includes corporate entrepreneurship, 'important others' and employee innovation behaviour.

Methods: This article reports on a study concerning empowerment of nurses and other healthcare workers ($n = 555$) in Norwegian municipalities. The statistical methods used include multiple regressions.

Findings: The study reveals that there were differences between the nurse (registered nurses), auxiliary nurses (nurse aides) and unskilled healthcare workers concerning how they perceived the opinion of the management and the opinion of the colleagues about how suitable it was to present innovation behaviour at the workplace. Moreover, the different groups of healthcare workers assign different levels of importance to this influence.

Conclusions: It is suggested that the findings put forward in this article may lead to an improved understanding of the dynamics behind employee innovation behaviour, and that such knowledge could improve the care provided to the patients, the cost of the care and the working conditions of nurses and other healthcare workers.

Keywords: Employee innovation behaviour, Empowerment, Hierarchy, Norway, Nurses, Opinion leaders, Unskilled health workers

Introduction

Increasing pressure is being put on reduced healthcare spending (Rolfe et al. 2004). Innovation is one answer to the challenge of doing more for less. Nurses are in a position to influence the use of transformational strategies (Trofino 2000). The study reported here will help nurses better understand and respond to the dynamics involved in innovation in healthcare organizations. An understanding of the process of employee innovation behaviour will enable nurses to take charge of the process of innovation, to the greater benefit of the patients and the nursing community. Employee innovation behaviour can be regarded as everything from altering routines or making use of new remedies, to simplifying work, to improving the service provided to the end-user, or to being able to give the end-user new offers.

Healthcare professionals are trained for autonomous practice (Lindholm & Udèn 2001). This is reflected in healthcare research as empowerment, which has been widely adopted in studies of nursing (Kuokkanen et al. 2003). To become empowered, nurses and other healthcare workers need to have real influence and

Correspondence address: Bjørn Willy Åmo, Bodø Graduate School of Business, N-8049 Bodø, Norway; Tel: +47 7551 7245; Fax: +47 7551 7268; E-mail: bjoern.willy.aamo@hibo.no.

decision-making power over issues concerning their work as well as over factors with an actual impact on their working environment (Kuokkanen et al. 2003). The events of the 1990s including widespread re-engineering, restructuring and work redesign initiatives swept through the healthcare communities (Manion 2001). The Norwegian municipalities have also been under pressure to deliver more healthcare services to the public for less money (Trygstad 2003). The strategy used to respond to this pressure has been to introduce corporate entrepreneurship programmes to change the way work has been done (Trygstad 2003). A corporate entrepreneurship programme is a strategy that management can utilize to change the way work is done by encouraging individuals within the organization to become more imaginative, creative, innovative and entrepreneurial in order to benefit the organization.

Many corporate entrepreneurship programmes in which the management asks for innovation behaviour from the employees, do not achieve the desired enhanced organizational change (Zahra 1991; Wesorick 2002). Some employees immediately buy the idea of the corporate entrepreneurship programme, whereas others are sceptical (Lindholm & Udèn 2001). Shulman (1996) claims that the vast range of studies focusing on work groups assume homogeneity among the group members with regard to their values, experience and goals. Morrison & Phelps (1999) encourage researchers to explore in more depth the relationship between work group characteristics and innovation behaviour in the workplace.

It has been showed that nurse managers have strong loyalty towards decisions taken at top level (Lindholm & Udèn 2001). The behaviour of non-management employees has, however, attracted insufficient attention. Research on 'significant others' (often referred to as 'important others') suggests that the behaviour of an individual is more influenced by some individuals/groups of individuals, than by other individuals/groups of individuals. This notion of 'significant others' refers to individuals whose evaluations of a person's behaviour and attitude are held in high esteem (Denzin 1966). Whom an individual regards as important in influencing on his or her behaviour may possibly depend on the attitude/behaviour and the arena for this attitude/behaviour. This makes it interesting to reveal if there are any differences among occupational groups in healthcare organizations as to who is perceived as important in influencing others regarding innovation behaviour at the workplace. This study explores whether the influence from 'important others' on innovation behaviour varies according to the employee's position within the organization hierarchy. Differences among healthcare workers in terms of innovation behaviour will be explored. In particular, this study explores the following research question: Should top management address different groups of healthcare workers differently when the organization wants innovation behaviour at all levels of the organization?

Theoretical insights

This paper focuses on factors relating to employee innovation behaviour. The paper will examine the effects from the position in the hierarchy on whom is seen as the 'important others' influencing the innovation behaviour of the employee.

Corporate entrepreneurship and innovation behaviour among employees

How to manage subordinates in order to reach the most efficient work production is a major management concern (Pearce et al. 1997; Ellefsen & Hamilton 2000). Corporate entrepreneurship is about how to make employees cooperate in the creation of new resource combinations and also exploiting these new combinations successfully (Chung & Gibbons 1997). Business leaders are supposed to make a deliberate and conscious articulation of direction for the organization (Kanter 1984), and management should impose a strategy on the organization in which the employees and middle managers are supposed to innovate for the good of the firm (Block & MacMillan 1993). Such a strategy could be imposed on the organization by mission statements issued at top management level. Mission statements have the purpose of motivating staff within the company and communicating central management's belief about where the organization should be heading and how the employees should contribute toward this goal (Klemm et al. 1991).

'Important others', change agents and diffusion of an organizational strategy

In corporate entrepreneurship, the idea diffused from top management to the employees is that innovation behaviour is desired. In this way, top management functions as the change agency, the unit initially wanting the social change to happen. In an organizational innovation setting, the middle manager may be regarded as top management's intermediary. The middle manager may then be regarded as a change agent, an individual who increases the employee's propensity to provide innovation behaviour. A change agent is a person promoting an idea to be adopted by another person or group (Rogers 1995). Cheng & Stark (2002) claim that the formation of attitudes requires the processing of information through self-reflection and daily interaction with peers. It is reasonable to assume that highly ranked employees will have more interaction with management. The above discussion suggests the following hypothesis:

H1: The higher ranked in the hierarchy, the more the management encouragement of innovation behaviour is associated with the employee's own innovation behaviour.

'Important others' and opinion leaders

As previously argued, the influence from management on the employee towards employee innovation behaviour can best be described as influence from change agents. This is as the influence was intended from the management side. The influence from peer colleagues on the employee to get engaged in employee innovation behaviour may not be equally intended. A better description of the influence from colleagues on employee innovation behaviour may then be the influence from opinion leaders. The greatest response to a change effort occurs when opinion leaders adopt and lead in the adoption process; this is because opinion leaders have a strong informal influence on the group's norm (Rogers 1995). The employee aligns his or her behaviour in order to behave more like the opinion leader in the work group. It is reasonable to assume that lower-ranked employees will have more interaction with fellow colleagues of comparable employment status. This paper argues that the employee behaves differently based on his/her position in the hierarchy regarding who is the 'important other' with regard to what actions are seen as desirable. The above discussion suggests the following hypothesis:

H2: The lower ranked within the hierarchy, the more the colleagues' innovation behaviour is associated with the employee's own innovation behaviour.

Description of the empowerment study

The study reported here is a part of a larger research project. The aim of the overall study, which was initiated by the municipalities and professional organizations representing the healthcare workers, was to examine how to improve empowerment of healthcare workers employed in Norwegian municipalities. The aim of this particular study was to investigate how 'important others' influence the innovation behaviour of healthcare workers employed at different organizational levels. The objective was to reveal how to approach nurses, auxiliary nurses and unskilled healthcare workers with the idea that the organization wants them to show innovation behaviour.

Job autonomy is found to be higher in Norway than in USA, Canada and Australia (Dobbin & Boychuk 1999). In Norway there is a strong emphasis on democratic-participative methods for increased worker influence, as well as a strong tradition for equality and democracy in the work place arena (Bjerke 1999). This makes Norway especially well suited for investigations of employee involvement in innovation. Therefore, this study from Norway will contribute to the ongoing discussion on how to obtain better health care for fewer resources (Donner & Wheeler 2001; Vincent 2002; Rolfe et al. 2004).

Method

The objectives of this study were to be met through a postal survey that was administered in September 2003. The survey was sent to healthcare workers (nurses, auxiliary nurses and unskilled healthcare workers) employed by 12 different Norwegian local municipalities. After one reminder, over 50% of the 1452 addressed healthcare workers had responded. Information was gathered relating to the respondents work position', education and employment status, their perception of their own and their colleagues' contribution towards innovation behaviour, and measures of how they perceived that their managers encourage innovation behaviour. The responses from those not employed as nurses, auxiliary nurses and unskilled healthcare workers and those who did not answer all the questions used in this study were left out. This provided a total of 555 responses usable for this investigation. Demographic characteristics of the responding nurses, auxiliary nurses and unskilled healthcare workers (engaged as assistants and home care providers) are detailed in Table 1.

Table 1 Work-related demographical differences between nurses, auxiliary nurses and unskilled healthcare workers ($n = 555$)

Work related demographical differences	*Nurses*	*Nurse auxiliary*	*Unskilled*
Number of respondents	120	309	126
Member of a trade union	85 (71%)	250 (81%)	72 (57%)
Permanently employed	114 (95%)	300 (97%)	117 (93%)
Female work in an institution	115 (96%)	297 (96%)	118 (94%)
(the rest work in home care)	64 (54%)	184 (61%)	76 (63%)
Managerial responsibility for own work group	36 (30%)	21 (7%)	3 (2%)
Formally educated for the job	108 (90%)	278 (90%)	66 (52%)
Highest education is university	118 (98%)	15 (5%)	6 (5%)
Highest education is high school	2 (2%)	290 (94%)	72 (57%)
Highest education is elementary school	(−0%)	4 (1%)	48 (38%)

The number in brackets is the percentage within that group for that item.

Measurement

The questionnaire provided questions regarding how the respondent perceived that the management level encouraged innovation behaviour and how the respondent perceived their colleagues innovation behaviour. Innovation was put in plain words such as '*improvements at work*'. In the questionnaire, the respondent was asked to think about improvements at work such as 'everything from altering routines or taking use of new remedies, to simplifying work, to improving the service provided to the end-user, or to being able to give the end-user new offers.' The dependent variable, '*Own innovation behaviour*' was measured using three items: (1) I participate in discussions regarding improvements at work; (2) I invite others for discussions regarding improvements at work; and (3) I like to work with issues related to improvements at work. The independent variable '*Colleagues' innovation behaviour*' was measured using three items: (1) my colleagues work much with improvements at work; (2) my colleagues think that improvements at work are important; and (3) my colleagues are concerned about improvements at work. Likewise, the independent variable '*Management's encouragement*' was measured using three items; (1) the management requests my opinion in questions regarding improvements at work; (2) my manager gives me opportunities to discuss improvements at work; and (3) at our workplace the employees are encouraged to do things in a better way. Each statement was presented using a 7-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree').

Analytical techniques

This study used descriptive statistics, *t*-tests, explorative principal component analysis, and multiple regression analysis techniques. Principal component analysis with Varimax rotation was used to assess the convergent and discriminant validity of the variables in the model. The reliability and validity of the measures were found to be acceptable. As the objective of the research was to predict changes in the dependent variable (the employees' own innovation behaviour) in response to changes in the independent variables (management encouragement and colleagues' innovation behaviour), multiple regression was appropriate. Multiple regression analysis provides estimates of net effects and explanatory power. The adjusted R^2 in the multiple regressions shows how much of the variance in the behaviour that is explained by the independent variables. The standardized beta values in multiple regressions show the relative strength and direction of the independent variables on the investigated behaviour.

Results

To be employed as a nurse in Norway, an individual has to acquire a university diploma in nursing and has to be registered and approved as a nurse by the Norwegian government. To qualify as an auxiliary nurse, an individual has to complete a high school course focusing on health care related issues. However, there are no formal educational requirements to be hired as an unskilled healthcare worker. Healthcare workers have traditionally been hierarchically organized. Organizational structures and professional status differentiate power between employees.

In the preparation for this study, an in-depth interview with a head nurse manager in a large municipality in Norway was conducted. The interview indicated that education was the criterion for delegation of responsibility in a work group. The nurse manager also claimed that, as proper and adequate education was so important in order to be able to execute the job in the right way, education level could be regarded as a good measure of rank in a work group hierarchy. The interviewed nurse manager confirmed through this the claim from Ellefsen & Hamilton (2000) that 'Physicians are seen at the top of the hierarchical structure, followed by nurses, nurse helpers and the unskilled at the bottom'. This indicates that nurses are in general higher ranked than auxiliary nurses, and that auxiliary nurses are higher ranked in the work group than unskilled healthcare workers. The hierarchy is then related to who decides how to do work, and when, and what work to do.

Differences between the response of nurses, auxiliary nurses and the unskilled

The nurse group reported more innovation behaviour than the auxiliary nurses and the auxiliary nurses reported more innovation behaviour than unskilled healthcare workers. The nurses perceived management as more encouraging than the auxiliary nurses and the unskilled workers. There were no differences between the auxiliary nurses and the unskilled worker in how encouraging they perceived management to be. There were no differences across the three groups regarding how they perceived their colleagues innovation behaviour.

