Exploring the Strategic Impact of Service Employees' Tacit Knowledge:

The Development of an Indicator for Forecasting Economic Performance of Hotel Companies

by

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EXECUTIVE SUMMARY

Background: The concept of knowledge management (KM) and the role of tacit knowledge as a strategic asset for building competitive advantage through KM strategies and activities have become increasingly popular over the last fifteen years - both in management philosophy and in business practice. Despite the increasing acknowledgement of KM and tacit knowledge in many sectors, the application and empirical study of KM in the hospitality sector is however a relatively new phenomenon. Published KM research in the hospitality sector is thus still scarce, and studies currently remain limited, inconclusive, and mostly focused on anecdotal and one-off case studies. In a related vein, there is widespread agreement among scholars in business management that the construct of tacit knowledge is not sufficiently specified and that it resists operationalization. Yet, turning to strategic management, evidence on the operationalization of tacit knowledge does exist. Strategic management scholars for instance agree that tacit knowledge is both an intangible asset and a strategic asset, and that intuitive judgments constitute the vehicle to elicit individual tacit knowledge. Previous studies in the resource-based view (RBV) tradition and knowledge-based view (KBV) tradition in strategic management have likewise offered evidence on the existence of tacit knowledge and intangible assets and their relationship with economic firm performance. Moreover, behavioral economics offer evidence that confidence indices, i.e. indices of consumer sentiment based on consumers' intuitive judgments about the future, can predict changes in countries' GDP. What has until now been lacking in the strategic management literature is empirical proof that tacit knowledge has the capability to forecast changes in economic performance of businesses by means of intuitive judgments. Contemporary with the increasing acknowledgement of tacit knowledge as a strategic asset, a growing number of publications on judgmental forecasting and the study of biases in judgments have been disseminated. These studies particularly relate to experts' versus novices' judgmental performance, resulting from confidence and accuracy biases in judgments. The majority of these studies are however conducted as experiments in laboratories, and there is consequently a lack of studies that empirically treat the assessment of quality differences in knowledge sources amongst employee groups in real business settings.

Aims: The overarching aim of this thesis is to explore the strategic impact of service employees' tacit knowledge on service businesses. The main focus of the thesis is to explore the development of an indicator for forecasting economic performance of hotel companies, grounded in service employees' tacit knowledge and confidence towards the future state of the company. The research aim is explored in three studies and presented in four papers. The thesis firstly sets out to empirically review and frame the knowledge management concept in the hospitality sector and assesses the substance and research quality of articles of KM research in the hospitality industry. The second study of the thesis explores confidence and accuracy biases in intuitive judgmental performances of executives and employees. The third study investigates the construction, conceptualization and validation of a new strategic business indicator *Employee Strategic Sentiment Index* (ESSI) for hospitality management, as a judgmental forecasting tool for predicting economic business performance built on frontline employees' confidence and intuitive judgments towards the future. The aim of ESSI is to explore the potential establishment of a practical judgmental forecasting tool that can indicate early signals about changes in the competitiveness of the business.

Methods: The thesis is grounded in applied research. It compounds and draws on theories from knowledge management, cognitive theory, strategic management, and behavioral economics as theoretical frameworks. The literature review of KM research in the hospitality industry relies on theory-of-science criteria by Popper (1968) and Kuhn (1989), and a theoretical framework for assessing knowledge perspectives. This concerns a static versus dynamic perspective on knowledge in the empirical contributions at an industry, inter-organizational and intra-organizational level. The second study of the thesis is an exploratory quiz survey study of 39 executives and 38 frontline employees in the hotel industry, with the purpose of investigating biases in their intuitive judgmental performance. This is done through exploring confidence and accuracy (CA) biases of the subject groups in relation to their intuitive judgments when predicting uncertain business and industry-related outcomes. The third study of the thesis is an exploratory time-series study, containing 16, 17 and 18 months of observations respectively, based on three hotel cases. This study is presented in two separate papers. In one paper, the construction and preliminary results of the Employee Strategic Sentiment Index (ESSI) are presented, focusing on the application and performance of distributed lag models. The other ESSI paper presents the conceptualization and validation of ESSI against the macroeconomic indices Index of Consumer Sentiment (ICS) and Consumer Confidence Index (CCI).

Findings: The review of empirical research leads to the conclusion that empirical studies of KM in the industry are scarce and dim. Database searches of the KM concept and related topics yielded 2 365 hits, of which only 19 empirical articles were identified. Of these 19 articles, only five empirical contributions offer high research quality, while the remaining studies demonstrate that empirical KM research is limited, inconclusive, and low on generalization and testability. The principal conclusion of the second study is that there are no significant differences between executives and frontline employees in their accuracy performance of uncertain industry and business indicator results. Moreover, there are no significant differences in their confidence performance and in their CA calibration performance when judging strategic tasks. The key finding of the third paper is that ESSI shows indications of being capable of predicting economic changes. For two out of three hotel cases the regression models using lagged ESSI variables as leading indicator could explain a substantial share of the variation in the hotel performance measures, excess return of RevPar. The models applied could explain R^2 of 36% and of 39%, respectively. For the remaining one hotel case, ESSI could not predict excess return. In the fourth paper, the author hypothesizes that ESSI is a distinct and stronger predictor of competitiveness of the firm performance than ICS and CCI. The results confirm both the hypotheses that ESSI measures differently from the macroeconomic indicators and that ESSI is a stronger predictor of excess return.

Implications and conclusions: Overall, this thesis has empirically documented that service employees possess tacit knowledge that has a strategic impact on service businesses. While previous studies have put forward evidence on the existence of tacit knowledge and its relationship with economic firm performance, this thesis has provided some evidence on the real value of service employees' tacit knowledge for strategic management. The literature review of empirical KM research indicated that from a static perspective on knowledge, it is suggested that future research should offer insight into how hotels can avoid falling into competency traps through too much exploitation of their own routines. Within the dynamic perspective of knowledge, the review indicated a need to know more about what predicts good and bad learning climates and what promotes and hinders knowledge-sharing between diverse employee groups in the hospitality industry. It also indicated a need to investigate further diverse employee groups' knowledge ability in forecasting business change. The findings of the second study of the thesis indicated that frontline employees' intuitive

judgments about uncertain events are not more biased in terms of accuracy in judgments and confidence in knowledge than those of executives. This, in turn, indicates that executives are not necessarily better performers in a forecasting setting than frontline employees when judging performance indicator results for the industry. The study has thereby provided some indications that the knowledge of frontline employees can constitute a strategic capital asset to service businesses in relation to judgmental forecasting. The author recommends further external validation of the instrument and its confidence and accuracy measures with a larger sample of executives and frontline employees, along with investigation of organizational factors, such as organizational culture, size of organization and misuse of knowledge in response patterns that may affect results. Also, further examination of the validity of the formative measures may be validated against personal criteria measures, i.e. educational background and years of experience from the hospitality industry versus other industries. The general conclusion of the ESSI studies is that one needs to conduct further investigation of the index to assess its qualities as a practical and effective judgmental forecasting tool for hospitality management. This concerns reducing the 13 items to fewer items and reducing the frequency of measurements from monthly to quarterly observations. Such efforts are suggested particularly in order to meet challenges of cost efficiency and limited time consumption in the industry. To advance the validity of the index, a longer period of data sampling is also required to avoid out-of-sample forecasting. Likewise, it is recommended that a larger number of hotel cases be used to test the 13 items. In these initial studies of the ESSI, the author has demonstrated that the instrument is promising, but further data is required to assess the reasons why ESSI did not predict excess return for one out of three hotel cases. The ESSI study has also proved its potential as an indicator of assessing future perceived reputation of the firm by drawing on the dimensions of perceived reputation and perceived organisational reputation.

Keywords: tacit knowledge, firm capability, firm reputation, strategic capital, hospitality industry, knowledge management, strategic management, confidence indices, judgmental forecasting, confidence and accuracy biases.

LIST OF PAPERS

The thesis is based on the following papers, which are referred to by their Roman numerals:

I. Hallin, C.A. & Marnburg, E. (2008). Knowledge Management in the Hospitality industry: A Review of Empirical Research. *Tourism Management,* 29 (2), 366-381.

II. Hallin, C.A., Øgaard, T. & Marnburg, E. (2009). Exploring Qualitative Differences in Knowledge Sources: A Study of Hierarchical Effects of Judgmental Confidence and Accuracy Performance, *International Journal of Knowledge Management*, 5(4) (forthcoming October 2009).

III. Hallin, C.A., Tveterås, S., Marnburg, E., & Øgaard, T. Using Employee Confidence to Predict Hotel Performance: An Exploratory Study of a New Leading Business Indicator. *Under review in Cornell Hospitality Quarterly.*

IV. Hallin, C.A., Marnburg, E., & Tveterås, S. Applying Collective Tacit Knowledge as a Firm Capability for Forecasting Economic Firm Performance: Further Evidence on Employee Strategic Sentiment Index (ESSI). *In review process in Strategic Management Journal.*

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ABBREVIATIONS

CA	**Confidence and Accuracy**
CCI	**Consumer Confidence Index**
ESSI	**Employee Strategic Sentiment Index**
ICS	**Index of Consumer Sentiment**
KBV	**Knowledge-Based View**
KM	**Knowledge Management**
LESI	**Lodging Executive Sentiment Index**
RBV	**Resource-Based View**

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PREFACE

This PhD is a tale of a road being paved on five different continents and in six different countries. It all started at Cornell University, Upstate New York, where I was studying during the first year of my Master's degree in International Hospitality and Tourism Administration from 2002 to 2003. My main supervisor of the current PhD project, Professor Einar Marnburg, was also at Cornell University as a visiting professor at the School of Hotel Management. One day when we were sitting outside the hotel school, Professor Einar Marnburg announced to me that he was thinking of the possibility of developing an instrument similar to the American Index of Consumer Sentiment built upon consumers' judgments of the future, but that could predict hospitality company performance based upon employees' tacit knowledge.

In the fall of 2004 at the Norwegian School of Hotel Management, University of Stavanger, I was privileged to get the opportunity to work with Professor Einar Marnburg on the development of this idea into a full project. Based on some broad methodological considerations, we decided to present our research ideas to relevant practitioners and academics within the hospitality and tourism sectors. Subsequently, we signed up and submitted abstracts to the 2005 Council for Australian University Tourism and Hospitality Education (CAUTHE) conference held in the middle of the desert of Australia, at the magnificent Alice Springs Convention Centre.

As the plane trip to Australia required a stopover of two nights in Singapore, I got the idea that we could present our project to the management at the famous Raffles Hotel in Singapore and get their feedback on our proposed research project. I contacted the management of the hotel to set up a meeting. When the day came and we entered the doors of the legendary Raffles Hotel Singapore, we were met with a world of history dating back to 1887, and the hotel director and the human resource manager warmly welcomed us. After an inspiring meeting, and management's acknowledgement of our project's relevance to hotel companies, we were taken on a guided tour of Raffles Hotel by its historian, before we ended our visit with a taste of the legendary Singapore Sling. At the conference in Alice Springs we also received positive feedback from academics on our ideas.

In the summer of 2005 in Stavanger, I began working on the project as a three-year PhD study. Most of the project's parts have been defined along the way, in response to my one and a half years of monthly data collection from

three different hotels in Scandinavia. Yet, one aim has remained a constant driving force behind the project, namely to explore the development of a practical forecasting tool for hospitality businesses, based on frontline employees' confidence towards the future. As I went along and stumbled onto various problems, reflecting on matters alone and with my main supervisor Professor Einar Marnburg, and later also with my co-supervisor Professor Torvald Øgaard, I became aware that the project needed an econometric approach.

Fortunately for me, Associate Professor Sigbjørn Tveterås, an econometrician with expert knowledge in forecasting techniques, occupied an office next to me and was willing to help. Sigbjørn found the project interesting and we started working together to construct the *Employee Strategic Sentiment Index* (ESSI) in terms of its computation and forecasting models. Step by step and through a lot of exploring activities, including an amusing research trip together to Portugal to participate in the annual conference in Advances in Tourism Economics, the index took shape and we were able to identify the instrument's predictability, although with limited time-series data. When the data collection was finalized in the autumn of 2007, I had obtained new data that could be explored and analyzed.

In August 2008, I returned to work after my maternity leave, but now in my home city of Copenhagen, and at the Copenhagen Business School's Center for Tourism and Culture Management. Here in this corner of Copenhagen Business School, with a good view from the fifth floor of the building at Solbjerg Plads, I have been privileged to get the opportunity to finalize my PhD project, and the conceptualization, construction and validation of the *Employee Strategic Sentiment Index* (ESSI).

As I reflect back on this amazing research journey and on the collaboration with my colleagues and partners in the hotel industry in Scandinavia, I feel I have learned some important lessons: science is, and mainly should be, driven by curiosity and well-formulated research questions and hypotheses. Well-formulated research questions in the context of discovery and well-formulated hypotheses in the context of justification direct the project and lead the way in response to problems and needs of the project. I feel I have been in a privileged position that has enabled me to follow my curiosity, and I am conscious of the fact that I have learned more than I had imagined along the way due to the opportunity of working with such knowledgeable people. This thesis has been a generator of ideas and new interests. To me this thesis is rather a beginning than a completion of a project.

1. Introduction

Although the concept of treating tacit knowledge as a valuable strategic asset in the development of sustainable competitive advantage of firms occupies a central place in the knowledge management (KM) and strategic management literature, no empirical evidence exists of employees' collective tacit knowledge as a firm capability for forecasting economic performance.

The methodological approach of this thesis is grounded in applied research within business management. The thesis compounds and draws on theories from knowledge management (KM), cognitive theory, strategic management and behavioral economics as theoretical frameworks and applies these theories to the hospitality industry as the research setting of service businesses.

In the hospitality industry, executives are traditionally considered to be knowledge experts in strategic processes compared with subordinates because of their continuous access to, and handling of, strategic information. In hospitality businesses, however, the role of frontline employees may be particularly important to strategic decision makers because of their continuous interaction and knowledge sharing with customers, managers, colleagues, employees from other competing businesses within the industry and other interest groups. It is therefore reasonable to expect that important strategic information will be created at two different hierarchical levels in the organization: at the top management level *and* at the operational level.

This thesis sets out to review the phenomenon of empirical knowledge management research in the hospitality industry and the strategic impact of service employees' collective tacit knowledge in relation to economic firm performance. With departure in behavioral economics and confidence indices, the thesis focuses on developing a tool for systemizing collective tacit knowledge of strategic importance by means of employees' intuitive judgments towards the future. The thesis also examines confidence and accuracy biases related to the use of intuitive judgments by service employees in forecasting business change.

The central research statement of the thesis is thus *to explore the strategic impact of service employees' tacit knowledge on service businesses.*

In the following sections, the interconnections of the thesis' diverse constructs are put forward.

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1.1 KM research and overview of related topics and constructs

The concept of knowledge management has become increasingly popular over the last fifteen years, and occupies a central position both in management philosophy and in business practice. Knowledge management as a discipline has its origin in different disciplines such as information systems, intellectual capital management, organizational development and competence management, all of which have separately addressed knowledge management issues from the 1960's until the late 1980's, where the term KM was introduced for the first time (Tuomi, 2002; Wiig, 2000). The explicit focus on the management of knowledge for gaining competitive business advantage is however so recent that business practitioners still lead the quest to explore and implement approaches to knowledge management. Likewise, there is little empirical support of the significance of the concept in the academic and management research apart from specialized technical areas such as applied artificial intelligence and the use of information technology (Wiig, 1997), and organizational learning (e.g. Argyris & Schön, 1978; Bontis, Crossan, & Hulland, 2002).

Parallel with the popularity of the concept of KM, business strategy and strategic thinking have become centred on how businesses can effectively use and create knowledge in order to develop competitive advantage (Tuomi, 2002). The central question is how to create learning organizations and manage knowledge creating processes, which have subsequently caused organizational cognition researchers to begin to question the nature of knowing and its role in organized social action. One rationale for this trend may be ascribed to the Western world's emerging acknowledgment of, and adaptation to the Japanese approach to knowledge management (Nonaka & Takeuchi, 1995). In this line of thought, an organization's success is largely dependent on the opinions and insights of the organization's employees through their everyday socialization (Hoffman, Hoelscher, & Sherif, 2005; Muthusamy, 2008; Smith, 2005, 2006). Nonaka and Takeuchi (1995) proposed that this socialization process is founded on the sharing of both tacit and explicit knowledge and that it is the starting point for new organizational knowledge creation. While, explicit knowledge can be expressed, formulated in senses, and captured in drawings and writings, tacit knowledge is tied to the senses, intuition, intuitive judgements or implicit rules of thumb (Polanyi, 1966). Subsequently, organizational cognition researchers acknowledged that the missing link between what decision makers can see and make sense of, and the complex and abstract information in decision-making is to be found in the individual and collective tacit knowledge of organizational members

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(Bennett, 1998; Brockmann & Anthony, 2002; Muthusamy, 2008; Smith, 2005, 2006; Sternberg et al., 2000; Sternberg, Wagner, & Okagaki, 1993).

Consequently, it has been pointed out that the tacit knowledge of employees is part of the strategic capital of the firm (Hughes & Morgan, 2007; Smith, 2006), which may be understood as the capability to successfully plan and carry our strategies resulting from salient resources (Hughes & Morgan, 2007; Smith, 2006). The organization's strategic capital is particularly shaped by organizational capital, by cultural aspects (Alavi, Kayworth, & Leidner, 2005; Hunt & Morgan, 1995; Schein, 1985), social/relational capital (Hoffman et al., 2005; Hunt & Morgan, 1995) and informational capital (Horning, 1995; Hunt & Morgan, 1995).

Although, there is widespread agreement among scholars in knowledge management and in the strategic decision-making literature that tacit knowledge is important for organizations and management as a source for developing sustainable competitive advantage, the majority of scholars have argued that the concept is not sufficiently specified or defined: that it embraces too many meanings and resists operationalization, and that we only have a nascent idea of it (see Ambrosini & Bowman, 2001; Gourlay, 2006 for a review).

Nevertheless, if we turn to the strategic management literature, in the traditions of the resource-based view (RBV) and the knowledge-based view, (KBV) several empirical studies have indicated the relationship between collective tacit knowledge (aggregated tacit knowledge) and economic firm performance. According to these traditions, tacit knowledge is considered an intangible asset (Harlow, 2008; Nonaka & Takeuchi, 1995; Saint-Onge, 1996): it is considered as part of the firm's intellectual capital (Nonaka & Takeuchi, 1995; Saint-Onge, 1996), and it is a human capital as part of the intellectual capital of the firm (e.g. Edvinsson & Malone, 1997; Hitt, Bierman, Shimizu, & Kochhar, 2001; Saint-Onge, 1996). Moreover, it is reflected in the firm's reputation by members' perceived organizational reputation (organizational members' perceptions of outsiders' beliefs of the organization (Carmeli & Tishler, 2004b; Dutton, Dukerich, & Harquail, 1994; Smidts, Pruyn, & van Riel, 2001) and by members' perceived organizational identity (Albert & Whetten, 1985; Dutton et al., 1994). Perceived organizational reputation and perceived organizational identity thus mirror the collective beliefs, assumptions and values of organizational members, which constitute their collective tacit knowledge.