Influencers on own innovation behaviour due to organizational rank

Table 2 shows the results of three multiple regressions with the respondents' own innovation behaviour as the dependent variable. The same model was tested on nurses, auxiliary nurses, and unskilled healthcare workers. The model tests the influence from the 'important others' (management and colleagues) on the respondents' own innovation behaviour. In addition to the variables measuring the influence from the 'important others', some control variables were added. The control variables added were percentages of full time position, the respondents' age, and whether the respondent mainly worked in an institution or in home care.

Table 2 Result of three multiple regression analysis on own innovation behaviour

	Nurses St. Beta	*Nurse auxiliary St. Beta*	*Unskilled St. Beta*
Important others			
Management's encouragement	0.53**	0.39**	0.48**
Colleague's innovation behaviour	0.38**	0.51**	0.56**
Control variables			
Percentages of full time position (1 = full time position)	0.08	0.11*	0.07
Working in an institution	−0.07	−0.04	−0.03
Respondents age	0.03	0.00	−0.02
F	22.47**	44.13**	18.92**
Adjusted R^2	0.49	0.43	0.44
n	120	309	126

*$P < 0.05$; **$P < 0.001$.

Forced entry multiple regressions were used to test the hypothesis. Table 2 reports a summary of the regressions on respondents' own innovation behaviour, shown for the nurses, the auxiliary nurses and the unskilled healthcare workers. The models include the independent variables as well as control variables and are statistically significant ($P < 0.001$) for all three groups. Colleagues' opinion regarding innovation is expressed by colleagues' own innovation behaviour. Likewise, management opinion is expressed by how encouraging toward innovation behaviour they are perceived to be by the respondent. The results of the regressions show that the model explains a substantial proportion of the variance in respondents' own innovation behaviour (49% for nurses, 43% for auxiliary nurses, and 44% for unskilled healthcare workers).

The standardized beta value of a variable is a measure of the magnitude and the direction of the influence from that variable on the investigated behaviour. Table 2 shows the standardized beta values for the influence of encouragement from management and the influence from colleagues' innovation behaviour on the innovation behaviour of the nurses, the auxiliary nurses and the unskilled healthcare workers respectively. H1 claims that the higher ranked in the hierarchy, the more the management encouragement of innovation behaviour is associated with employees' own innovation behaviour. Table 2 shows that management has a stronger influence on nurses than on auxiliary nurses and unskilled. Likewise, Table 2 shows that management encouragement has a stronger influence on unskilled healthcare workers than on the auxiliary nurses. This leaves H1 only partly supported. H2 claims that the lower the ranking within the hierarchy, the more the colleagues' innovation behaviours are associated with the employee's own innovation behaviour. This hypothesis is fully supported as Table 2 shows that the colleagues' innovation behaviour has strongest influence with regard to innovation behaviour on the unskilled healthcare worker. The auxiliary nurses are less influenced by the colleagues. The innovation behaviour of the nurses is least influenced by the innovation behaviour of their colleagues. In addition to this, Table 2 also shows that nurses are more influenced by how encouraging the management is towards innovation behaviour, than by innovation behaviour of the colleagues. The study also divulges that auxiliary nurses and unskilled healthcare workers are more influenced in innovation behaviour by colleagues in the work group, than by innovation encouragement by management.

Findings

The results of this study indicate that the healthcare employee's high ranking in the hierarchy is best addressed by formal command lines via a change agent as regards management's search for innovation behaviour amongst employees. Low ranking employees in the hierarchy are best addressed via colleagues who can act as opinion leaders in the work group.

Limitations and strengths

The purpose of this study was to investigate if top management should address nurses, auxiliary nurses, and unskilled healthcare workers in a work group differently when the organization is looking for innovation behaviour from its employees. The study shows that in the group of employees investigated, some 'important others' influence the respondent's propensity to carry out innovation behaviour. The study reveals that the respondents differ between the opinion of the management and the opinion of the colleagues regarding how suitable it is to present innovation behaviour at the workplace. The study shows that these differences may be due to different ranking within the organization. The higher ranked the employees are, the more influence management has on their innovation behaviour. The lower ranked the employees are, the more they are influence by the innovation behaviour of their colleagues.

This study has some limitations. The data in this study are limited to employees in work groups, and it is limited to healthcare workers employed in 12 Norwegian municipalities. While this survey does have certain limitations, it also has strengths. The use of data obtained from healthcare workers employed in work groups in different municipalities ensures respondents working with a variety of tasks, and working in a variety of organizational arrangements. The survey had a high response rate and a large sample.

Implications for researchers

This study contributes to the literature on healthcare administration in several ways. This study is one of few studies applying corporate entrepreneurship to healthcare administration in order to investigate the relationship between rank, 'important others', change agents, opinion leaders and employee innovation behaviour. Furthermore, this study shows the dynamics inside the work group related to employee innovation behaviour in a healthcare setting.

The results of this study suggest that there are differences between members in a work group regarding their values, experience and goals. The work groups studied are not homogenous regarding the work group members' innovation behaviour. This study indicates that innovation behaviour is related to rank within the work group. The higher the ranking within the work group, the more important the opinion of the management becomes. Likewise, the lower ranking within the work group, the more important the colleagues opinion becomes.

This study contributes to the debate on how to achieve better health care for patients and how to achieve a stronger influence from the congregation of nurses with regard to the direction of the ongoing change in health care in several major ways. One conclusion from this research is that nurses contribute substantially to the everyday improvement of the organization in which they work. Another finding is that nurses, more than auxiliary nurses and unskilled healthcare workers, align their innovation efforts with the strategy of the organization. An interesting question stemming from this research would be: who are the opinion leaders in the work groups of healthcare workers in their decisions regarding innovation behaviour? If the nurses are the opinion leaders, this would substantially add to the importance of nurses in encouraging employee innovation in the work group.

This study contributes to the literature on corporate entrepreneurship and innovation in three major ways. One conclusion from this paper is that all organizational levels of the work group contribute to innovation behaviour. Another conclusion is that the 'important others' for the employees in the work group regarding innovation behaviour are management and colleagues. Both management's and colleague's opinion regarding innovation are found to be positive correlated with employees' own innovation behaviour. Thus, support from management and colleagues may be critical in the employees' decision whether to provide innovation behaviour or not. The third conclusion is that the more highly ranked employees in the organizational hierarchy are more influenced than the lower ranked by the mission statement of the organization. The low ranked employees are more influenced by the behaviour of their colleagues.

This study contributes to the literature on 'important others' and innovation in two major ways. First, we test the effect of 'important others' on the propensity to provide innovation behaviour, a relationship suggested but not fully tested in past studies. Secondly, we extend the discussion of 'important others' to include management and colleagues in the work group.

Implications for nurses, healthcare managers, municipalities and policy makers

If the healthcare manager believes that his or her organization needs innovation at all levels of operation, the manager should address all hierarchical levels within the organization. The advice to management extracted from the results of this study could then be stated as follows: If the healthcare manager expects innovation behaviour from the low-ranked employees, he or she will find the opinion leader among the colleagues in the work group and let this person convince the rest to contribute through innovation behaviour.

Furthermore, increased knowledge about how the culture for innovation in the work group, or the influence of an opinion leader regarding innovation is established may benefit policy makers wishing to increase the effectiveness and service level of healthcare institutions in municipalities. Both the way management asks for innovation behaviour and whom management asks for innovation behaviour can be altered. Policy makers could add issues about innovation to the study programmes of nurses and other healthcare workers. Municipalities and management could empower and encourage nurses and other healthcare workers to provide innovation behaviour, as this study indicates that empowerment and encouragement creates innovation behaviour.

The implications for nurses drawn from this study is that nurses contribute towards innovation in healthcare organizations, and that nurses can improve innovation behaviour in their organization by putting the issue on the agenda in their work group. Nurses may also use their leading position in the work group to help develop an improved climate enabling workplace innovation.

Acknowledgements

The author would like to thank Professor Lars Kolvereid and Professor Paul Westhead for their continuous support, advice and help on this paper. The author would also like to thank Britt Helen Larsen, Professor Bodil Ellefsen and the participators at the Association for Marketing and Health Care Research (AMHCR) conference for their useful comments.

References

Bjerke, B. (1999) *Business Leadership and Culture*. Edward Elgar Publishing, Cheltenham, UK.

Block, Z. & MacMillan, I.C. (1993) *Corporate Venturing*. Harvard Business School Press, Boston.

Cheng, S. & Starks, B. (2002) Racial differences in the effect of significant others on students' educational expectations. *Sociology of Education*, **75** (4), 306–327.

Chung, L.H. & Gibbons, P.T. (1997) Corporate entrepreneurship: the role of ideology and social capital. *Group and Organization Management*, **22** (1), 10–30.

Denzin, N.K. (1966) The significant others of a college population. *The Sociological Quarterly*, **7** (Summer), 298–310.

Dobbin, F. & Boychuk, T. (1999) National employment systems and job autonomy: why job autonomy is high in the nordic countries and low in the United States, Canada, and Australia. *Organization Studies*, **20** (2), 257–291.

Donner, G.J. & Wheeler, M.M. (2001) career planning and development for nurses: the time has come. *International Nursing Review*, **48** (2), 79–85.

Ellefsen, B. & Hamilton, G. (2000) Empowered nurses? Nurses in Norway and the USA compared. *International Nursing Review*, **47** (2), 106–120.

Kanter, R.M. (1984) *The Change Master.* Simon & Schuster, New York.

Klemm, M., Sanderson, S. & Luffman, G. (1991) Mission statements: selling corporate values to employees. *Long Range Planning*, **24** (3), 73–78.

Kuokkanen, L., Leino-Kilpi, H. & Katajisto, J. (2003) Nurse empowerment, job-related satisfaction, and organizational commitment. *Journal of Nursing Care Quality*, **18** (3), 184–192.

Lindholm, M. & Udèn, G. (2001) Nurse managers' management direction and role over time. *Nursing Administration Quarterly*, **25** (4), 14–29.

Manion, J. (2001) Enhancing career marketability through intrapreneurship. *Nursing Administration Quarterly*, **25** (2), 5–10.

Morrison, E.W. & Phelps, C.C. (1999) Taking charge at work: extrarole efforts to initiate workplace change. *Academy of Management Journal*, **42** (4), 403–419.

Pearce, J.A. II, Robertson Kramer, T. & Robbins, D.K. (1997) Effects of managers' entrepreneurial behaviour on subordinates. *Journal of Business Venturing*, **12** (2), 147–160.

Rogers, E.M. (1995) *Diffusion of Innovations*, 4th edn. The Free Press, New York.

Rolfe, M.K., Bryar, R.M., Hjelm, K., Apelquist, J., Fletcher, M. & Anderson, B.-L. (2004) International collaboration to address common problems in health care: processes, practicalities and power. *International Nursing Review*, **51** (3), 140–148.

Trofino, J. (2000) Transformational leadership: moving total quality management to world-class organizations. *International Nursing Review*, **47** (4), 232–242.

Trygstad, S.C. (2003) Utviklingskommunen – nye betingelser for ansattes medvirkning og innflytelse? In *Utviklingskommunen.* (Finstad, N. & Aarsæter, N. eds). Kommuneforlaget, Oslo, pp. 219–241.

Vincent, D. (2002) Using cost-analysis techniques to measure the value of nurse practitioner care. *International Nursing Review*, **49** (4), 243–249.

Wesorick, B. (2002) 21st century leadership challenge: creating and sustaining healthy, healing work cultures and integrated service at the point of care. *Nursing Administration Quarterly*, **26** (5), 18–32.

Zahra, S.A. (1991) Predictors of financial outcomes of corporate entrepreneurship: an exploratory study. *Journal of Business Venturing*, **6** (4), 259–286.

What motivates knowledge workers to involve themselves in employee innovation behaviour?

Bjørn Willy Åmo

Bodø Graduate School of Business
NO-8049 Bodø, Norway
Fax: +47–75517268
E-mail: bjoern.willy.aamo@hibo.no

Abstract: There is a lack of research describing the process of employee innovation, as seen from the employee perspective. This extreme case study describes why and how four employees from three organisations chose to involve themselves in a corporate entrepreneurship programme.

The motivation for employees to involve themselves in innovation behaviour is operationalised as revealing the reasons that the employees themselves find most important for explaining their innovation behaviour. Key findings indicate that linking intellectual capital and personal intellectual capital to reward increases our understanding of the motivation for employee innovation behaviour. Based on the cues from the literature review and the evidence condensed from the field, a conceptual model of knowledge management and employee innovation behaviour is proposed. The implications of this paper could foster more and better aligned employee innovation behaviour in organisations.

Keywords: visible corporate strategy; corporate entrepreneurship; intrapreneurship; intrinsic motivation; intellectual capital; personal intellectual capital; innovation incentives; organisational enhancement; employee innovation behaviour.