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Contemporary with the increasing focus on the usefulness of organizations' collective tacit knowledge, both as an explanatory factor of economic firm performance but also as input in strategic decision-making within KM, several business forecasters and researchers in business economics (Ghalia & Wang, 2000; Hogarth & Makridakis, 1981; Lawrence, Edmundson, & O'Connor, 1986; Lawrence, Goodwin, O'Connor, & Önkal, 2006) and cognitive psychology (Gilovich, Griffin, & Kahneman, 2002; Tversky & Kahneman, 1974) have acknowledged the limitations of using solely traditional statistical techniques. They recognize that traditional statistical methods are not useful for forecasting untypical trends and acknowledge cognitive methodologies as a part of forecasting and leading strategic decision-making.

This should be seen as a consequence of the fact that some untypical events cannot be predicted using only historical data. Consequently there has been a growing emphasis on the need to incorporate expert knowledge and intuitive judgments in business forecasts to strengthen the quality of predictions. While intuitive judgments have always played a crucial role in future-oriented decision-making in practice (Hogarth & Makridakis, 1981), academic attitudes to the role of judgment in business forecasting are now changing. There is a desire to learn how to combine judgments with statistical methods to approximate the most accurate forecasts (Lawrence et al., 2006; Wright & Ayton, 1987) and the key to enlightening this area lies in organizational members' intuitive judgments (Brockmann & Anthony, 2002; Muthusamy, 2008; Smith, 2005).

The central question in the studies of intuitive judgments and performance is what reduces the quality in intuitive judgments with emphasis on judgmental biases (Tversky & Kahneman, 1974), particularly in relation to confidence and accuracy (CA) biases in forecasting and strategic decision-making which have become increasingly relevant (e.g. Griffin & Tversky, 1992; Lawrence et al., 2006; Tversky & Kahneman, 1974). This theory particularly relates to the study of novices' versus experts' confidence in their accuracy and comprehensiveness and confidence in their answers when they make judgments about uncertain issues (Brewer & Sampaio, 2006). Although, a considerably number of studies have been put forward on experts versus' novices' CA performance, most of these studies are experimentally based and conducted in laboratories. Hence, there is a lack of studies on applied CA theory in real field settings of service businesses, which investigate diverse employee groups' CA performance.

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Moreover, despite the increasing emphasis on judgmental forecasting in most sectors, a system for systematizing collective human knowledge and judgments in forecasting is lacking in revenue management and forecasting in the hotel industry (Ghalia & Wang, 2000; Schwartz & Cohen, 2004).

For the inspiration of how to collect human judgments, it is worth turning to the theory of behavioural economics which has a long tradition of evidence of how to systematize consumers' intuitive judgments, sentiments and confidence towards the future state of a nation's economy and thereby predict early signals of changes in economic activity by means of confidence indices (Carroll, Fuhrer, & Wilcox, 1994; Katona, 1951; Katona, 1960; Katona & Mueller, 1953; Ludvigson, 2004; Matsusaka & Sbordone, 1995). Two of the most applied indices are the *Index of Consumer Sentiment* (ICS) developed at the University of Michigan, and the *Consumer Confidence Index* (CCI) developed by the American Conference Board. They present monthly results from their survey measurements of consumers' confidence and sentiments towards the future state of the American economy and other national economies. The main difference between the two indices is that CCI more explicitly defines consumer confidence in terms of jobs and unemployment, while ICS addresses confidence by intensions to buy. The core element in eliciting consumers' tacit knowledge about the future is by addressing three indirect questions related to consumers' expectations towards the future and two questions related to their present financial situation or their expectations of present business conditions in their local area.

Given that consumers' confidence can predict the development of the economy at an aggregate level, it is also reasonable to assume that this will be the case at the disaggregate business level. The enterprise is less complex than the economy as a whole, and in service businesses, frontline employees in particular have first hand knowledge of several aspects of the enterprise as they play an active role in the service production.

Particularly in the hospitality industry, frontline employees gauge impressions on a daily basis in their interaction with diverse stakeholder groups, such as guests, travel agents, colleagues, managers etc. Such interactions are likely to results in frontline employees developing tacit knowledge grounded in their confidence and sentiments towards the future state of their workplace, and this knowledge may thereby be of strategic importance to a particular business.

1.2 The state of KM research and practice in the hospitality industry

Despite little empirical evidence in general on the concept of knowledge management and tacit knowledge in most sectors, there is however especially a lack of applications and empirical evidence in the tourism and hospitality sector compared to other fields. This may be seen as a consequence of KM concepts being developed mostly from a manufactured and multinational perspective (Nonaka & Takeuchi, 1995), thereby failing to take into account the many aspects of tourism services based on networks and the need to embrace inter-organizational issues (Grizelj, 2003). Moreover, the tendency within hospitality research is that empirical studies do not bring anything substantial or significant to the industry in general because the research is mostly case-based and operationally focused (Cooper, Sheperd, & Westlake, 1994). A review of empirical KM research carried out in the hospitality industry also reveals that research is limited, inconclusive, and low on generalization and testability (Hallin & Marnburg, 2008).

The hospitality industry may particularly benefit from KM activities as the industry is becoming knowledge-based and knowledge-intensive due to the great influence and use of information technology (Kahle, 2002), and due to the nature of the service product, where the service delivery is rooted in the interaction between customers and employees (Kotler, Bowen, & Makens, 1999). Most of the hotel industry is characterized by chain hotels and geographically dispersed hotels and is likely to benefit from KM systems due to the requirements of an overall quality standard (Medlik, 1990). It is thus suggested by scholars that KM research within the hospitality industry should focus especially on studies of strategic importance that can benefit chain hotels, such as investigation of what domain-specific knowledge means for hospitality management and employees, how to store real-time contextual knowledge, and how to investigate employees' versus managers' knowledge abilities in forecasting business change (Hallin & Marnburg, 2008).

In recent years, management of chain hotels in particular has experienced a continual global pressure for organizational growth as a result of periods of cyclical up- and downturns, and thus decision-makers in hotels have to deal increasingly with complex problems. This complexity manifests itself in many forms such as coping with promotional activities, pricing strategies, innovation activities to stimulate customers' changing interests, control of capacity constraints, loans and fixed costs. Consequently, decision makers go through vast quantities of information to deal with day-to-day operations and to come up with the best and most effective course of action in their strategic decisions. For leaders of hospitality companies, the increasing complexity

results in rising concerns about their capability to successfully manage the increasing ambiguity and vague information accompanying the environmental forces that drive changes. Hence, there is a need for further knowledge on how to improve the information basis for management in order to simplify and advance their decision-making processes.

This thesis addresses the need of hospitality management, and of service management in general, to improve the information basis for decision-making. In the following sections, the constructs applied in the thesis will be defined.

1.3 Definitions of constructs

As the concept of KM is still emerging and merging with different disciplines, the definition of KM depends on the focus within the concept (see Prusak, 2001; Sveiby, 2001 for an overview; Tuomi, 2002; Wiig, 1997). Of the many research disciplines within knowledge management (e.g. information technology, competence management, intellectual capital etc.), the theoretical platform of the thesis is primarily grounded in the cognitive science perspective within KM, with a focus on knowledge sharing and decision-making.

In a broad context, KM may be defined as; the practice of sharing, identifying, developing, capturing and applying individual and collective knowledge within an organization, with the purpose of promoting innovative strategies and thereby create effectiveness and competitive advantage (Davenport, De Long, & Beers, 1998; Grizelj, 2003; Nonaka, 1991; Nonaka & Takeuchi, 1995). A more specific, but still broad definition of KM, applied to the tourism and hospitality sector, is that "KM is about applying the knowledge assets available to [a tourism] organization to create competitive advantage" (Cooper, 2006, p. 51).

The thesis primarily takes its departure in organizational knowledge creation theory within KM (Erden, von Krogh, & Nonaka, 2008; Nonaka & Takeuchi, 1995; von Krogh, Ichijo, & Nonaka, 2000), in which knowledge is defined as (Erden et al., 2008, p. 5): a) justified true beliefs, meaning that individuals justify the trustfulness of their observations of the world from individual experiences by signs and proxies. Justification is, thus, embedded in individuals' unique viewpoints, personal sensibility and experience (Nonaka & Takeuchi, 1995). Knowledge is also b) the capacity to define a situation and act accordingly (von Krogh et al., 2000) and finally c) knowledge is both

explicit and tacit (Nonaka, 1991; Polanyi, 1966), with particularly tacit knowledge being the main focus of the thesis.

The theoretical stance of tacit knowledge treated in the thesis is grounded in Michael Polanyi's (1966) original and broad assumption that all knowledge has tacit dimensions, and that knowledge exists on a spectrum ranging from completely tacit on one extreme, i.e. unconscious and inarticulable knowledge, to completely explicit on the other extreme, where knowledge is conscious and can be expressed. Yet, most knowledge would seem to exist in between the extremes (Leonard & Sensiper, 1998). Although, knowledge may be semiconscious or unconscious, this thesis is grounded in the assumption that tacit knowledge produces insight, intuition, and decisions based on "gut feeling" that can be used as a vehicle to operationalize tacit knowledge (Leonard & Sensiper, 1998; Parikh, Neubauer, & Lank, 1994). Hence, in order to operationalize tacit knowledge one must address individuals' intuitive judgments about a given future state.

Collective tacit knowledge is seen as organizational members' aggregated tacit knowledge. It is knowledge that remains tacit to management as it is formed and circulated at the operational level amongst frontline employees' in their socialization processes.