Reference to this paper should be made as follows: Åmo, B.W. (xxxx) 'What motivates knowledge workers to involve themselves in employee innovation behaviour?', *Int. J. Knowledge Management Studies*, Vol. X, No. Y, pp.000–000.

Biographical notes: Bjørn Willy Åmo is PhD student in Entrepreneurship at Bodø Graduate School of Business, Bodø, Norway. He has been working as Consultant and as Teacher for several years. His research interests are in e-commerce, adoption of innovation, intrapreneurship and corporate entrepreneurship. More recently, his research has been focusing on employee innovation behaviour. He has published articles about continued entrepreneurship as employee innovation behaviour. Employee innovation behaviour is entrepreneurship from the employee's perspective.

1 Introduction

The purpose of a corporate entrepreneurship strategy is to engage an organisation in innovation in order to develop the organisation's ability to compete (McAdam and McClelland, 2002). The involvement of employees in innovation-related processes has been identified as an important topic (Sharma and Chrisman, 1999; Keogh and Steward, 2001). However, there is still a scarcity of research that describes the process of employee innovation, as seen from the employee's perspective. The motivation and interest of the employees to involve themselves in the innovation process needs to be explained by further research (Sundbo, 1999).

Research on knowledge management, intrapreneurship and corporate entrepreneurship is mainly done with the organisation as the unit of analysis. Using the individual as a level of analysis seems appropriate when seeking to understand the reasons the employees provide as rationale for participating in innovation behaviour. This is because each individual employee decides the level of involvement and energy to put into innovation behaviour, even if the employee is assigned by management to participate in innovation-related tasks.

Aldrich (1999) claims that the researchers' assumption of limited participation from lower-level employees in organisational development is so strongly held that evidence for wider participation is rarely sought. In this paper, innovation behaviour is understood as attempts by an employee with regard to the development of new products or new markets, or improvement of business routines. Exploring employee innovation behaviour is interesting because such processes can be seen as the result of, or the response to, corporate entrepreneurship strategies. Furthermore, employee innovation studies can also be of interest to managers, as some authors (*e.g.*, Carrier, 1996; Wunderer, 2001) claim that employees exhibiting innovation behaviour are important engines in the development of organisations. Even small changes have the potential of altering the organisation, and the cumulative effect of such changes might become apparent only months or years later (Aldrich, 1999). Even if the individual contribution may seem small, the employee's behaviour cumulatively constitutes a major force of change (Kanter, 1984).

Further research is needed to understand the different ways in which employee innovation behaviour is enabled and how entrepreneurial activities should be organised (McAdam and McClelland, 2002; Preiss and Spooner, 2003). Drejer *et al*. (2004) point to the intrapreneur as a knowledge worker, and claim that it is paramount that we begin to understand the relationships between knowledge, knowledge management, innovation management and intrapreneurship. Mouritsen and Flagstad (2004) encourage research on how managers could intervene in order to make the process of learning a managed one. This paper addresses this quest for a better understanding of motivators of employee involvement in organisational change.

Christensen (2004) argues that many organisations possess a bundle of unexploited resources, and that one such resource is the knowledge held by the employees. Knowledge management is about creating, sharing and using this employee knowledge effectively (Davenport *et al*., 1998). In addition, Guglielmino and Guglielmino (2001) claim that many organisations have now come to the conclusion that in order to achieve global competitiveness, they have to strive for continuous learning in all parts of the organisation. Further, they argue that the best organisational learning is self-directed by the individual. According to them, the advantages for organisations to utilise a self-directed learning approach include higher efficiency, effectiveness and cost savings.

Learning in organisations occurs when individuals within an organisation experience a problematic situation and inquire into the problem on the organisation's behalf (Argyris and Schön, 1996).

This paper argues that it is the common interest of the employee and the employer to increase the knowledge base of the employee. The aim of this paper is to improve our understanding of the motivation of the knowledge worker to engage in employee innovation behaviour. In order to attend to this issue, the following four objectives will be addressed:

1 To identify and describe the link between employee innovation behaviour and an increase in the employee's knowledge base.

2 To identify the link between corporate entrepreneurship strategy and intellectual capital.

3 To identify the link between the employee's knowledge base and employee reward.

4 To propose a conceptual model of innovation management and knowledge management that includes the employee perspective.

This is done in order to answer the main research question of what knowledge workers find motivating towards involving themselves in innovation behaviour in organisations.

The next section will give a literature review on the linkage between the innovation strategy of the organisation, individual and organisational knowledge, the motivation of the employee and employee innovative behaviour. The methodology section introduces the reader to the setting of the case study and how the data was gathered. The findings of the case study are then discussed and related to the literature used in the literature section. From this follows conclusions and implications for managers, policymakers and for future research.

2 Literature review

While there is a rich body of research on how to implement an organisational strategy, there is a scarcity of research on why employees involve themselves in fulfilling these organisational strategies. That employees act towards fulfilling organisational strategies is much taken for granted by both management and the research community. The entrepreneurial drive to pursue opportunities is a combination of many factors, among them motivation and reward (Block and MacMillan, 1993). This paper focuses on two components affecting employee motivation for engaging in innovation behaviour:

1 the corporate innovation strategy

2 the reward the employee receives for innovation behaviour.

Management can mould the corporate innovation strategy and can to a great extent decide the rules in the company with regard to rewards.

2.1 The impact from a corporate entrepreneurship strategy on employee innovation behaviour

Intrapreneurship and corporate entrepreneurship are related concepts used to describe the introduction of innovations in organisations. How these constructs differ when it comes to employee motivation towards innovation behaviour has not been fully addressed yet. Corporate entrepreneurship (Floyd and Wooldridge, 1999) and intrapreneurship (Pinchot and Pellman, 1999) are both an incremental process of renewal of the organisation through innovation initiatives from employees. The intrapreneurship perspective stresses that the initiative towards innovation originates from the employee (Åmo and Kolvereid, forthcoming). Kuratko *et al.* (1990) define intrapreneurship as the autonomous strategic behaviour of the employee to exploit a given business opportunity. Likewise, the corporate entrepreneurship perspective stresses that it is management that invites innovation initiatives, and it is management that decides the future of the initiative (Åmo and Kolvereid, forthcoming). Corporate entrepreneurship strategies are about how to make the employees cooperate in the creation of new resource combinations and exploit these new combinations successfully (Chung and Gibbons, 1997). The employee innovation behaviour perspective includes both innovation initiatives that originate from the employee and innovation initiatives that are a reply to a managerial quest for innovation (Åmo and Kolvereid, forthcoming).

A strategy could be imposed on the organisation by mission statements from the top management level. Mission statements aim to motivate the staff within the company and to communicate central management's belief about where the organisation should be heading and how the employees should contribute towards this (Klemm *et al.*, 1991). Once a vision is established for the organisation, the second great task of leadership is to create the rules of the game so that self-determined employees end up serving their own interest best when they serve the organisation well (Pinchot, 1985).

2.2 The link between corporate entrepreneurship strategy and intellectual capital

Corporate entrepreneurship rests upon an organisation's ability to learn, and these learning processes are dependent on the organisation's stock of intellectual capital and its tools in utilising this intellectual capital towards a given end (Hayton, 2005). Intellectual capital pays attention to collective arrangements where individuals interact with each other and use organisational structures to encompass a given organisational goal. The challenge in order for a company to remain a going concern is to sustain competitiveness (Christensen, 2004). Competitiveness emerges from the capacity of individuals to transform knowledge and experience into new or improved products and processes (Vedovello and Godinho, 2003). Intellectual capital has been defined as the sum of knowledge, information, intellectual property and experience held by everybody in a company, put to use to create a competitive edge (Stewart, 1997). The capacity of individuals within the organisation to transform knowledge and experience into new and improved products and processes is a valuable resource for the organisation. This is because the organisation's ability to compete depends on its accumulated learning and experience (Heijs, 2004).

Employees are a knowledge resource for their employing organisation (Mouritsen and Flagstad, 2004). In many areas of management, one has to realise that the human element of organisational development is important for innovation (Dreier, 2003). This is because the innovative capability of an organisation can be described as its potential to understand, manage and acquire innovations. The recipe for the success of an organisation is claimed to be a focus on a creative and innovative workforce (Preiss and Spooner, 2003). The employer wants the employee to respond to changes in the environment, in order to improve the success of the organisation. Thus, people management and learning management are central issues to knowledge management (McAdam and McCreedy, 1999). Knowledge management is concerned with the strategy and tactics to manage intellectual capital or human assets.

In addition to economical outcomes such as profitability and sales growth, learning should be considered an outcome from corporate entrepreneurship endeavours. Such outcomes could include the learning of new technologies and skills (Dess *et al*., 2003). How to motivate the individual to engage in their knowledge expansion is central to knowledge management (Mouritsen and Flagstad, 2004). Good knowledge management is about the individual relating to the ambitions and purpose of the organisation (Thorbjørnsen and Mouritsen, 2003). What motivates the employee to contribute towards the ambitions and purpose of the organisation is still unclear.

2.3 The link between reward and motivation towards employee innovation behaviour

To attract and keep members, organisations must reward them with an income and other incentives (Aldrich, 1999). Where people have a choice of how to spend their time and energy, rewards have a direct influence on that choice (Baden-Fuller and Stopford, 1992). The incentive schemes and the reward system decide which initiatives are pursued and which are left behind (von Hippel, 1988).

Carrier (1996) in her case study, reports that intrapreneurs want both monetary and non-monetary rewards. The monetary rewards wanted were salary raise and stocks. The non-monetary was the possibility of taking further intrapreneurial action. Other research also reports that offering monetary reward is found to be an effective motivational technique for workers (Davenport, 1993). Pay is claimed to be highly significant as a reward for knowledge workers, as pay carries both economic and symbolic meaning (May *et al*., 2002). Others report that the hope of obtaining conventional rewards seems to play a very small role in stimulating innovativeness (Kanter, 1984). It is argued that participation alone is a sufficient reward for conducting innovation behaviour (Kanter, 1984). Some research conclude that the firm does not need to offer specific, extrinsic rewards for new business activities (Block and MacMillan, 1993). Wunderer (2001) claims that the intrapreneurship concept is related to intrinsic motivation and that payment and other extrinsic rewards only distract the employee from the inherent motivation. Similarly, Kanter (1984) claims that the intrinsic satisfaction of a challenge mastered is an important reward for the corporate entrepreneur. Pinchot (1985) recommends to the organisation to offer different types of rewards, like recognition by superiors, promotion, monetary bonuses, sabbatical time and discretionary budget to draw on for future intrapreneurial projects.

Block and Ornati (1987) found no evidence that special reward systems encouraged new business development. Given the absence of data establishing a clear correlation between reward and performance, it is difficult to reach firm conclusions regarding the significance of incentives and rewards (Block and MacMillan, 1993). Even so, Kanter (1984) claims that innovating companies reward individuals. Kanter (1984) claims that rewards play a role in promoting innovativeness, but concludes that how the reward system works is still not clear. How to make people go on being challenged should remain a priority issue for organisations (Baden-Fuller and Stopford, 1992). This divergence in opinion about motivators for employees to participate towards organisational change points to the importance of research on why employees choose to involve themselves in innovation behaviour.

2.4 The link between personal intellectual capital and reward

Intellectual capital is the accumulated knowledge and experience useful for the organisation. This knowledge resides inside an employee (Gottschalk, 1999). The part of the intellectual capital that a specific employee possesses is this employee's personal intellectual capital. Individuals have to be the learning agents of the organisation (Mouritsen and Flagstad, 2004). Good learning conditions are facilitated by introducing organisational structures that encourage the individual's wish and ability to enquire (Argyris and Schön, 1996). The employee is the container of the knowledge of the organisation, and knowledge emanates from the individual, but the individual's knowledge has to be mobilised in relation to organisational goals for it to have value for the organisation (Thorbjørnsen and Mouritsen, 2003). Janssen (2000) reports that when employees perceive that efforts are fairly rewarded by the organisation, they are willing to cope innovatively with higher levels of demand in the work environment.

Aldrich (1999) differentiates between extrinsic rewards and intrinsic rewards. Extrinsic rewards are those rewards given on purpose and are often tangible; extrinsic rewards are often related to money or promotion. Intrinsic rewards are the feelings the individual gets from performing or mastering a task. Intrinsic reward has been associated with employee motivation for and involvement in organisational change effort (Pun *et al*., 2001; Suh, 2002). Employees, under certain circumstances, are intrinsically motivated to engage in work when they find the work itself interesting, engaging or in some way satisfying (Amabile *et al*., 1994). The reward linked to intrinsic motivation is the feeling of enjoyment and accomplishment that accrues spontaneously as a person engages freely in the target activities (Deci, 1996). Feeling competent at the task is an important aspect of one's intrinsic motivation and the experience of intrinsic motivation is its own justification (Deci, 1996). Among intrinsic motivators for corporate entrepreneurship, Kuratko *et al*. (2001) include learning possibilities.

In today's competition for knowledge workers, an organisation has to provide the employee with incentive factors, such as interesting jobs, further education and participation in decision-making processes at the workplace (Thorbjørnsen and Mouritsen, 2003). Knowledge workers are claimed to be expected to be self-reliant for their own career development and employability, both inside and outside the organisation (May *et al*., 2002). Even so, May *et al*. (2002) reported that a relatively small proportion of the investigated knowledge workers agreed with the statement that supervisors

of the workers helped the workers in developing their skills. The knowledge workers for the most part had to seek their own learning opportunities, instead of relying on management initiatives.

This literature review indicates that knowledge workers want to engage in innovation behaviour as they find it interesting and because they want to use and develop their skills. It could also be postulated that knowledge workers find it motivating to participate in employee innovation behaviour, as such behaviour would potentially increase the employee's knowledge base, allowing him/her to pursue further challenges. Following this line of argument, an increase in the employee's knowledge base could be regarded as a reward. The increased knowledge gained by undertaking an innovation initiative is, then, in itself a reward.

3 Methodology

This case study utilises an exploratory approach to improve understanding of the motivation of the knowledge worker to engage in employee innovation behaviour.

3.1 The research design

The main focus in the current research project is to gain an understanding of the motivation of the employees to involve themselves in innovation on behalf of their employer. This was achieved by interviewing four employees who chose to participate in a regional development programme initiated by the Norwegian Ministry of Trade and Energy, named the VeRDI programme.[1] The programme was administrated by local regional development agencies and ran by accredited consultancy firms. The motivation of the four employees was revealed during their participation in meetings with the participants in one of the 21 local VeRDI programmes and by studying secondary data. The participating organisations studied are the three organisations where the four employees were employed. In trying to understand the intention of the four employees, this paper is adopting an ethnomethodology approach (Coulon, 1995) by putting emphasis on the expressed meaning of the laypersons involved. The findings and the conclusions in this study are based on how the respondents chose to tell about their experiences and their perception of what happened and why it happened. To minimise the risk of the respondents' not giving a realistic picture of their perceptions, the participants were monitored over time to ensure that their responses were consistent.

The researcher participated in three of the six monthly meetings in the local VeRDI programme. The SME participants and their bosses were interviewed four times about their goals and their achievements upon participating in the VeRDI programme. They were interviewed at the beginning of the programme (January 2002), in the middle of the programme, just after the programme ended (June 2002) and finally one year after the programme ended. The interviews were arranged as a structured face-to-face interview at the respondent's workplace, and the interview was based on a semistructured questionnaire. The respondents were asked open and inviting questions. 'Why and how did you take responsibility for this project' and 'What do you expect to gain by taking this initiative' are examples of the questions to the employees. 'Tell me why your

organisation became involved in the VeRDI project' is one example of the questions for their bosses. The respondents have proofread transcripts of their interviews to ensure validity.

3.2 The participating employees

Mr. Tire, the sales director of a tyre wholesaler, and Mr. Concrete, the financial director of a concrete producer joined the VeRDI programme. Mr. Tire asked his boss, Mr. TireBoss, if it was okay to participate, and his boss agreed. After some meetings in the programme, Mr. Concrete told his boss, Mr. ConcreteBoss, that he was participating in the programme and the boss did not mind. Mr. BreweryBoss was the director of strategy of a brewery. Mr. BreweryBoss asked his subordinates Mr. BreweryIT and BreweryController if they were willing to participate. He got a positive response. Mr. BreweryIT is employed as an IT professional and Mr. BreweryController is the controller of the brewery. This are summarised in Table 1.

Table 1 The organisations and the individuals involved in the VeRDI programme

The activity of the firm	*Brewery*	*Tyre-wholesaler*	*Concrete producer*
Number of employees (year 2001)	130	15	22
Annual sales (year 2001)	500 mill NKR (60 mill USD)	35 mill NKR (4 mill USD)	50 mill NKR (6 mill USD)
The boss	Mr. BreweryBoss	Mr. TireBoss	Mr. ConcreteBoss
Employee with innovation behaviour	Mr. BreweryIT Computer engineer Mr. BreweryController Controller	Mr. Tire Sales manager	Mr. Concrete Financial director

3.3 The administration of the programme

The programme was administered as a series of two- or three-day meeting sessions every month for about half a year. The participants collected and evaluated information between these meetings, and the new information were then processed and analysed during the meeting. The participants answered questions like 'What are the activities that create value for your organisation and the customers of your organisation, and what are the strengths and weaknesses with these activities?' From this the participants should find areas for improving these activities by means of electronic commerce. It was the participating employees' own responsibility to discover the areas suitable and profitable for e-commerce, if any were present.

4 Findings

The employees interviewed in this study gave different reasons for their involvement in the VeRDI innovation initiative. The Findings Section gives the reasons of the employees and their bosses for their participation in the VeRDI programme. The order is, the reasons of Mr. Tire are first revealed, then the reasons of Mr. Concrete, and last, the reasons of the two employees at the brewery. The Findings Section ends with a short description of the official outcome of the VeRDI programme for the tyre wholesaler, the concrete producer and the brewery.

4.1 The reasons the employees gave for participating in the VeRDI programme

Mr. Tire had been interested in computers since his first Osborne I, and as a sales manager he had for many years been approached by customers who wanted to order via the web. He wanted to serve his customers in a better and less time-consuming way, so he decided to join the programme. On a direct question from the interviewer, 'What do you expect to gain from taking this initiative on behalf of your employer?' the respondent replied, '…that our customers should get an easier access to our products'. He claims that his boss does not mind his using his time on this '…as long as it does not interfere with my other tasks'. The respondent had previously introduced rims to the tyre wholesaler, and this now provides over 10% of their sales volume. When asked what his personal gain was from this initiative, he reported that it gave him a more interesting job. The personal gain from pulling this web initiative is that it '...is very interesting, and some fun. But my first concern is the costumer'.

Mr. TireBoss is the boss of Mr. Tire. According to Mr. TireBoss, the urge for a web solution had been discussed for some time at the board and with Mr. Tire. Mr. TireBoss expects his employees to look for ways of improving their work. Mr. TiireBoss values employee innovation behaviour within the employees' field of responsibility, but does not want to give financial reward to single persons as this '…might give raise to disagreement and envy among the staff'. He claims that, rather, he '…tries to praise the employees when they propose good solutions to problems'.

Mr. Concrete from the concrete producer claimed that participating in the VeRDI programme was a part of his job; 'It is among my responsibilities to pursue such affairs.' In addition to his responsibility as a financial director, he is also in charge of the firm's IT system. His aim with his participation in the VeRDI programme was to search for a better and more system-integrating accounting system. His motivation for his engagement in the future of his employing organisation is that he wants something more interesting to do than mere financing. He does not seek monetary gain for himself as a result of initiatives such as his participation in the VeRDI programme. Yet, he would appreciate some recognition for the extra effort he provides. Mr. Concrete feels obligated to provide such initiatives as this to his workplace, even though his boss does not engage himself much in guiding employee innovation behaviour. Both Mr. Concrete and Mr. ConcreteBoss agree that there is no shared vision or strategy for the organisation; things go about as they have done for the last 20 years.

Among Mr. BreweryBoss's responsibilities was to take charge of the e-strategy of the brewery. Mr. BreweryBoss reported that he had the 'total responsibility to develop and implement e-commerce systems at the brewery'. Mr. BreweryBoss discussed the VeRDI programme with the CEO and the board of the brewery, and they agreed that the VeRDI programme was well suited to the needs of the brewery. Mr. BreweryBoss chose to ask Mr. BreweryIT to participate in the VeRDI programme. Mr. BreweryIT is a computer engineer and part of his normal work is to make computerised versions of manual routines. Mr. BreweryBoss asked Mr. BreweryIT if he 'wanted to join in making the organisation's next generation of information technology'. Mr. BreweryIT's comment was that 'One does not turn down such an offer!' Mr. BreweryIT joined the VeRDI programme because he wanted a break from his normal work routine and because he was flattered by the offer from his boss. He also wanted to use his IT skills in another setting. Mr. BreweryBoss also asked Mr. BreweryController, the controller of the brewery, to join the VeRDI programme. The motivation Mr. BreweryController gave for participating in the VeRDI programme was that he saw the VeRDI programme as an opportunity for learning. He also enjoyed the possibility of interacting with the management team and to show his ability as a skilled employee. The interviewed employees wanted recognition for their ability to do a decent job and for being a valuable and a skilful co-worker.

4.2 The official outcome of the VeRDI programme

Four months after its completion, the VeRDI programme was evaluated according to the rules of the regional development body. The reported outcome for the tyre wholesaler was a description of a system that let their customers order through the internet. The concrete producer adjusted the routines for how the bills for concrete were handled. Instead of having a manual routine for the independent drivers of concrete mixer trucks, Mr. Concrete made an IT routine that did the work. The brewery ended up with several small manual work-saving IT routines.

One year after the termination of the VeRDI programme, some effects of it still remained. Mr. Concrete has installed a new accounting system which has integrated some of the previous stand-alone production systems, and he plans to make some accounting information accessible via the web. Mr. Tire has narrowed down his search for a web-ordering system to a choice between two web solutions from two vendors. The brewery did not take more action regarding the outcome of the VeRDI programme.

5 Analysis

An analysis of the motivation of the employees shows that strategy and reward has an impact on the propensity of the employee to provide innovation behaviour. The employees wanted a strategy to which to align their innovation efforts, and they wanted to be acknowledged for their efforts. The employees saw this innovation-related opportunity as a learning possibility that would increase their knowledge base, and give them a more interesting job.

The way Mr. Concrete enrolled in the VeRDI programme could be classified as intrapreneurial, as he told his boss about the programme only afterwards. Mr. BreweryIT and Mr. BreweryController were invited to the VeRDI programme in a corporate entrepreneurship manner, as it was their boss who introduced them to the programme. Mr. Tire entrance is more of a mix. He entered the programme on his own initiative but with strong support from his boss. His entrance could not be classified as purely intrapreneurial or corporate entrepreneurial.

5.1 Why the employees participated in the VeRDI programme

The primary reason the respondents gave for participating in the VeRDI programme was that they felt obligated to contribute to the development of their organisations. All the respondents claimed that it was important for them that their bosses appreciated their efforts regarding innovation at the workplace, and that they felt pride when they had received acknowledgment for good work. The respondents wanted to be perceived as serious, hardworking, skilful, helpful and valuable co-workers.

The main reason for participating in innovation-related tasks was the learning possibility associated with the VeRDI programme. Both the employees and their bosses evaluated the VeRDI programme as fairly successful, and claimed it to be a step forward for the organisation and for the persons involved. The employees all viewed the VeRDI programme as a valuable learning possibility, as a possible way to increase their knowledge base and to prove themselves valuable employees to their organisation. All the bosses appreciated that the VeRDI programme gave an increase in the organisations stock of intellectual capital, as their employees had achieved improved knowledge about what it takes to do e-business.

5.2 The influence of the innovation strategy on the employee innovation behaviour

The influence of the organisations' expressed strategy was strong on the behaviour of the employees in all three organisations. The strength, focus and direction of the strategy as perceived by the employees differed between the three organisations. The strategy of e-commerce and the strategy of employee participation were clearly communicated in the case of the tyre wholesaler. Mr. Tire discussed the e-commerce strategy of the tyre wholesaler with his boss and with the board. Mr. Tire also reported the progress of the VeRDI programme to the board, and the board set aside money to purchase a suitable web solution. The result of the VeRDI programme for the tyre wholesaler was that the organisation gained the knowledge necessary for making a specification of a web ordering system. The VeRDI innovation initiative was in line with the expressed e-strategy of the organisation, and was approved and supported by the management of the organisation. The specification of the system was aligned with the needs of the tyre wholesaler and its customers. Mr. Tire increased his knowledge about web ordering applications, and this increase in personal intellectual capital was valued by his organisation and appreciated by his boss.

The strategies of the concrete producer were not as clearly stated, but the responsibility for IT was delegated to our respondent. The initial idea of Mr. Concrete was to search for a new, more integrated accounting system. Mr. Concrete was much in charge of the formulation and implementation of the strategy of the organisation regarding e-commerce. His boss did not involve himself much in the e-commerce strategy formulation or implementation. Mr. Concrete did not formulate his e-commerce strategy in writing; it was displayed more in actions taken. The visible result of the VeRDI programme for the concrete producer was the installation of a new accounting system. Mr. Concrete increased his value for the organisation as he was the employee with knowledge of which accounting system suits the needs of the concrete producer.

The employees at the brewery uttered frustration about the lack of an expressed strategy at their organisation. At the brewery, the strategy was discussed at the top level, but not disseminated or announced at the organisational level where our respondents were employed. The employees from the brewery involved in the VeRDI programme had little influence on the development of the e-commerce strategy in their organisation. This gave the result that the employees interviewed were able to pursue only innovation initiatives that were fully under their own control. They were not able to take initiative involving workers other than themselves. Only minor results from the VeRDI programme were reported at the brewery. The employees at the brewery expressed frustration over what knowledge regarding innovation initiatives the brewery valued. These results are summarised in Table 2.