Moreover, it is assumed that tacit knowledge is embedded in human capital, but while human capital includes both articulable and non-articulable knowledge (Hitt et al., 2001), tacit knowledge reflects employees' total experiences (ibid, 2001) grounded in their individual and collective assumptions, biases, values and beliefs (Nonaka & Takeuchi, 1995; Saint-Onge, 1996).

In the thesis biases in perceptual processes are seen as contributing to organizational members' personal tacit knowledge pool (Lord & Maher, 1991), and will also tend to influence the quality of intuitive judgments (Tversky & Kahneman, 1974) produced by individual's tacit knowledge (Leonard & Sensiper, 1998; Parikh et al., 1994).

Relying on the idea of macroeconomic confidence indices for the construction of an employee confidence index at a disaggregate level in the thesis, the particular construct of confidence becomes central in relation to collective tacit knowledge. Individuals' confidence in governments, presidency, team work, business management or events may be understood as positive emotions such as hope and pride (Gross, Brewer, & Aday, 2009) towards a

given future state grounded in peoples' trust (Rahn, 2000). Hence, confidence by positive sentiments, emotions, hope and pride contribute to an individual's pool of tacit knowledge, and collective (aggregated) tacit knowledge may thereby be seen as a mediator variable for eliciting confidence and intuitive judgments through confidence indices.

The construct of reputation is closely associated with confidence and collective tacit knowledge. In this thesis the assumption is that reputation at the firm level analysis is knowledge about a firm's characteristics and the emotions and confidence of stakeholders held towards the firm (Dutton *et al.*, 1994; Weigelt & Camerer, 1988). Organizational members may for example have confidence in their firm to be a tough competitor, a good place to work, and/or offers quality products (Ferguson, Deephouse, & Ferguson, 2000). Hence, employees' perceived reputation is grounded in their confidence in and total experiences of the firm. Reputation is thereby an overall reflection of members' collective tacit knowledge and expectation about firms' future behaviour and intensions (Albert & Whetten, 1985; Weigelt & Camerer, 1988). The thesis also draws on perceived organizational reputation through organizational members' beliefs about outsiders' perception of the firm (Carmeli & Tishler, 2004b) and perceived organizational identity by members' beliefs of the distinctive, central and enduring attributes of the organization (Albert & Whetten, 1985; Dutton *et al.*, 1994). In the following, the aims of each of the thesis' four papers and an overall research model are put forward.

1.4 Aims and research model

The preceding introduction to the background of the thesis and definitions of the thesis' constructs has shed light on a number of new research trends and aspects. First and foremost, there is an overall lack of empirical studies of the KM concept for all sectors, but particularly within the hospitality industry. Secondly, intuitive judgements are recognized as being the product of tacit knowledge processing. Thirdly, studies within the resource-based view and the knowledge-based view have examined the operationalization of intangible assets and recognize that collective tacit knowledge is an intangible asset. Empirical studies within these traditions have investigated intangible assets in relation to firm performance by describing variance and level of intangible assets amongst firms. Nevertheless, no studies have so far empirically investigated collective tacit knowledge as a firm capability for predicting economic firm performance by using intuitive judgments about future conditions as a tool of eliciting collective tacit knowledge. Fourthly, an

increasing number of publications within cognitive science focus on intuitive and judgmental performance and in relation to studies of judgmental biases in strategic decision-making, with emphasis on confidence and accuracy in judgments. Yet, few studies have empirically investigated hierarchical differences in judgmental performance in a real business setting between executives and employees. Fifthly, the use of intuitive judgments in combination with historical data in business forecasting has recently been acknowledged by academics in business economics as capable of enhancing the quality of forecasts. Nevertheless, in the hospitality industry no studies have so far attempted to develop a systemizing tool of employees' collective tacit knowledge for forecasting economic business performance. Finally, the introduction has shed light on the possibility of drawing on experiences from macroeconomic indices of ICS and CCI that tap into consumers' sentiments about the future state of national economies in order to develop an empirical tool that can elicit individuals' tacit knowledge in hospitality companies.

In light of the preceding presentation of current research needs in KM and related areas, the thesis covers the following four problem areas and research questions:

The first area in the thesis surveys and frames the empirical state-of-the-art in KM research in the hospitality industry today, with the purpose of highlighting lacunae and opportunities for further studies aiming at advancing the quality of research in KM within the hospitality sector. The following research questions will be addressed:

- Why may KM be important in the hospitality industry and what are the challenges of KM applications for management?
- What is the theoretical content of empirical contributions?
- Which strategic perspectives pertaining to static versus dynamic views on knowledge and knowledge development do authors employ?
- What is the empirical quality in juxtaposition with theory-of-science criteria?
- What are relevant future KM research directions within the hospitality sector?

With departure in a review of empirical research in KM in the hospitality sector as the main theoretical platform, the second problem area of the thesis is to explore the confidence and accuracy difference in knowledge abilities of hospitality executives and employees in relation to judgmental performance. The research questions of this area are concerned with illuminating the

importance of biases in intuitive judgments, as biases tend to reduce the quality of intuitive judgments in forecasting. The main aim of this problem area is to shed light on the challenges and potential for improvement in knowledge management when applying intuitive judgements in strategic decision-making. The following research questions will be addressed:

- What is the accuracy performance of the two subject groups for different judgmental task difficulties?
- Are the two subject groups prone to overconfidence or underconfidence in their judgments?
- What is the CA calibration performance of the groups?
- Is there evidence that supports differences in the judgmental patterns between the groups, indicating that the roles of novices differ from those of experts, because of experts' rich knowledge of the industry data in question?

The third problem area of the thesis is to explore the development of a new strategic business indictor *Employee Strategic Sentiment Index* (ESSI) as a judgmental forecasting tool for predicting economic business performance built on frontline employees' confidence and intuitive judgements towards the future and possibly for assessing firm reputation.

The assumption of the ESSI study is that in every hospitality company, frontline employees accumulate knowledge of potential strategic importance to management about the state of their business. Another assumption of the study is that frontline employees' confidence towards their company is qualitatively different from that of managers, because frontline employees have a direct market contact on a daily basis. In their daily interactions with guests, managers, colleagues, travel agents, employees from competing businesses and other stakeholder groups, frontline employees sense how these groups of people act towards and perceive the business, and develop the basis for their confidence in their hotel company's ability to succeed.

This investigation will be based on data sampling of time-series studies with three hotel cases in the Scandinavian hotel industry. The following research questions will be addressed:

- An exploration of whether it is possible to build forecasts of economic business performance based on hospitality frontline employees' accumulated knowledge and confidence towards the future of the company.

- Establishment of a practical judgmental forecasting tool for hospitality management that can indicate early signals about changes in the competitiveness of the business.
- A presentation of the construction of ESSI.

The fourth aim of the thesis is a presentation of collective tacit knowledge as a firm capability for predicting economic firm performance within the traditions of the resource-based view and knowledge-based view relying on reputation theory. A validation of ESSI is carried out by a "prediction contest" against the macro-indices of ICS and CCI. This problem area addresses the suitability of the ESSI as a practical forecasting tool for hospitality management. The following research questions will be addressed:

- What does ESSI measure in comparison to the ICS and CCI?
- What is the predictive power of ESSI concerning competitiveness in comparison with ICS and CCI?

The overall empirical investigation of the thesis may be illustrated by the research model in figure 1. The figure illustrates several factors (e.g. confidence, sentiments, beliefs, trust etc.) that shape the individual's total experience and thereby his or her tacit knowledge as well as the collective tacit knowledge of an organization. The thesis sets out to develop variables by means of the ESSI instrument that can tap into individuals' tacit knowledge, which is shaped by these factors, and thereafter aggregates the tacit knowledge into collective tacit knowledge. ESSI thus does not measure these factors *per se* but elicits the tacit knowledge by frontline employees' intuitive judgments towards the future in a 12 months perspective, by addressing dimensions and measures of firm reputation theory. It is assumed that organizational members' interaction of individual and collective tacit knowledge add to reputation formation of the firm. It is noted that biases in judgments may affect the quality in intuitive judgments. This is an issue that will be covered in the second study of the thesis.
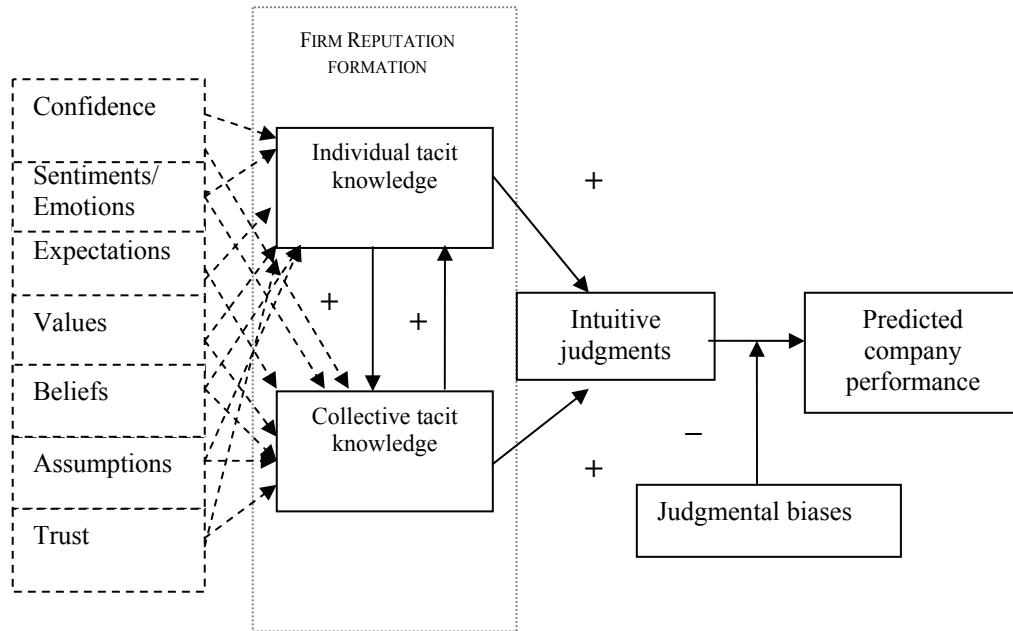
Figure 1. Research model.