Table 2 The theoretical perspective used to explain organisational strategy, employee motivation, and reward for employee innovation involvement

Organisation	*Concrete producer*	*Tyre wholesaler*	*Brewery*
Theoretical perspective	Intrapreneurship	Employee innovation behaviour	Corporate entrepreneurship
Knowledge worker	Mr. Concrete	Mr. Tire	Mr. BreweryIT Mr. BreweryController
Knowledge worker wanted	Increased knowledge, respect as a knowledge worker, increased value as an employee, reducing dull work	Increased knowledge, respect as a knowledge worker, increased value as an employee	Increased knowledge, respect as a knowledge worker, increased value as an employee, reducing dull work
Knowledge worker got	Increased knowledge, respect as a knowledge worker, increased value as an employee, reducing dull work	Increased knowledge, respect as a knowledge worker, increased value as an employee	Increased knowledge, reducing dull work
Innovation strategy	No strategy	Clearly stated strategy	Unclear and shifting strategy
Boss	Mr. ConcreteBoss	Mr. TireBoss	Mr. BreweryBoss
Boss wanted	Had no wish	Increased organisational knowledge	Innovations
Boss got	Increased organisational knowledge and an innovation	Increased organisational knowledge	Minor innovations

6 Conclusion

This paper reports the results from a case study of three organisations and four main respondents with three additional respondents to ensure validity. All the participants in the local VeRDI programme were included in the study; even so, the method chosen implies a self-selection bias. The participants were not randomly assigned to participate in the programme. Luckily enough, the employees from the three organisations were recruited to the programme in different ways. As the paper shows, one employee enrolled in the programme in an intrapreneurial way, two were engaged in a corporate entrepreneurship manner by their superior, and one entrance could best be classified as employee innovation behaviour. This reduces the self-selection bias in this study. Two of its strengths are that the case study is longitudinal and that the respondents at several points in time approved the data. This study uses the individual as a level of analysis, as the aim is to reveal the opinion of the players involved in innovation behaviour.

6.1 Intellectual capital, personal intellectual capital and reward

This study was designed to provide some insight into what the knowledge worker finds motivating towards engaging himself/herself in employee innovation behaviour. The Literature Section revealed that the link between reward and innovation behaviours is unclear. This study indicates that the link lies in an increase in the employee's knowledge. The motivation lies in the increased knowledge the knowledge worker gains by participating in innovation; this increased personal intellectual capital is valued by the organisation, and may subsequently lead to more interesting tasks. This finding holds regardless of how the employee was recruited to the programme.

The employees' focus was mainly on the learning possibility, when asked about their motivation for engaging in the VeRDI programme. The learning possibility gave the employees an opportunity to increase their personal intellectual capital, and an opportunity to prove the value of their existing knowledge base to the management. The employees all increased their personal intellectual capital and the value of their existing knowledge base by participating in the VeRDI programme. The bosses of the concrete producer and the tyre wholesaler appreciated the efforts from the employees as an increase in the intellectual capital of the organisation. The bosses expressed the view that the employees' participation in the VeRDI programme not only provided a solution to a given problem, but also expanded the possibilities for the organisation to engage other problems.

Overall, the case study into what the knowledge workers find motivating towards engaging in innovation behaviour has led to a fuller and deeper understanding. The management level has to evaluate and express the increased knowledge as an increase in personal intellectual capital, *i.e.*, knowledge of value to the organisation, for it to motivate employees to engage in innovation behaviour. This is a necessary condition for the employee to regard the increase in knowledge as a reward for the time and effort spent on innovation. The new knowledge gained has to be potentially useful to the present or a future employer for it to function as a reward.

6.2 Organisational strategy for corporate entrepreneurship and employee innovation behaviour

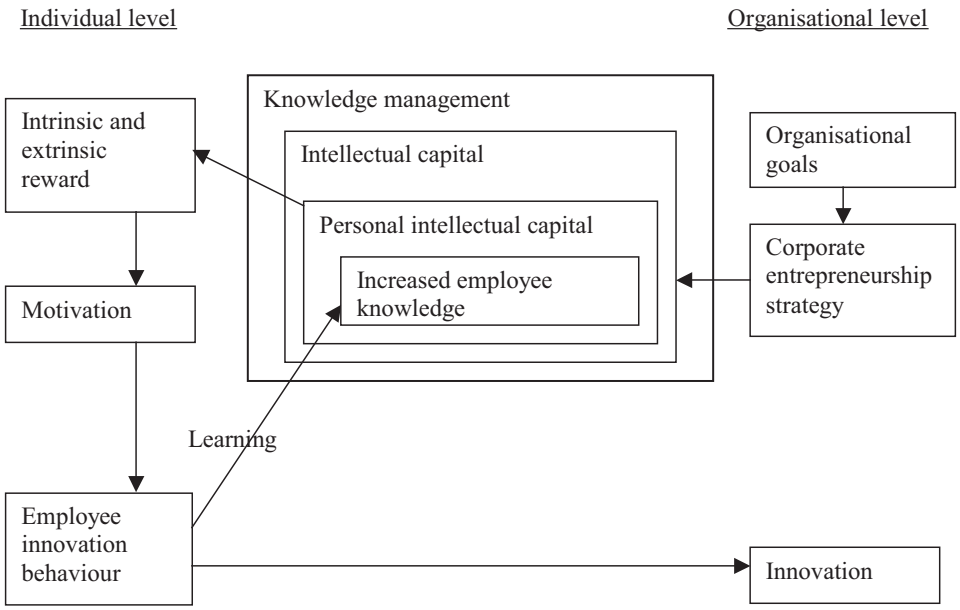
The organisation's expressed corporate entrepreneurship strategy influences employee innovation behaviour in two ways. An expressed strategy tells the employees what innovations the organisation needs, and the employees can then search for solutions within these borders. Another, more indirect way is for the strategy to tell the employees which knowledge regarding innovation behaviour the organisation values and what knowledge the employee should strive to gain.

The extent to which the e-commerce strategy of the organisation was made public to the employees varied between the organisations. Likewise, it differed between the three organisations studied how much the employees perceived the extent to which the management wanted employee innovation behaviour. This finding may indicate that the perceived strategy of the organisation determines the innovation behaviour of the employees to a degree. Using the intellectual capital/organisational knowledge framework help in understanding why the expressed strategy of the organisation influences employee innovation behaviour. The strategy regarding corporate entrepreneurship tells the employees the boundaries for innovation behaviour knowledge that is valued and what knowledge is not valued. The expressed strategy tells the employee what knowledge the organisation regards as personal intellectual capital and what knowledge the organisation does not value.

6.3 Knowledge management and innovation management

Knowledge management is about utilising the stock of intellectual capital the organisation controls. Innovation management is about organising the type and amount of innovation behaviour that suits the needs of the organisation. The findings in this paper indicate a link between the expressed corporate entrepreneurship strategy and the organisation's stock of intellectual capital. Further, the findings indicate a link between the employee's knowledge and what the organisation values, *i.e.*, the employees personal intellectual capital and the reward the employees gain. Furthermore, the findings in this paper indicate a link between this reward and the motivation of the employee to engage in innovation behaviour. Employees value the possibility of engaging in innovation behaviour, as it increases their personal intellectual capital. Moreover, employee innovation behaviour sometimes results in innovations. The literature review shows that the goals of the organisations should guide the corporate entrepreneurship strategy. These links can be depicted in a conceptual model of innovation management, as seen from the employee perspective. Based on the cues from the literature review and the evidence condensed from the field, a conceptual model of knowledge management and employee innovation behaviour emerges.

Figure 1 A conceptual model of innovation management and employee innovation behaviour



6.4 Implications for managers, practitioners and policymakers

The implications based on the findings in this case study are twofold for managers and practitioners. First, the study shows that the expressed strategy has importance for the level of employee innovation behaviour in an organisation. An expressed strategy works as a motivator by telling the employee what kind of innovation knowledge is valued by the organisation and by telling the employees where the organisation is headed. The advice to management wanting innovation behaviour would be to express the strategy of the organisation more clearly and to all the levels of the organisation. It also helps to organise learning experiences for all employees regarding the way work is done. Second, reward and employee innovation behaviour are related. An increase in the employee's personal intellectual capital is valued by the employee as it is appreciated by the management and it can be transformed into more interesting tasks.

Policymakers initiating regional development programmes will also gain by taking account of the findings reported in this study. Knowledge workers want to engage themselves in situations where there is a potential for learning. This is because learning increases their potential value as an employee and gives them access to more interesting and challenging tasks. Regional development programmes should then include and focus upon the learning possibilities for the employees engaged in the organisations.

6.5 Future research

The findings in this study point to some aspects worth considering for further research. Aldrich (1999) calls for quantitative studies of the motivation for employees to contribute with innovations, when he claims that our knowledge of the process of organisational transformation mostly comes from small-scale case studies, ethnographies and field studies. It is also worth investigating if an increase in personal intellectual capital motivates employees other than knowledge workers towards employee innovation behaviour. It would also be of interest to reveal if employees seek learning possibilities where they could exchange their increased personal intellectual capital for financial rewards. Moreover, there could possibly be personal characteristics that make some employees more likely than others to pursue a learning opportunity.

Acknowledgment

The author would like to thank Professor Lars Kolvereid and Professor Paul Westhead for their continuous support, advice and help on this paper.

References

Aldrich, H. (1999) *Organizational Evolving*, London: Sage Publications.

Amabile, T.M., Hill, K.G., Hennessey, B.A. and Tiegh, E.M. (1994) 'The work preference inventory: assessing intrinsic and extrinsic motivational orientation', *Journal of Personality and Social Psychology*, Vol. 66, No. 5, pp.950–967.

Åmo, B.W. and Kolvereid, L. (forthcoming) 'Organizational strategy, individual personality and innovative behaviour', *Journal of Enterprising Culture*.

Argyris, C. and Schön, D. (1996) *Organizational Learning II: Theory, Method and Practice*, USA: Addison-Wesley Publishing Company.

Baden-Fuller, C. and Stopford, J.M. (1992) *Rejuvenating the Mature Business*, Boston: Harvard Business School Press.

Block, Z. and MacMillan, I.C. (1993) *Corporate Venturing*, Boston: Harvard Business School Press.

Block, Z. and Ornati, O. (1987) 'Compensating corporate venture managers', *Journal of Business Venturing*, Vol. 2, No. 2, pp.41–52.

Carrier, C. (1996) 'Intrapreneurship in small businesses: an exploratory study', *Entrepreneurship Theory and Practice*, Vol. 21, No. 1, pp.5–20.

Christensen, C.S. (2004) 'A classification of the corporate entrepreneurship umbrella: labels and perspectives', *International Journal of Management Enterprise Development*, Vol. 1, No. 4, pp.301–315.

Chung, L.H. and Gibbons, P.T. (1997) 'Corporate entrepreneurship: the role of ideology and social capital', *Group and Organization Management*, Vol. 22, No. 1, pp.10–30.

Coulon, A. (1995) 'Ethnomethodology', *Qualitative Research Methods Series*, Vol. 36, London: Sage Publications.

Davenport, T.H. (1993) *Process Innovation: Reengineering Work through Information Technology*, Boston: Harvard Business School Press.

Davenport, T.H., Long, D.W.D. and Beers, M.C. (1998) 'Successful knowledge management projects', *Sloan Management Review*, Vol. 39, No. 2, pp.43–57.

Deci, E.L. (1996) *Why We Do What We Do: Understanding Self-Motivation*, NY: Penguin Books.

Dess, G.G., Ireland, R.D., Zahra, S.A., Floyd, S.W., Janney, J.J. and Lane, P.J. (2003) 'Emerging issues in corporate entrepreneurship', *Journal of Management*, Vol. 29, No. 3, pp.351–378.

Drejer, A. (2003) 'Innovation and learning', *International Journal of Innovation and Learning*, Vol. 1, No. 1, pp.9–23.

Drejer, A., Christensen, K.S. and Ulhøi, J.P. (2004) 'Understanding intrapreneurship by means of state-of-the-art knowledge management and organizational learning theory', *International Journal of Management and Enterprise Development*, Vol. 1, No. 1, pp.102–119.

Floyd, S.W. and Wooldrigde, B. (1999) 'Knowledge creation and social networks in corporate entrepreneurship: the renewal of organizational capability', *Entrepreneurship Theory and Practice*, Vol. 23, No. 3, pp.123–143.

Gottschalk, P. (1999) 'Knowledge management in the professions: lessons learned from Norwegian law firms', *Journal of Knowledge Management*, Vol. 3, No. 3, pp. 203–211.

Guglielmino, P.J. and Guglielmino, L.M. (2001) 'Moving toward a distributed learning model based on self-managed learning', *SAM Advanced Management Journal*, Vol. 66, No. 3, pp.36–43.

Hayton, J.C. (2005) 'Promoting corporate entrepreneurship through human resource management practices: a review of empirical research', *Human Resource Management Review*, Vol. 15, No. 1, pp.21–41.

Heijs, J. (2004) 'Innovation capabilities and learning: a vicious circle', *International Journal of Innovation and Learning*, Vol. 1, No. 3, pp.263–278.

Von Hippel, E. (1988) *The Sources of Innovation*, Oxford: Oxford University Press.

Janssen, O. (2000) 'Job demands, perceptions of effort-reward fairness and innovative work behaviour', *Journal of Occupational and Organizational Psychology*, Vol. 73, Part 3, pp.287–302.

Kanter, R.M. (1984) *The Change Masters*, NY: Simon and Schuster.

Keogh, W. and Steward, V. (2001) 'Identifying the skill requirements of the workforce in SMEs: findings from a European Social Fund project', *Journal of Small Business and Enterprise Development*, Vol. 8, No. 2, pp.140–149.

Klemm, M., Sanderson, S. and Luffman, G. (1991) 'Mission statements: selling corporate values to employees', *Long Range Planning*, Vol. 3, No. 3, pp.73–78.

Kuratko, D.F., Ireland, R.D. and Hornsby, J.S. (2001) 'Improving firm performance through entrepreneurial actions: Acordia's corporate entrepreneurship strategy', *The Academy of Management Executive*, Vol. 15, No. 4, pp.60–71.

Kuratko, D.F., Montagno, R.V. and Hornsby, J.S. (1990) 'Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment', *Strategic Management Journal*, Special issue Summer, Vol. 11, pp.49–58.

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.

McAdam, R. and McCreedy, S. (1999) 'A critical review of knowledge management models', *The Learning Organization*, Vol. 6, No. 3, pp.91–100.

May, T.Y.M., Korczynski, M. and Frenkel, S.J. (2002) 'Organizational and occupational commitment: knowledge workers in large corporations', *Journal of Management Studies*, Vol. 36, No. 6, pp.775–801.

Mouritsen, J. and Flagstad, K. (2004) 'Managing organizational learning and intellectual capital', *International Journal of Learning and Intellectual Capital*, Vol. 1, No. 1, pp.72–90.

Pinchot, G. (1985) *Intrapreneuring: Why You Don't Have to Leave the Corporation to Become an Entrepreneur*, NY: Harper & Row Publishers.

Pinchot, G. and Pellman, R. (1999) *Intrapreneuring in Action; A Handbook for Business Innovation*, San Francisco, CA: Berret-Koehler Publishers Inc.

Preiss, K.J. and Spooner, K. (2003) 'Innovation creation and diffusion in the Australian economy', *International Journal of Entrepreneurship and Innovation Management*, Vol. 3, No. 3, pp.197–210.

Pun, K.F., Chin, K.S. and Gill, R. (2001) 'Determinants of employee involvement practices in manufacturing enterprises', *Total Quality Management*, Vol. 12, No. 1, pp.95–109.

Sharma, P. and Chrisman, J.J. (1999) 'Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship', *Entrepreneurship Theory and Practice*, Vol. 23, No. 3, pp.3–11.

Stewart, T.A. (1997) *Intellectual Capital: The New Wealth of Organizations*, NY: Doubleday.

Suh, T. (2002) 'Encouraged, motivated and learning oriented for working creatively and successfully: a case of Korean workers in marketing communications', *Journal of Marketing Communications*, Vol. 8, No. 3, pp.135–147.

Sundbo, J. (1999) 'Empowerment of employees in small and medium-sized service firms', *Employee Relations*, Vol. 21, No. 2, pp.105–127.

Thorbjørnsen, S. and Mouritsen, J. (2003) 'Accounting for the employee in the intellectual capital statement', *Journal of Intellectual Capital*, Vol. 4, No. 4, pp.559–575.

Vedovello, C. and Godinho, M. (2003) 'Business incubators as a technological infrastructure for supporting small innovative firms' activities', *International Journal of Entrepreneurship and Innovation Management*, Vol. 3, Nos. 1–2, pp.4–21.

Wunderer, R. (2001) 'Employees as "co-intrapreneurs" – a transition concept', *Leadership and Organization Development Journal*, Vol. 22, No. 5, pp.193–211.

Note

1 'Verdi' is a Norwegian word for value, and the small 'e' in VeRDI should indicate its connection to e-business. The purpose of the VeRDI programme was to strengthen the competing power and profit of SMEs through stimulating and promoting the use of e-commerce in SMEs.

References

Ajzen, I. (1991) The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Aldrich, H. (1999) *Organizational Evolving*, Sage Publication: London.

Andersen, H. (1994) *Videnskabsteori & metodelære – introduktion*, Samfunnslitteratur: Frediksberg C., Denmark.

Antoncic, B. and Hisrich, R.D. (2001) Intrapreneurship: Construct refinement and cross-cultural validation, *Journal of Business Venturing,* 16, 495-527.

Antoncic, B. and Hisrich, R.D. (2003) Clarifying the intrapreneurship concept, *Journal of Small Business and Enterprise Development,* 10, 7-24.

Antoncic, B. and Hisrich, R.D. (2004) Corporate entrepreneurship contingencies and organizational wealth creation, *Journal of Management Development*, 23, 518-550.

Argyris, C. and Schön, D. (1996) *Organizational learning II. Theory, Method and Practice,* Addison-Wesley Publishing Company: Reading, Massachusetts.

Astley, W.G. and Van de Ven, A.H. (1983) Central perspectives and debates in organization theory, *Administrative Science Quarterly*, 28, 245-273.

Baden-Fuller, C. and Stopford, J.M. (1992) *Rejuvenating the mature business,* Harvard Business School Press: Boston.

Baden-Fuller, C. and Volberda, H.W. (1997) Strategic renewal: How large complex organizations prepare for the future, *International studies of Management and Organizations,* 27, 95-120

Bandura, A. (1977) *Social learning theory*, Prentice Hall: Englewood Cliffs, New Jersey.

Baron, R.A. (1989) *Psychology: the essential science*, Allyn and Bacon: USA.

Bateman, T.S. and Crant, J.M. (1993) The proactive component of organizational behavior: A measure and correlates, *Journal of Organizational Behavior,* 14, 103-119.

Beath, C.M. (1991) Supporting the information technology champion, *MIS Quarterly*, 15, 355-372.

Becherer, R.C. and Maurer, J.G. (1999) The proactivity personality disposition and entrepreneurial behavior among small scale company presidents, *Journal of Small Business Management***,** 37, 28-36.

Bjerke, B. (1999) *Business leadership and culture*, Edward Elgar Publishing: Cheltenham, UK.

Blaug, M. (1992) *The methodology of economics,* Cambridge University Press: New York.

Block, Z. and MacMillan, I.C. (1993) *Corporate Venturing,* Harvard Business School Press: Boston, Massachusetts.

Block, Z. and Ornati, O.A. (1987) Compensating corporate venture managers, *Journal of Business Venturing,* 2, 41-51.

Bracker, J. (1980) The historical development of the strategic management concept, *Academy of Management Review*, 5, 219-224.

Branscomb, L.M. and Florida, R. (1998) Challenges to technology policy in a changing world economy, in (Eds.) Branscomb, L.M. and Keller, J.H., *Investing in innovation*. The MIT Press: Cambridge, Massachusetts.

Burnes, B. (2000) *Managing change: A strategic approach to organizational dynamics,* 3rd ed., Pearson Education: Limited Harlow, UK.

Buttney, R. (1993) *Social accountability in communication,* SAGE Publications: London.

Campbell, D. J. (2000) The proactive employee: Managing workplace initiative, *Academy of Management Executive,* 14, 52-66.

Carrier, C. (1994) Intrapreneurship in large firms and SMEs: A comparative study, *International Small Business Journal,* 12, 54-62.

Carrier, C. (1996) Intrapreneurship in small businesses: An exploratory study, *Entrepreneurship Theory and Practice,* 21, 1-5.

Chandler, A.D. (1962) *Strategy and Structure: Chapters in the history of American industrial enterprise*, MIT: Cambridge, USA.

Chandler, G.N. and Hanks, S.H. (1994) Market attractiveness, resource-based capabilities, ventures strategies, and venture performance, *Journal of Business Venturing*, 9, 331-349.

Chetty, S. (1996) The case study method for research in small-and medium-sized firms, *International Small Business Journal*, 15, 73-86.

Christensen, C.S. (2004) A classification of the corporate entrepreneurship umbrella: labels and perspectives, *International Journal of Management Enterprise Development*, 1, 301-315.

Cottam, K.M. (1987) Professional identity and "intrapreneurial" behavior, *Journal of Library Administration*, 8, 29-40.

Crant, M. J. (1996) The Proactive Personality Scale as a predictor of entrepreneurial intentions, *Journal of Small Business Management,* 34, 42-49.

Cunningham, J. B. and Lischeron, J. (1991) Defining Entrepreneurship, *Journal of Small Business Management,* 29, 45-62.

Davenport, T.H. (1993) *Process Innovation: Reengineering work through information technology*, Harvard Business School Press: Boston, Massachusetts.

Davenport, T.H., Long, D.W.D. and Beers, M.C. (1998) Successful knowledge management projects, *Sloan Management Review*, 39, 43-57.

Davidsson, P. (1991) Continued Entrepreneurship: Ability, Need, and Opportunity as determinants of small firm growth, *Journal of Business Venturing,* 6, 405-429.

Deci, E.L. (1996) *Why we do what we do: Understanding self-motivation,* Penguin Books: New York.

Deckop, J.R., Mangel, R., and Circa, C.C. (1999) Getting more than you pay for: Organizational citizenship behavior and pay-for-performance, *Academy of Management Journal,* 42, 420-428.

Denzin, N.K. (1966) The Significant Others of a college population, *The Sociological Quarterly,* 7, 298-310.

Dess, G.G., Ireland, R.D., Zahra, S.A., Floyd, S.W., Janney, J.J., and Lane, P.J. (2003) Emerging issues in corporate entrepreneurship, *Journal of Management*, 29, 351-378.

Dess, G.G., Lumpkin, G.T. and McGee, J.E. (1999) Linking corporate entrepreneurship to strategy, structure, and process: Suggested research directions, *Entrepreneurship Theory and Practice,* 23, 3-85.

Dobbin, F. and Boychuk, T. (1999) National employment systems and job autonomy: Why job autonomy is high in the Nordic countries and low in the United States, Canada, and Australia, *Organization Studies,* 20, 257-291.

Drejer, A., Christensen, K.S. and Ulhøi, J.P. (2004) Understanding intrapreneurship by means of state-of-the-art knowledge management and organizational learning theory, *International Journal of Management and Enterprise Development,* 1, 102-119.

Fay, D. and Frese, M. (2001) The concept of personal initiative: An overview of validity studies, *Human Performance,* 14, 97-124.

Floyd, S.W. and Wooldridge, B. (1999) Knowledge creation and social networks in corporate entrepreneurship: The renewal of organizational capability, *Entrepreneurship Theory and Practice*, 23, 3-123.

French, W.L. and Bell, C.H.Jr. (1990) *Organizational Development: behavioral science interventions for organization improvements*, 4th ed., Prentice-Hall International: Englewood Cliffs, New Jersey.

Gartner, W. B. (1990) What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing,* 5, 15-28.

Gottschalk, P. (1999) Knowledge management in the professions: lessons learned from Norwegian law firms, *Journal of Knowledge Management*, 3, 203-211.

Greene, P.G., Brush, C.G. and Hart, M.M. (1999) The corporate venture champion: A resource-based approach to role and process, *Entrepreneurship Theory and Practice,* 23, 3-103.

Guth, W. D. and Ginsberg, A. (1990) Guest editors' introduction: Corporate entrepreneurship, *Strategic Management Journal,* 11, 5-15.

Harrè, R. and Gillett, G. (1994) *The discursive mind,* Sage Publications: London.

Hayton, J.C. (2005) Promoting corporate entrepreneurship through human resource management practices: A review of empirical research, *Human Resource Management Review*, 15, 21-41.

Hesselbein, F., Goldsmith, M. and Somerville, I. (2002) Introduction. In F. Hesselbein, M. Goldsmith, and I. Somerville. (eds.), *Leading for innovation and organizing for results*, Jossey-Bass: San Francisco.

Hofstede, G. (1984) *Culture's consequences*, 2nd ed., Sage Publications: Beverly Hills, CA.

Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002) Middle manager's perception of the internal environment for corporate entrepreneurship: Assessing a measurement scale, *Journal of Business Venturing***,** 17, 1-253.

Hornsby, J.S., Naffziger, D.W., Kuratko, D.F. and Montagno, R.V. (1993) An interactive model of the corporate entrepreneurship process, *Entrepreneurship Theory and Practice,* 17, 2-29.