1.5 Structure of the thesis

The thesis consists of twelve chapters. The first chapter is the introduction. The second chapter is an overview of the sources and disciplines in KM. The third chapter is an introduction to the tacit knowledge construct. The fourth chapter is a review of empirical studies of collective tacit knowledge with focus on the RBV and the KBV traditions. This chapter also includes theory of behavioral economics. The fifth chapter includes a presentation of the formation of tacit knowledge from a strategic capital perspective in terms of the influence of cultural, social/relational and information capital. This presentation leads to the sixth chapter, which focuses on the use of intuitive judgments in strategic decision-making and forecasting. This chapter also includes theory on judgmental confidence and accuracy biases in respect to confidence and accuracy in judgments, and then in particular in relation to judgments of experts versus novices. In the seventh chapter, the hospitality

industry as a research setting is presented in a KM perspective, with emphasis on the need for and potential uses of a new forecasting tool based on intuitive judgments. The eighth chapter is an introduction to the Employee Strategic Sentiment Index (ESSI). The ninth chapter relays the methodology of the thesis and presents relevant methodological considerations for each of the three studies of the thesis. The tenth chapter is a presentation of the results of each of the thesis' four papers. The eleventh chapter offers a discussion and consideration of implications of the research, and the twelfth chapter completes the thesis with conclusions.

2. Knowledge Management as a Research Discipline

2.1 The sources of KM

According to Socrates' (470-399 BC) theory in *Phaedo*, knowledge is about the separateness of man's body and soul, and the philosopher is then "a lover of wisdom" who must be able to separate the needs of his soul from the needs of his body. This distinction allowed Socrates to develop a theory of forms, which indicated that knowledge is not acquired, but rather called to mind since it is innate in the individual (Kane, 2003). This position is also supported in *Meno* by Plato in a dialogue between Meno and Socrates. Meno questions Socrates whether virtue can be taught. Socrates denies this possibility because as he says there are not teachers of it since knowledge is innate in the individual. Hence, it is impossible for the individual to enquire into what the person does or does not know (Jowett, 2003). The individual cannot enquire into what he knows because he already knows it, and he cannot enquire into what he does not know because he does not know what he should enquire about. However, Socrates believed that it was possible to draw out pre-existing knowledge of humans by careful questioning (Kane, 2003). In *Meno*, Plato concludes on the basis of the dialog between Meno and Socrates that virtue is knowledge and therefore virtue can be taught by wise men (Jowett, 2003). Like Socrates, he is concerned with the philosophy of the good and conceives knowledge to be the separateness of the body and the soul, but he distinguishes between beliefs and knowledge. In his view, knowledge is related to what one sees as reality and belief is concerned with the unreal (Kane, 2003); however, belief can be knowledge if one can explain why a person holds a belief in such a way that others will believe that it is not only true, but also justified (Jowett, 2003). According to Irwin (1999), once knowledge was first distinguished from true beliefs, it was possible to raise doubts whether someone has achieved or can achieve knowledge. This new skeptical movement about questioning beliefs and knowledge (Jones, 1980) focused on using systematic techniques for challenging and managing different claims to knowledge (Irwin, 1999). According to the Greco-Roman philosophers, however, skepticism was only reserved for great minds, and not for the common man (Agassi, 1975)

The currently increasing emphasis on knowledge management (KM) is a natural result of the economic, industrial and cultural developments that have

taken place in the global market in recent years. Over time, a shift has happened from the 'service economy' of the second half of the 20th century to the 'knowledge society' at the outset of the new millennium. During the era of the service economy, companies used to compete on creating solutions and developing broad relationships and services to fit customers' needs and pursue customer intimacy (Wiig, 1997), while in the knowledge society companies are now dependent on developing or adding value to products and services by applying human expertise-knowledge. Considerable change has thus happened in a relatively short time span, as the product revolution has shifted towards the 'information revolution', with focus moving away from most applicable products and services towards information technology (IT) becoming an available and an indispensable tool for manufacturing, logistics and marketing to serve customers' needs. The knowledge revolution, or the 'knowledge society', which many theorists argue that we have entered in the new millennium, is then about how well knowledge and other intellectual assets are managed to pursue sustainable competitive advantage for nations, regions, communities and businesses (Prusak, 2001; Wiig, 1997).

Peter Drucker, a philosopher and management theorist, was one of the earliest thinkers of this transformation from the information age to the knowledge society. He introduced the terms "knowledge worker" and "knowledge society" arguing that subordinates know more about their job than their manager does and thus, knowledge workers are not subordinates, but rather "associates" (1959). Further, in his book *Post-Capitalist Society* (1993*)*, he claimed that the Western World is entering the knowledge society in which the basic economic resource will be knowledge and no longer capital, natural resources or labor. Knowledge workers will play an important role in development of the knowledge society (1993, p. 7). Drucker also pointed out that organizations have to be prepared to abandon knowledge that has become outdated and learn to create new knowledge through: 1) continuous improvement of every activity; 2) development of new applications from its own successes; and 3) continuous innovation as an organized process.

While some theorists have argued that the introduction of the term "Knowledge Management" (KM) in the Western World is a consultant's invention with the idea of looking for a new profitable subject (e.g. Tuomi, 2002), some others view KM as a practitioner-based invention (e.g. Prusak, 2001). Regardless of which of these opinions is correct (indeed a combination of the view may be closer to the truth), the majority of scholars acknowledge that KM has appeared as a response to social and economic trends in terms of globalization, the accelerating speed of information technology and the

knowledge-based view of the firm (Drucker, 1993, 1999; Grant, 1996; Liebeskind, 1996; Nonaka, 1991; Nonaka & Takeuchi, 1995). In the globalization process of firms a combination of global reach and speed has compelled organizations to ask themselves "what do we know, who knows it and what do we not know that we should know? (Prusak, 2001, p. 1002)".

In 1986, the title "Management of Knowledge: Perspectives of a new opportunity" was introduced in a keynote address at the European Management Conference sponsored by the International Labor Organization of the United States. In 1987, the first book relating to KM with the title "Managing know-how" was published in Europe (Sveiby & Lloyd, 1987). The same year, the first round-table KM conference was held by the DEC and Technology Transfer Society at Purdue University. Later, in 1989, the Sloan Management Review published its first KM-related article and a survey was conducted by Fortune 50 CEO's perspectives on KM. This study revealed that the majority of CEOs agree that knowledge is their organization's most important asset – but they do not know how to manage the knowledge (Wiig, 1997). Then, in 1991, Harvard Business Review presented its first article on KM with the title "the knowledge-creating company" (Nonaka, 1991), which paved the way for the book with the same title published in 1995 by Nonaka and Takeuchi (1995), where they focus on cases of how Japanese companies create valuable and competitive knowledge. With their book, Nonaka and Takeuchi not only formalized the concept of knowledge management, they also introduced a new way of viewing knowledge in the Western world, which traditionally had viewed the organization as a machine for information possessing where knowledge is seen as something explicit (e.g. Frederick Taylor, Herbert Simon, Peter Drucker). Nonaka and Takeuchi (1995) presented how Japanese companies recognize that knowledge expressed in words and numbers only represents the top of the iceberg viewing instead knowledge as primarily tacit, i.e. highly personal and hard to formalize (Nonaka & Takeuchi, 1995, p. 8), thereby enabling unique competitive advantages for companies.

With these trends, the view of the firm as a knowledge-based enterprise has become increasingly accepted among academics in economics, organizational and strategic management research. According to the knowledge-based view of the organization, a firm can best be viewed as a coordinated collection of capabilities and the main building block of these capabilities is knowledge, and especially the knowledge that is tacit and mostly specific to the firm (e.g. Barney, 1991; Nonaka, 1991; Nonaka & Takeuchi, 1995; Prusak, 2001; Wiig, 1997). With the increased conception of the knowledge-based firm and tacit

knowledge as the most valuable strategic asset, the individual employee came in forefront as a creator, possessor and user of knowledge of strategic importance (Drucker, 1993; 1999; Nonaka & Takeuchi, 1995; von Krogh et al., 2000) and subsequently the value of cognitive skills in terms of tacit knowledge, intuitive judgments and improved leadership by better and more effective decisions becomes more focused in developing competitive advantage for firms as these are values that are not easily imitated and copied by other firms (Barney, 1991).

2.2 The disciplines of KM

As the concept of KM is still developing from different disciplines, the view of KM depends of the focus within the concept. In this sense it is relevant to specify knowledge management according to its different disciplines (Prusak, 2001; Sveiby, 2001; Tuomi, 2002; Wiig, 1997, 2000). Some authors emphasize the use of information technology and processing to capture, locate and distribute knowledge (e.g. Feigenbaum, McCorduck, & Nii, 1988; McCorduck, 1979), and others view KM as based on knowledge-related information management by artificial intelligence (e.g. Flores, Graves, Hartfield, & Winograd, 1988; Winograd & Flores, 1986). Others again focus on knowledge management from a business intelligence perspective by emphasising strategic analysis of external information (e.g. Ghoshal & Westney, 1991). Other authors give emphasis to business strategy and linking KM to strategy by the resource-based view (e.g. Barney, 1991; Quinn, 1992), which has later evolved into the competence-based theory of the firm (e.g. Foss & Knudsen, 1996; Hamel & Prahalad, 1994; Sanchez, Heene, & Thomas, 1996; Teece, Pisano, & Shuen, 1997); the resource-advantage theory of the firm (Hunt, 2000; Hunt & Morgan, 1995) and the knowledge-based view of the firm (e.g. Grant, 1996; Nonaka & Takeuchi, 1995; Spender, 1996).