Ingelhart, R., Basañez, M. and Moreno, A. (1998) *Human values and beliefs,* The University of Michigan Press: Michigan, US.

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

Janssen, O. and van Yperen, N.W. (2004) Employees goal orientation, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction, *Academy of Management Journal*, 47, 368-384.

Janssen, O., de Vries, T. and Cozijnsen, A.J. (1998) Voicing by adapting and innovating employees: An empirical study on how personality and environment interact to affect voice behavior, *Human Relation,* 51, 945-967.

Jennings, R., Cox, C. and Cooper, C.L. (1994) B*usiness Elites: The Psychology of Entrepreneurs and Intrapreneurs*, Routlegde: London.

Judd, C.M., Smith, E.R. and Kidder, L.H. (1991) *Research methods in social relations*, 6th ed., Holt, Rinehart and Winston, Inc.: Forth Worth, USA.

Kanter, R.M. (1984) *The Change Masters,* Simon and Schuster: New York.

Karol, R.A., Loeser, R.C. and Tait, R.H. (2002) Better new business development at DuPoint – I, *Research Technology Management*, 45, 24-30.

Kirton, M. (1988) Adopters and innovators: Problem solvers in organizations. In Grønhaug and K. Kaufman G. (eds.), *Innovation: A cross-disciplinary perspective,* 65-86, Universitetsforlaget: Oslo, Norway.

Kleinbaum, D.G., Kupper, L.L., Muller, K.E. and Nizam, A. (1998) *Applied regression analysis and other multivariable methods*, 3rd ed., Duxbury Press: CA.

Klemm, M, Sanderson, S. and Luffman, G. (1991) Mission statements: Selling corporate values to employees, *Long Range Planning*, 3, 73-78.

Kleysen, R. F. and Street, C. T. (2001) Toward a multi-dimensional measure of individual innovative behaviour, *Journal of Intellectual Capital,* 2, 284-296.

Kuratko, D. F. and Hodgetts, R. M. (1998) *Entrepreneurship: A contemporary approach*, 4th ed., The Dryden Press: Forth Worth.

Kuratko, D. F., Montagno, R. V. and Hornsby, J. S. (1990) Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment, *Strategic Management Journal,* 11, 28-49.

Kuratko, D.F., Hornsby, J.S., and Goldsby, M.G. (2004) Sustaining corporate entrepreneurship: Modelling perceived implementation and outcome at organizational and individual level, *Entrepreneurship and innovation*, 5, 77-89.

Kuratko, D.F., Ireland, R.D., and Hornsby, J.S. (2001) Improving firm performance through entrepreneurial actions: Acordia's corporate entrepreneurship strategy, *The Academy of Management Executive*, 15, 60-71.

Landström, H. (2000), *Entreprenörskapets rötter*, 2th ed., Studentlitteratur: Lund, Sweden.

Lillestøl, J. (1982) *Sannsynlighetsregning og statistikk*, Bedriftsøkonomenes forlag: Oslo, Norway.

Lindholm, M. and Udèn, G. (2001) Nurse Managers' management direction and role over time, *Nursing Administration Quarterly,* 25, 14-29.

Lindkvist, L. (1988) *A passionate search for Nordic Management*, Institut for Organisation og Arbeidssociologi: Copenhagen, Denmark.

May, T.Y.M., Korczynski, M. and Frenkel, S.J. (2002) Organizational and occupational commitment: Knowledge workers in large corporations, *Journal of Management Studies*, 36, 775-801.

McClelland, D. (1961) *The achieving society,* van Nostrand: Princeton New Jersey.

Mintzberg, H. (1994) *The rise and fall of strategy planning*, The Free Press: NY.

Mintzberg, H. and Quinn, J.B. (1996) *The strategy process*, 3rd ed., Prentice Hall International: Upper Saddle River, New Jersey.

Morris, M.H., Davis, D.L. and Allen, J.W. (1994) Fostering corporate entrepreneurship: Cross-cultural comparison of the importance of individualism versus collectivism, *Journal of International Business Studies,* 25, 1-65.

Morrison, E.W. and Phelps, C.C. (1999) Taking charge at work: Extrarole efforts to initiate workplace change, *Academy of Management Journal*, 42, 403-419.

Mouritsen, J. and Flagstad, K. (2004) Managing organizational learning and intellectual capital, *International Journal of Learning and Intellectual Capital*, 1, 72-90.

Organ, D. (1988) *Organizational citizenship behavior: The good soldier syndrome,* Lexington Books: Lexington, MA.

Organ, D.W. (1990) The motivational basis of organizational citizenship behaviour. In L.L. Cummings and B.M. Staw (eds.), *Research in organizational behaviour*, 43-72. JAI: Greenwich, CT.

Pinchot, G. (1985) *Intrapreneuring,* Harper & Row: New York.

Pinchot, G. and Pellman, R. (1999) *Intrapreneuring in action: A handbook for business innovation,* Berret-Koehler Publishers Inc: San Francisco, CA.

Preiss, K.J. and Spooner, K. (2003) Innovation creation and diffusion in the Australian economy, *International Journal of Entrepreneurship and Innovation Management,* 3, 197-210.

Rasmussen, E. (1994) *Games and information: An introduction to game theory,* Blackwell Publishers: Cambridge, Massachusetts.

Rogers, E.M. (1995) *Diffusion of Innovations*, 4th ed., The Free Press: New York.

Roos, J., Roos, G., Dragonetti, N.C. and Edvinson, L. (1997) *Intellectual capital: Navigating the new business landscape*, MacMillan Business: London.

Russell, R.D. (1999) Developing a process model of intrapreneurial systems: A cognitive mapping approach, *Entrepreneurship Theory and Practice*, 23, 65-84.

Saunders, M.N.K., Lewis, P. and Thornhill, A. (2000) *Research methods for business students*. 2th ed., Pearson Education Limited: Harlow, Essex, UK.

Schramm, W. (1971) *Notes on case studies of instructional media projects*, Working paper for the Academy of Educational Development: Washington, DC.

Schumpeter, J. (1911, 1926, 1934) *Theory of economic development: An inquiry into profits, capital, credits, interest and business cycle,* Trans. Redovers Opie. Harvard University: Cambridge.

Seibert, S.E., Kraimer, M.L. and Crant, J.M. (2001) What do proactive people do? A longitudinal model linking proactive personality and career success, *Personnel Psychology,* 54, 845-874.

Shane, S. (1995) Uncertainty avoidance and the preferences for innovation championing roles, *Journal of International Business Studies,* 26, 47-68.

Shane, S. (2003) *A general theory of entrepreneurship,* Edward Elgar Publishing: Cheltenham.

Shane, S. and Venkatarman, S. (2000) The promise of entrepreneurship as a field of research, *Academy of Management Review,* 25, 217-226.

Sharma, P. and Chrisman, J. J. (1999) Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship, *Entrepreneurship Theory and Practice*, 23, 3-11.

Shulman, S. (1996) The political economy of labor market discrimination: A classroom-friendly presentation of the theory, *Review of Black Political Economy,* 24, 47-64.

Spilling, O.R. (1998) *Entreprenørskap på norsk,* Fagbokforlaget: Oslo, Norway.

Srivastava, A. and Lee, H. (2005) Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship, *Journal of Business Venturing*, 20, 459-481.

Stevenson, H. and Jarillo, J. (1990) A paradigm of entrepreneurship: Entrepreneurial management, *Strategic Management Journal***,** 11, 17-27.

Stewart, T.A. (1998) *Intellectual Capital: The new wealth of organizations*, Nicholas Brealey: London.

Stopford, J. M. and Baden-Fuller, C. (1990) Corporate rejuvenation, *Journal of Management Studies,* 27, 399-415.

Stopford, J. M. and Baden-Fuller, C. (1994) Creating corporate entrepreneurship, *Strategic Management Journal,* 15, 521-535.

Sundbo, J. (1999) Empowerment of employees in small and medium-sized service firms, *Employee relations*, 21, 105-127.

Tepper, B. J. and Taylor, E.C. (2003) Relationships among supervisors' and subordinates' procedural justice perceptions and organizational citizenship behaviours, *Academy of Management Journal***,** 46, 97-105.

Thompsen, J.L. (2004) Innovation through people, *Management Decision*, 42, 1082-1094.

Thong, J.Y.L. (1999) An integrated model of information systems adoption in small businesses, *Journal of Management Information Systems*, 15, 187-215.

Thorbjørnsen, S. and Mouritsen, J. (2003) Accounting for the employee in the intellectual capital statement, *Journal of Intellectual Capital*, 4, 559-575.

Thornberry, N.E. (2003) Corporate entrepreneurship: Teaching managers to be entrepreneurs, *Journal of Management Development*, 22, 329-344.

Volberda, H.W., Baden-Fuller, C. and van den Bosch, F.A.J. (2001) Mastering strategic renewal: Mobilising renewal journeys in multi-unit firms, *Long Range Planning*, 34, 159-178.

Von Hippel, E. (1988) *The sources of Innovation,* Oxford University Press: Oxford.

Weick, K.E. (1995) *Sensemaking in organisations*, Sage Publications: Thousand Oaks.

Wesorick, B. (2002) 21st century leadership challenge: creating and sustaining healthy, healing work cultures and integrated service at the point of care, *Nursing Administration Quarterly,* 26**,** 18-32.

Wiklund, J. (1998) *Small firm growth and performance: Entrepreneurship and other explanations*, Doctoral dissertation, Jönköping International Business School: Jönköping, Sweden.

Wilson, D. C. (1992) *A strategy of change***,** Rutledge: London.

Wunderer, R. (2001) Employees as “co-intrapreneurs” – a transformation concept, *Leadership & Organizational Development Journal*, 22, 193-211.

Yin, R.K. (1989) *Case study research: Design and methods*, Sage Publications: Newbury Park.

Zahra, S.A. (1991) Predictors of financial outcomes of corporate entrepreneurship: An exploratory study, *Journal of Business Venturing*, 6, 259-286.

Zahra, S.A. (1996) Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technology opportunities, *Academy of Management Journal,* 39, 1713-1735.

Zahra, S.A. and Covin, J.G. (1993) Business strategy, technology policy and firm performance, *Strategic Management Journal*, 14, 451-478.

Zi, S. by Hou, W.C. (2003) *Art of war*, Parson Education: Asia.

Appendix I – The items used and their purpose in the three surveys

This appendix list the items used in the three surveys.

Survey 1 used in paper 1

These items were used to build the model:

Measuring **Innovative behavior**

1) To what extent do you contribute to new product development in the organization in which you are employed?
2) To what extent do you contribute to the development of new product-market combinations in the organization in which you are employed?
3) To what extent do you contribute to development projects in the organization in which you are employed?
4) To what extent do you contribute to the development of new venture ideas in the organization in which you are employed?
5) To what extent do you contribute to the development of new markets for the organization in which you are employed?

The items was constructed for this questionnaire and measured on a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).

Measuring **Intrapreneurial personality**

1) Does your desire to make things work better occupy as much of your time as fulfilling your duty to maintain them the way they are?
2) Do you get excited about what you are doing at work?
3) Do you thing about new business ideas while driving to work or taking a shower?
4) Can you visualize concrete steps for action when you consider ways to make a new idea happen?
5) Do you get in trouble from time to time for doing things that exceed your authority?
6) Are you able to keep your ideas under cover, suppressing your urge to tell everyone about them until you have tested them and developed a plan for implementation?
7) Have you successfully pushed through bleak times when something you are working on looked like it might fail?
8) Do you have more than your share of both fans and critics?
9) Do you have a network of friends at work whom you can count on for help?
10) Do you get easily annoyed by others' incompetent attempts to execute portions of your ideas?
11) Can you consider trying to overcome a natural perfectionist tendency to do all the work yourself and share responsibility for your ideas with a team?
12) Would you be willing to give up some salary in exchange for the chance to try out your business idea if the rewards for success were adequate?

Elaborated from Pinchot's (1985:31) test: "Are You an Intrapreneur?" Measured on a 5-point numerical scale (1=very little extent to 5=very large extent).

Measuring **Strategic orientation toward corporate entrepreneurship**

1) To what extent does your employer encourage employees to contribute to the development of new products?
2) To what extent does your employer encourage employees to contribute to the development of new product-market combinations in the organization in which you are employed?
3) To what extent does your employer encourage employees contribute to development projects in the organization in which you are employed?
4) To what extent does your employer encourage employees to contribute to the development of new venture ideas in the organization in which you are employed?
5) To what extent does your employer encourage employees to contribute to the development of new markets for the organization in which you are employed?

The items was constructed for this questionnaire and measured on a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).

These measurements were used as control variables.

Three different demographic dummy variables were included as controls:

1) Gender (1=male, 0=female).
2) Education after graduation (1=yes, 0=no).
3) Technical education or experience (1=yes, 0=no).

Two measures capturing different aspects of work experience and training were included as control:

1) How many times the respondent has changed employer.
2) How many years the respondent has been employed in the current organization.