Contemporary with the increasing knowledge-based view of the firm, the movement of intellectual capital appeared which adheres to the economic value of knowledge by measurement of knowledge-related competencies, but which places little emphasis on the generation of knowledge and on learning (e.g. Edvinsson & Malone, 1997; Sveiby, 1997). Some other authors, however, emphasize cognitive science and sense-making, knowledge sharing activities among individuals, knowledge development, organizational learning, knowledge distribution capabilities and innovation (Nonaka & Takeuchi, 1995; Weick, 1995). Recently, some authors have begun to concentrate on KM within cognitive science from a strategic management and

strategic capital perspective with focus on the exploitation of knowledge in decision-making processes. According to this tradition, the emphasis is on the individual and collective tacit knowledge and its' usefulness in strategic decision-making (Brockmann & Anthony, 2002; Erden et al., 2008; Muthusamy, 2008; Smith, 2005, 2006) and forecasting (Ghalia & Wang, 2000; Lawrence et al., 2006) as a way to improve the enterprise's overall effectiveness

This thesis emphasises the latter perspective addressed within cognitive theory, but incorporates and elaborates on other KM perspectives. In the coming two chapters perspectives on tacit knowledge as a knowledge component and as firm capability are presented, followed by empirical studies of tacit knowledge in relation to economic firm performance.

3. The Tacit Knowledge Construct

3.1 The tacit knowledge component

The acknowledgement of tacit knowledge as a knowledge component has a long tradition dating back to the early philosophers. Aristotle (384-322 BC) acknowledged that human knowledge has uncertain elements (Kane, 2003) and points to different types of knowledge (Capurro, 2004). One is technical knowledge (*techne*), which is a technical and unarticulable knowledge about how to artificially produce things such as craftsmen that build houses. Another type of knowledge is scientific knowledge (*episteme*), which refers to scientific knowledge that is the effect of logical reasoning. A third type is practical knowledge (*phronesis*), which concerns the ability to reason about the best means to achieve goals, i.e. the knowledge of how to make good considerations, judgments and choices in concrete situations or the virtue of moral thoughts (Capurro, 2004; Flyvbjerg, 2001).

Michael Polanyi, a chemist and modern thinker who was linked with epistemology and philosophy of science, devoted a great deal of his work to the understanding of knowledge creation and human judgment (Adams & Mullins, 1984). When Polanyi, as a scientist, became interested in protecting the scientific community from political manipulation, his interest evolved into philosophical studies. He later became interested in the nature of scientific knowledge and scientific discovery because he observed that these studies had only focused on the impersonal and objective knowledge, or the two-valued approach to knowledge (Adams & Mullins, 1984, p. 35), where knowledge is derived from the separation of the subject and the object of perception. According to the latter approach, human beings are seen as the subject of perception that acquires knowledge by analyzing external objects (Nonaka & Takeuchi, 1995). Instead, Polanyi's epistemology (1962) sets forth another ideal of knowledge, i.e. that of personal knowledge, which contends that human beings create knowledge by involving themselves with objects through commitment. According to Polanyi, the problem with understanding knowledge through the glasses of objectivism or by the two-valued approach is that it eliminates the person as a capable, responsible agent shaping and holding knowledge. The problem in differentiating between objectivity and subjectivity is that it splits the knower (the subjective) and the known (the objective), thus failing in appreciating the skilful, social aspects of human

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knowledge. To Polanyi, knowledge requires a knower who is an interested, responsive individual, a master of a certain set of skills who is immersed in and influenced by the context or community in which he or she operates (Adams & Mullins, 1984).

In 1962, Polanyi introduced the term tacit dimension in his book *Personal Knowledge*, where he treats the problem of human knowledge by setting forth the dynamics through which an individual becomes a skilful, responsible and knowing person. Polanyi argues that as human beings become a part of an interactive community with shared norms, talents, meanings and purposes, they also become agents with interests and capabilities (Adams & Mullins, 1984). In 1966, he elaborated on his idea of knowledge by differentiating between explicit and tacit knowledge. He acknowledged that individuals acquire knowledge by dynamically creating and organizing their own experiences; thus the human ability to express facts represents only the top of the iceberg about human knowledge. He referred to tacit knowledge by stating, "We know more than we can tell" (Polanyi, 1966, p. 4) and argued that all knowledge exist on a continuum of which explicit knowledge is on one of the extreme and tacit knowledge on the other. Yet, most knowledge would exist in between the two. To Polanyi, tacit knowledge is personal, context-specific, and therefore hard to formalize and communicate, while explicit knowledge or codified knowledge can be transmitted in a formal and systematic language.

Nonaka (1991) and Nonaka and Takeuchi (1995) brought the concept of tacit knowledge into the realm of organizational life in association with their research on corporate innovation of Japanese companies. Their motivation for these studies was to fill the gaps in Western management, organizational and economic theories of knowledge, which have emphasized knowledge processes of acquisition, accumulation and utilization of existing knowledge and neglected the perspective of knowledge creation in the development of new products, new methods and new organizational forms. They argued that Japanese companies had been talented at turning unarticulable individual tacit knowledge into a collective asset, which is embedded in a common set of beliefs and assumptions of employees, and subsequently are drivers for successful business performance.

In a related vein, Varela, Thompson and Rosch (1991) and Shirley and Langan-Fox (1996) also see tacit knowledge as a justification of beliefs that are embedded in the human body and mind leading to such characteristics as "gut feelings" and intuitions.

Saint-Onge (1996) treated tacit knowledge in the light of strategic decision-making, and acknowledged that since tacit knowledge includes intuition, perspectives, assumptions, beliefs and values resulting from people's experiences it can guide their behavior and confidence towards their workplace. Saint-Onge also focused on the importance of the collective tacit mindset of the organization or the implicit, unspoken and taken for granted "ways of doing things here" as a strategic asset. As he notes a firm's collective tacit knowledge springs from its organizational culture (1996 p. 225). He suggested that the collective tacit knowledge guides perceptions and behaviours of organizational members and shape the way organizational members perceive their industry and the competitiveness of their firm.

3.2. Tacit knowledge as a firm capability

For many years, scholars examined competitive advantage as resulting from the firm's task environment by the effects of opportunities and threats on firm performance (Porter, 1980). However, over the last 20 years firm-specific resources and capabilities have played a major role in the RBV tradition (Barney, 1991; Wernerfelt, 1984) and the KBV tradition (Grant, 1991; Nonaka, 1991; Nonaka & Takeuchi, 1995; Prahalad & Hamel, 1990; 1984) for developing sustainable competitive advantage.

According to the RBV, the organization can be regarded as a bundle of intangible resources that are valuable, rare, imperfectly imitable and imperfectly substitutable (Barney, 1991), and these resources are the firm's core sources of competitive advantage. Broadly speaking, the resource-based view is concerned with the exploration of the relationships between intangible resource and competitive advantage (Grant, 1991).

Hall (1993, p. 609) identified the characteristics of intangible resources which may be classified as assets or competencies. While firm assets include the intellectual property by the rights of patents, trademarks, copyright and registered designs, contracts, trade secrets, data bases and reputation due to its nature of "belongingness", competencies and skills include the know-how of employees, suppliers, advisers and distributors. To put it in other words, the intangible assets of competencies and skills are all the collective attributes that constitute the organizational culture.

The firm's capabilities based on competencies is embedded in functional capabilities and cultural capabilities. Functional capabilities are derived from

the knowledge, skills and experience of employees, suppliers, distributors, stockbrokers, lawyers etc. and cultural capabilities are incorporated in the organization as a whole by its habits, attitudes, beliefs and values (Hall, 1993).

With the arrival of the KBV of the firm (Grant, 1996; Nonaka & Takeuchi, 1995; Spender, 1996), capabilities and firm resources became centred on knowledge assets grounded in the assumption that the firm's competitive advantage is based on knowledge creation/application by its integrated explicit or implicit (tacit) knowledge through products, processes and routines (Grant, 1996; Nonaka & Takeuchi, 1995). Human capital resources (e.g. Bontis, 2001) such as tacit knowledge in terms of judgments, intelligence and insight of individual managers and workers, are thereby argued to be a source of advantage (Saint-Onge, 1996) because they are unique and difficult to copy for competitors (Barney, 1991).

4. Tacit Knowledge as a Testable Construct

Although there is widespread agreement among scholars that tacit knowledge is important for organizations and management as a source for developing sustainable competitive advantage, the majority of scholars have argued that the concept is not specified, it embraces too many meanings, it resists operationalization and we only have a nascent idea of it (see Ambrosini & Bowman, 2001; Gourlay, 2006 for a review).

Brockman and Anthony (2002, p. 449) addressed the difficulty of operationalizing collective tacit knowledge, but stated that the way to actually elicit collective tacit knowledge is by addressing intuitive judgments by organizational members. He also acknowledged that the strategic management literature is lacking on empirical studies of tacit knowledge and intuitive judgments.

Leonard and Sensiper (1998) and Parikh, Neubauer and Lank (1994) also acknowledged that tacit knowledge produces insight, intuition, and decisions based on "gut feeling" that can be used as a vehicle to operationalize tacit knowledge.