Organizational size was included as control.

Organizations size were measured in the number of employees (1=1-49, 2= 50-99, 3=100-499, 4=500-999, 5=1000-4999, and 6=5000+).

Functional areas was measured by creating a dichotomous variable indication less specialized functional areas (administration, management, advertising, external consulting, information technology = 1, other = 0).

The following job related control variables were included as dummy variables:

1) Working in line (yes=1).
2) Working as senior manager (1=yes, 0 indicates that the respondent are either a middle manager or a white-collar worker), or middle manager (yes=1, 0= indicates that the respondent are either a senior manager or a white-collar worker).

These measurements were used to exclude respondents not included in the model.

1) Individuals who had not completed their business degree.
2) Respondents who were not full-time employed.
3) Graduates who were employed abroad.
4) Graduates who were self-employed.
5) Graduates who were employed in a family firm (i.e. an organization owned by the respondent's parents or family.

Survey 2 used in paper 2

The following items were used to build the model:

Measuring **The organisation's desire for employee innovation behaviour**

1) To what extent does your main employer encourage the employees to contribute to new product development in the business in which you are employed?
2) To what extent does your main employer encourage the employees to contribute to the development of new product-market combinations in the business in which you are employed?
3) To what extent does your main employer encourage the employees to contribute to the development of new venture ideas in the business in which you are employed?
4) To what extent does your main employer encourage the employees to contribute to the development of new markets for the business in which you are employed?
5) To what extent does your main employer encourage the employees to contribute to more cost efficient production processes in your organisation?

The items were constructed for this questionnaire and measured on a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).

Measuring **The competitive strategy of differentiation**

1) My main employer does everything to be the first to introduce new products on the market.
2) My main employer emphasises development of new products and services.
3) My main employer utilizes new and innovative methods in marketing.

From Chandler and Hanks (1994) and measured along a 5-point numerical scale from 1 (“strongly disagree”) to 5 (“strongly agree”).

Measuring **The competitive strategy of cost leadership**

1) My main employer emphasizes cost reducing efforts in all parts of the organization.
2) My main employer strongly emphasizes the improvement of productivity of the employees and making the production processes in the organization more efficient.
3) My main employer has achieved reduced production costs by process innovations.

From Chandler and Hanks (1994) and measured along a 5-point numerical scale from 1 (“strongly disagree”) to 5 (“strongly agree”).

Measuring **Employee innovation behaviour**

1) To what extent do you contribute to new product development in the business in which you are employed?
2) To what extent do you contribute to the development of new product-market combinations in the business in which you are employed?
3) To what extent do you contribute to the development of new venture ideas in the business in which you are employed?
4) To what extent do you contribute to the development of new markets for the business in which you are employed?
5) To what extent do you contribute to more cost efficient production processes in your organisation?

The items were constructed for this questionnaire and measured on a 5-point numerical scale (from 1 = very little extent, to 5 = very large extent).

Measuring **Proactivity**

1) I am constantly on the lookout for new ways to improve my life.
2) I feel driven to make a difference in my community, and maybe the world.
3) I tend to let others take the initiative to start new projects.
4) Wherever I have been, I have been a powerful force for constructive change.
5) I enjoy facing and overcoming obstacles to my ideas.
6) Nothing is more exciting than seeing my ideas turn into reality.
7) If I see something I don't like, I fix it.
8) No matter the odds, if I believe in something I will make it happen.
9) I love being a champion for my ideas, even against other people's opposition.
10) I excel at identifying opportunities.
11) I am always looking for better ways to do things
12) If I believe in an idea, no obstacle will prevent me from making it happen.
13) I love to challenge the *status quo*.
14) When I have a problem, I tackle it head on.
15) I am great at turning problems into opportunities.
16) I can spot a good opportunity long before others can.
17) If I see something in trouble, I help out in any way I can.

From Bateman and Crant (1993, p. 112) and measured on a 7-point numerical scale (from 1 = very little extent, to 7 = very large extent).

These measurements were used to exclude respondents not included in the model.

1) Individuals who had not completed their business degree.
2) Respondents who were not full-time employed.
3) Graduates who were employed abroad.
4) Graduates who were self-employed.
5) Graduates who were employed in a family firm (i.e. an organization owned by the respondent's parents or family.
6) Graduates working as a manager or as a middle manager.

Survey 3 used in paper 3

These items were used to build the model:

Measuring **Management encouragement toward innovation behavior**

1) The management requests my opinion in questions regarding improvements at work.

2) My manager gives me opportunities to discuss improvements at work.

3) At our workplace the employees are encouraged to do things in a better way.

The items were constructed for this questionnaire and measured on a 7-point numerical scale (from 1 = very little extent, to 7 = very large extent).

Measuring **Colleague's innovation behavior**

1) My colleagues work much with improvements at work.

2) My colleagues think that improvements at work are important.

3) My colleagues are concerned about improvements at work.

The items were constructed for this questionnaire and measured on a 7-point numerical scale (from 1 = very little extent, to 7 = very large extent).

Measuring **Own innovation behavior**

1) I participate in discussions regarding improvements at work.

2) I invite others into discussions regarding improvements at work.

3) I like to work with issues related to improvements at work.

The items were constructed for this questionnaire and measured on a 7-point numerical scale (from 1 = very little extent, to 7 = very large extent).

These measurements were used to group respondents and to exclude respondents not included in the model.

1) What is your position: codes as:
   - Nurse aid nurse aid
   - Home care worker unskilled
   - Nurse nurse
   - Care worker nurse aid
   - Assistant unskilled
   - Other……. excluded

These measurements were used as control variables.

1) Are you formally educated for your position: yes / no.
2) What is your highest educational tenure: _____
3) Where do you work: Institution / home service.
4) What are your conditions of employment: permanent appointment / temporary help.
5) How big is your permanent appointment in percent of full time: ____ %.
6) Age: _____
7) Gender: male / female.

Appendix II – The structured questions for the case study reported in paper four.

The structured questions for the respondents in paper four, in Norwegian.

N1 - Fortell litt om prosessen fra et følt problem til en mulig løsning på problemet, hvor veien til løsningen er deres deltakelse i VeRDI programmet.

N2 - Hvor kommer idèen om at det var interessant å delta i VeRDI prosjektet.

N3 - Fortell litt om de problemene du ser for deg at bedriften vil møte i de nærmeste årene og på lang sikt.

N4 - Hvilket problem er det deltakelsen i VeRDI prosjektet skal løse?

N5 - Hvem kom med problemet, og hvordan har problemformuleringen endret seg?

N6 - Fortell litt om ledelsen/styrets strategi.

N7 - Er dette et initiativ fra ledelsen/styret, eller er det et initiativ fra deg?

N8 - Hvorfor tok du ansvar for akkurat dette prosjektet?

N9 - Hvem er det du diskuterer ulike løsningsalternativer og ulike problemoppfatninger med?

N10 - Er det andre i denne organisasjonen som føler eierskap til problemet og løsningsforslagene?

N11 - Sier ledelsen/styret noe strategisk som du henger din idè i, kobler du din ide til ledelsen/styrets strategi på noe vis?

N12 - Hva er din bakgrunn.

N13 - Hva forventer du å oppnå med å engasjere deg slik du gjør?

N14 - Hvor stor kontroll har du med fremgangen og skjebnen til prosjektet?

N15 - Er det andre i denne organisasjonen som har påvirkningskraft på fremgangen og skjebnen til prosjektet?

N16 - Hvem er så disse, og hvilken vei påvirker disse fremgang og skjebne til prosjektet?

N17 - Hvem har du samarbeidet med i utviklingen av problemforståelsen, og i utviklingen av løsningen?

N18 - Fortell litt om de forskjellige løsningene du kan se for deg på det problemet som skal løses.

N19 - Hva er det som er nytt for bedriften i de løsningene som du kan se en skisse av?

N20 - Hvordan kontrollerer du (eller ledelsen/styret ditt) hvilke ressurser som settes inn, og hvilke resultater som en forventer av en ferdig implementert løsning?

N21 - Er det tatt liknende initiativ før her i bedriften?

N22 - Har du tatt liknende initiativ før?

N23 - Hvordan ble disse tidligere initiativene dine mottatt?

N24 - Hvilken belønning fikk du ved å ta disse tideligere initiativene?

N25 - Hva lærte du av disse tidligere initiativene?

N26 - Hvordan er FoU arbeidet organisert i bedriften?

N27 - Har du kundekontakt, og kan du beskrive hvordan din kontakt med kundene gjør at du mener at du er den rette til å beskrive løsningen på problemet?

N28 - Hvem i bedriften møter kunder, og får rede på hvilke problemer kundene ønsker å løse ved hjelp av din bedrifts produkter/tjenester?

N29 - Eier du bedriften, eller er du ansatt? Hva er din plass i bedriften?

N30 - Ville du tatt liknende initiativ om du var ansatt i en annen bedrift?

N31 - Hvor stor arbeidsmengde har du?

N32 - Hvilken oppmuntring får du fra styret, arbeidsfellesskapet her, fra kollegaer, fra kunder mht verdi programmet?

N33 - Har du tatt initiativ til å forandre produktspekteret, kundegruppen, eller til kostnadsreduksjoner i de siste to årene?

N34 - Hvor kom disse ideene fra?

N35 - Kan jeg få se kravspeken dere har utviklet, hvordan har denne utviklet seg gjennom prosjektet?

N36 - Er det noe som har blitt lagt til / tatt fra i kravspeken?

N37 - Har du kamerater som også er opptatt av data på samme måte som deg?

N38 - Har du en aksjeportefølje som du spiller med, eller har du andre forretningsinteresser enn her?

N39 - Når ble ideen presentert for sjefen / styret?

N40 - Har du noen verv i frivillige organisasjoner?

N41 - Hvorfor bruker du tiden på slike ting, og ikke på andre ting, så som…..

N42 - Hvor ser du deg selv om 10 år, i samme stilling, forfremmet eller i en annen bedrift?

N43 - Fortell litt om konsulentens rolle i dette.

The structured questions for the respondents in paper four, translated to English.

E1 - Tell me about the process from a felt problem to a possible solution to the problem, along which the road to the solution is your participation in the VeRDI program.

E2 - Where does the idea that it was interesting to participate in the VeRDI project come from?

E3 - Tell me about the problems you think that your organization has to face and solve in the coming years and in the longer run.

E4 - What problem is participation in the VeRDI project going to solve?

E5 - Who proposed the problem, and has the formulation of the problem changed?

E6 - Tell me about the strategy of the management / board of directors.

E7 - Is this an initiative of yours, or is it an initiative from the management?

E7 - Tell me about the strategy of the management / board.

E8 - Why did you take responsibility for this project?

E9 - With whom are you discussing different solutions and how to understand the problem with?

E10 - Are there others in the organization that feels ownership to the problems and the solutions?

E11 - Are there some strategies from the management and the board that you attach your ideas to?

E12 - Tell me about your educational and professional background.

E13 - What do you expect to gain by engaging in this as you do?

E14 - To what degree are you in control over the progress and the destiny of this project?

E15 - Are there others in the organization who influence the progress and the destiny of the project?

E16 - If so, who are these people, and in what direction do they influence the progress and destiny of this project.

E17 - Who have you co-operated with in developing an understanding of the problem and in developing the solution on the problem?

E18 - Tell me about the different solutions you can imagine to the problems you are facing.

E19 - What is new for the organization in the solutions you see mapped out?

E20 - How do you control (or how does your manager) control what resources to invest, and what results are expected from an implemented solution?

E21 - Has something similarly happened previously in this organization?

E22 - Have you taken similarly initiatives before?

E23 - How were these initiatives received then?

E24 - Which reward did you receive then?

E25 - What did you learn from taking these initiatives?

E26 - How is Research and Development work organized in the organization?

E27 - Are you in a position in which you meet the customers of the organization, and could you please tell me how this contact makes you confident that you are the right one to describe the solution to the problem?

E28 - Who in this organization meets the customers, and get to know what type of problems your customer wants to solve with the products your organization offers?

E29 - Do you own the organization or are you employed? What is your position in the organization?

E30 - Would you have taken similarly initiatives if you were employed in another organization?

E31 - What is your work load?

E32 - What encouragements do you receive from the management / board, from colleagues, from customers regarding the VeRDI program?

E33 - Have you taken the initiative to change the organization's products, customers or have you taken initiatives to reduce costs in our organization during the last two years?

E34 - Where did these ideas originate?

E35 - Could you show me the specification for the new ICT system and how this has developed during the project?

E36 - Has the specification been altered during the project?

E37 - Do you have friends that are as interested in computers as you are?

E38 - Do you day-trade with stocks or are you involved in other businesses?

E39 - When was the VeRDI project introduced for your manager / the board?

E40 - Do you have a seat in any voluntarily organization?

E41 - Why do you spend your time on this and not on other things?

E42 - Where do you see yourself in 10 years time, in the same position, promoted or in another organization?

E43 - Tell me about the role of the external consultant in all this.