Albert and Whetten (1985) proposed that reputation by employees' perceived organizational identity mirrors the collective beliefs of organizational members. Hence, members' perceptions of organizational identity as well as their perceptions of outsiders' beliefs of the organizational identity is likely to be an overall reflection of the collective tacit knowledge of employees.

According to the RBV organizational reputation is argued to be an intangible asset because it is rare, socially complex and difficult to transfer and imitate, and can significantly contribute to performance differences among organizations (Barney, 1991; Itami, 1987; Peteraf, 1993). The presumption of models of organizational reputation is that actors rely on signals and proxies to make rational assumptions about the future intensions of other actors (organizations) or of own workplace. Thus, the models of reputation presume that there is a tight coupling between past actions and future expectations, and organizational attributes and the evaluation of organizations.

Although, many scholars in strategic management have focused on the difficulty in operationalizing the construct of collective tacit knowledge, empirical evidence are put forward by the RBV and KBV traditions that demonstrate the link between economic firm performance and intangible assets constructs concerning collective tacit knowledge dimensions (i.e. intangible capabilities, intellectual capital, human capital, organizational reputation, perceived organizational reputation and collective tacit knowledge). These studies have primarily focused on explaining variance in economic firm performance or by assessing the level of knowledge in cross-company comparison. In the following sections there will be a presentation of empirical research within these two traditions.

4.1 Empirical evidence from the resource-based view (RBV) tradition

Some of the first studies that have empirically and meticulously examined intangible resources and their relationship with firm performance originate from studies by Hitt and Ireland (1985a; 1985b). They studied the relationship between corporate distinctive competencies and economic firm performance by 185 industrial firms. They found support that there is a relationship between distinctive competencies and economic firm performance but this relationship varies according to the firm's grand strategy, defined as the overall primary plan in terms of earning goals (Hitt & Ireland, 1985a). They also found support that a firm's environmental uncertainty as perceived by its executives is a positive predictor of firm performance (Hitt & Ireland, 1985b). The assumption that intangible assets contribute to superior performance was further supported in a study by Hansen and Wernerfelt (1989) of 60 firms representing the major corporations in the United States. Their findings revealed that internal firm factors can explain variance in firm performance twice as well as external market factors. The dependent variable in this study was return on assets (ROA). They tested external factors by measures of industry profitability, the relative market share and firm size against organizational climate factors such as emphasis on human resources by employees' perception of: a) how concerned the organisation is with employees' welfare, work conditions etc. and how b) how concerned the organization is with achieving goals and objectives.

One of the most prevalent studies on the measure of organizational reputation has been put forward by Rao (1994), concerning the relationship between the survival of organizations and cumulative victories by product certification contests (which are presumed to foster the reputation of firms) in the

automobile industry 1895-1912. This study revealed that reputation of individual firms positively influence survival rate. However, it should be noted that this longitudinal study indirectly taps into intangible assets of firms as it examines external stakeholders' perceptions of firms and not employees' perceptions of own firm performance. Moreover, it does not measure changes in economic performance per se but measures the exit rate of firms.

Furthermore, in some recent studies, Carmeli and Tishler (2004a; 2004b) examined the question addressed by the resource-based view researchers if organizational resources and capabilities account for variations in firm performance both by industrial enterprises and public sector organizations? They examined the explained variance of a set of firm capabilities in relation to economic firm performance of industrial enterprises. Dependent variables in this study were return on sales, return on equity, change in market share and customer satisfaction, and they found that particularly four factors can explain economic performance: a) perceived organizational reputation by organizational members' perception of outsiders' beliefs of the organization, b) managerial resources c) conceptual and social skills and d) organizational culture and organizational communication. Together the correlation of these variables with the set of four performance measures account for 0.59 (Carmeli & Tishler, 2004b). As for their study of local government authorities, they found that six intangible organizational elements can explain performance measured by self-income ratio, collecting efficiency ratio, employment rate and municipal development. These particular six intangible measures are managerial capabilities, human capital, internal auditing, labor relations, organizational culture and perceived organizational reputation. Particular, these six variables can explain self-income ratio with 0.83 and collecting efficiency ratio with 0.60.

In sum, these preceding studies have demonstrated a clear answer to the question that intangible resources and capabilities affect economic business performance. In many of these studies, tacit knowledge as a construct is arguably inherently embedded as in the investigated factors of e.g. members' perception of culture, managerial capabilities, skills, human capital, perceived firm reputation or perceived firm uncertainty, and it may therefore be argued that collective tacit knowledge is a mediating variable for explaining variance in economic firm performance.

4.2 Studies of the knowledge-based view (KBV) tradition

Originating in the RBV tradition, the KBV started to put forward methodologies on measuring knowledge during the late 1990's. Many of these studies focused on the intellectual capital and human capital of firms and how these may offer added economic value by incorporating such value into the balance sheets of firms (e.g. Andersen, 1998; Bontis, Dragonetti, Jacobsen, & Roos, 1999). In these studies, economic performance is mostly assessed by comparing groups of firms and their know-how performance level.

One of the major cases that authors referred to during this period was the Skandia Company, which was the first large company that attempted to measure knowledge assets and developing a new accounting taxonomy based on intellectual capital of what they called *Navigator*. The model, in which indicators are defined by management and which represents the difference between market and book value, sought to measure intellectual capital based on: *human capital,* such as knowledge, skill, innovativeness and employees' ability to deal with tasks and *structural capital,* derived from all the support functions for employee productivity (i.e. hardware, software, databases, organizational structure, patents and trademarks). Human capital and structural capital produces *customer capital,* which is the relationship developed with key customers (Edvinsson & Malone, 1997). Despite considerable efforts to create a model that could create a new type of value for organizations, the Skandia model attracted several criticisms (e.g. Huseman & Goodman, 1999; Roos, Roos, Dragonetti, & Edvinsson, 1997). The Scandia model follows a balance sheet methodology and can only capture a snapshot in time of the dynamic flows that happen in organizations (Bontis *et al.*, 1999; Roos *et al.*, 1997). As a consequence of the Skandia model and its critics, new methods on how to measure intellectual capital were proposed; e.g. the IC Index (Roos et al., 1997), the Intangible Assets Monitor (IAM) (Sveiby, 1997) and Economic Value Added (EVA) by Stern Stewart (Bontis et al., 1999), and the use of patents as proxies for IC measurements exemplified by the case of Dow Chemical (Bontis, 1996).

At the outset of the new millennium, some studies started to examine the direct contribution of knowledge to economic business performance. Hitt, Bierman, Shimizu and Kochhar (2001) examined the effects of human capital on performance by 93 of the largest law firms in the United States. The sample consisted of 252 observations from the years 1987-91. The measure of human capital was defined as a) quality of law school attended by partners, which is a proxy for articulable knowledge and prestige and b) total experience of partners in the focal firm, which is a proxy for firm specific

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tacit knowledge. The dependent variable in this study was defined as the ratio of net income to total firm revenue. The results indicated that there is a curvilinear relationship between human capital and firm performance. At the start of the curve, human capital is negative related to firm performance but turns positive with higher levels of human capital.

Recently, some new suggestions on how to measure intellectual capital have been examined by for instance Shiu (2006) in the Value Added Intellectual Coefficient (VAIC) model and its correlation with profitability and market valuation. VAIC is defined as a composite sum of three separate indicators: capital employed efficiency, human capital efficiency and structural capital efficiency. In his study the dependent variables are the ratio of the net income divided by book value of total assets, the ratio of the total revenue and the ratio of the total market capitalization. Shiu finds that that the explanatory power of three regression equations yields 77.63%, 38.59% and 40.62% and concludes that these results demonstrate that increases in value creation a efficiency of these factors of VAIC influence profitability and market valuation.

In a recent pioneering study, Harlow (2008) tested the association between a tacit knowledge index and firm outcomes. The tacit knowledge index was constructed by addressing a number of scholarly definitions of tacit knowledge to KM professionals from 108 firms asking them to rate the amount of codification of each KM activity addressed and the amount of tacitness involved. Thereafter a TKI score was calculated for each individual person and for each company and was then regressed to financial measures by e.g. return on sales, earnings per share and return on equity. The results indicated that the TKI predictor yielded an explained variance R^2 of 0.273 of firm performance variables.

Although, a large number of measurement methods have been developed to measure intangible assets and intellectual capital by the KBV tradition most of these studies have failed to provide further evidence between the link of intangible assets and firm performance (e.g. Bollen, Vergauwen, & Schnieders, 2005; Carmeli & Tishler, 2004b). Most of the empirical research done within the KBV on intellectual capital has been of anecdotal character and have been too firm- or industry specific (Bontis, 2001; Carmeli & Tishler, 2004b), hence it is difficult to draw valid conclusions of their validity. There is also reason to argue that these models take a more static approach to knowledge, neglecting the fact that knowledge by nature is dynamic and continuously developing. Thus, to gain a comprehensive insight into the

strategic impact of tacit knowledge, it is prerequisite that one studies the phenomena over time.

Despite the difficulty of developing a model for quantifying intangible assets in relation to company performance, previous studies on intangible assets, particularly within the RBV, have provided strong indications of a) the actual existence of tacit knowledge as an intangible asset and b) that there is indication of a relationship between tacit knowledge as an intangible asset and capability in relation to economic firm performance.

Nevertheless, none of the preceding studies described above by the RBV and KVB, except from the most recent study by Harlow (2008), have treated collective tacit knowledge as an independent construct of the set of intangible assets. It is assumed that for the empirical understanding of the strategic implications of tacit knowledge it is relevant to analyse tacit knowledge in terms of an ability that can be used to predict company performance by addressing intuitive judgments, and thereby address the important issue of tacit knowledge as something dynamic rather than static.

As for the present study, the results of the above studies justify the assumption of the strategic impact of collective tacit knowledge. However, while previous studies have attempted to explain the variance in company performance or by the level of diverse intangible assets by cross-company comparison, the studies on Employee Strategic Sentiment Index (ESSI), included in this thesis tests the predictive power of the collective tacit knowledge abilities of employees relying on theory of confidence indices and firm reputation.

4.3 Drawing on experiences from confidence indices

The rise of modern behavioural economics (e.g. Herbert Simon and George Katona) may be seen as a reaction to conventional economics in which the assumption is that human beings maximize subjective expected utility (economic rationality). As Herbert Simon stated, "[w]e need to augment and amend the existing body of classical literature and neoclassical economic theory to achieve a more realistic picture of economic processes…..." (Simon, 1986b, p. xvi). This premise is grounded in the empirical assumptions about actors' utilities, beliefs and expectations which Herbert Simon acknowledges is lacking in contemporary economics but which is essential for enhancing the explanatory and predictive power of economics (Simon, 1986a)

To Katona (1951; 1960) the starting point of behavioural economics is based on the empirical investigations of the behaviour of businessmen and consumers. Psychology is thus an important component in behavioural economics in order to understand the antecedents of what influences human decisions in economic matters. This concern particularly the antecedents of economic activities such as motives, attitudes and expectations (Hosseini, 2003).

In the literature of behavioral economics (e.g. Katona, 1951; Strumpel, Morgan, & Zahn, 1972) the concepts of consumer confidence, consumer sentiments, consumer intensions, consumer expectations and consumer anticipations are used interchangeably. Yet, overall these phenomena refer to frequent surveys of the public that measure how optimistically or pessimistically people view a given national or local future economic state based on present political and economic conditions. The phenomena of consumer sentiment/confidence indices were pioneered by George Katona in 1950-1952 through the Index of Consumer Sentiment (ICS).

During the years, several studies have validated the predictive power of the ICS and other indices on economic fluctuations, consumer demand and GDP (Carroll et al., 1994; Chauvet & Guo, 2003; Howrey, 2001; Huth, Eppright, & Taube, 1994; Souleles, 2004; Taube, Huth, & MacDonald, 1990). Matsusaka and Sbordone (1995), for instance, estimated that consumer sentiment could predict between 13 and 26 percent of the GDP growth in the United States in the period 1953 to 1988. Carroll *et al.* (1994) found that lagged values of the ICS have explanatory power for current household spending, and Ludvigson (2004) in his study of consumer confidence and spending, found that lagged values of the ICS increase the adjusted R^2 by seven percent for future labor income growth.

4.4 Drawing on experiences from reputation formation

Despite a large amount of evidence on the predictability of consumer sentiment and confidence indices on the economic performance of a nation, the dynamics of consumer confidence in terms of why there are aggregate movements in optimism and pessimism are examined to a lesser extent. De Boef and Kellstedt (2004) propose that national political leadership, which shapes and defines the economic politics of a country, influences consumer sentiment and confidence in the future of the economy.

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Fine (2001) moreover asserted that when people interact with one another over time and share their history of past interactions concerning abilities and dispositions, reputation is created. Hence, reputation by aggregated human evaluations and expectations towards the future state of a nation: a company; a person; information or an event is a socially constructed and distributed knowledge phenomenon, which tends to be embedded in collective tacit knowledge.

Hence, when people deal with issues particularly related to the future, they would tend to draw on signs and proxies of the past stemming from a variety of economic, political, social or personal developments in a complicated process (Katona, 1960). Such representations of future and subjective notions of things to come are grounded in individuals' total non-articulable experiences and can be operationalized by their guesses, "gut feeling" and intuitions about the future (Katona, 1960), representing individuals' tacit knowledge (Nonaka & Takeuchi, 1995; Polanyi, 1966; Saint-Onge, 1996). Katona (1960) acknowledges that aggregated non-articulable experiences are addressed by skilful personal interviewing in terms of sample surveys, which make it possible to construct confidence indices and conduct comparative studies of changes in confidence about the future based on time-series analyses.

The assumption is that perceptual processes by formation of confidence, sentiments, expectations/ anticipations, beliefs, values, assumptions and trust, are all constructs that contribute to organizational members' tacit knowledge pool (Katona, 1960; Nonaka & Takeuchi, 1995; Polanyi, 1966; Saint-Onge, 1996). Individual tacit knowledge thus becomes aggregated to collective knowledge in the socialization amongst organizational members (Nonaka & Takeuchi, 1995), and reflects their reputation formation (Albert & Whetten, 1985).

In the following chapter, the construct of tacit knowledge is linked to business strategy through the construct of strategic capital, and factors that contribute to the formation of tacit knowledge and strategic capital are put forward.

5. Tacit Knowledge as a Strategic Capital

5.1 The construct of strategic capital in the strategic management literature

According to the resource-based view (e.g. Barney, 1991), the firm is a bundle of resources that are both tangible, intangible, heterogeneous and imperfectly mobile among firms. This tradition adheres to a strategic market approach where sustainable competitive advantage is about being persistent in achieving overall strategic performance by value-creation of firm resources, which are not implemented by present or possible future competitors.

In contrast to the resource-based view, some authors adhere to the competence-based theory of the firm (e.g. Foss & Knudsen, 1996; Hamel & Prahalad, 1994; Sanchez et al., 1996; Teece et al., 1997), which eventually turned into the knowledge-based view of the firm (Grant, 1996; Spender, 1996). The resource-based view evolved to the competence-based approach of the firm when knowledge became accepted as a strategic asset in business strategy (Freiling, 2004; Tuomi, 2002). Yet, instead of being market-oriented as the resource-based approach, the competence-based theory seeks to explain how firms develop strategies in order to effectively deploy resources and thereby make it possible for the firm to be competitive in a given market.

In light of the above, it may be argued that the competence-based view focuses on competitive advantage from different firm level perspectives. While the resource-based view since the 1990's has been mostly focused on competitive capabilities in relation to the market (macro-level) orientation (Foss, 2007), the competence-based approach and (later) the knowledge-based view rely more on market-oriented thinking (micro-level) and offers a more broad perspective on strategy development based on internal processes by the complex and dynamic interplay of human assets, resources and competences. Yet, such competences also include external competences in term of networks of firms and blending of own firm capabilities with other partner firms (Freiling, 2004)

Building upon the resource- and competence-based (knowledge-based) view, a new conception of firm strategy has recently been suggested by means of the resource-advantage theory of the firm (e.g. Hunt, 2000; Hunt & Morgan,

1995), which emphasizes knowledge management aspects, but at the same time incorporates a product-market strategy perspective of the resource-based view (Hughes & Morgan, 2007).

Product-market strategy may in this context be understood as the basis on which the firm competes and will compete in its selected markets, including such efforts as improved market position, positional advantages, market share growth, acquiring new customers, increasing sales to existing and new customers, customer satisfaction and providing customer value (Day, 1999). All in all, the product-market strategy is focused on deploying resources to accomplish such product-market goals.

According to the resource-advantage approach unique resources are intangible assets dimensions, such as: organizational learning; relationships; entrepreneurial skills and capabilities, knowledge abilities, culture and brand and other non-physical abilities that may provide strategic value to the firm as they are hard for competitors to copy and imitate. Hughes and Morgan (2007) refer to such resources as *strategic* as they suggest that the company can gain and sustain an advantageous position by the use of and benefits from these resources in their product-market strategy (Hughes & Morgan, 2007)

Expanding on early definitions of capital within the resource-and knowledge-based literature, Hughes and Morgan (2007) propose the multidimensional construct denoted as *strategic capital,* which refers to the salient resources enabling the successful realization of product-market strategy (p. 504). They argue that the construct of strategic capital is a higher order resource explained by: human capital (such as skills, entrepreneurship, learning, commitment and training), organizational (such as tangible and intangible resources, culture and competencies), informational capital (knowledge of markets, segments, competitors, technology) and social/relational capital elements (such as relationship with customers, suppliers and other stakeholders). These resources may be exploited in relation to strategy championing, strategy commitment, strategy implementation support, strategy implementation effectiveness, learning and memory (Hunt, 2000). In a recent study by Hughes and Morgan (2007), the assumption of explanatory dimensions of the construct of strategic capital was confirmed. The results of their studied revealed significant differences in strategic capital between high and low performing firms in terms of market-based outcomes, such that high performing firms possess greater levels of strategic capital. Moreover, the results indicated that successful strategists were benefiting from greater levels

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of strategic capital relative to other strategists that were less successful (p. 512).

5.2 Strategic capital in the strategic decision literature

Contemporary, with the introduction of the construct of strategic capital in the strategic management literature, authors within knowledge management (Smith, 2005, 2006) and in the strategic decision literature (Bennett, 1998; Brockmann & Anthony, 2002) have placed focus on tacit knowledge as a strategic asset in decision-making. In a related vein, such as Hughes and Morgan's (2007, p. 504) definition of strategic capital which refers to the salient resources enabling the successful realization of product-market strategy, Smith (2006) defines the organization's strategic capital as "the capability to successfully plan and execute strategies" (Smith, 2006, p. 195). He notes that the strategic capital is depending on the rate of explicit and tacit knowledge sharing of the organization's employees.

Nosek (2004, p. 56) also proposes that both explicit and tacit knowledge are highly relevant as input in strategic planning processes and for the organization's ability to act. He refers to explicit knowledge as static knowledge, which is developed from knowledge of unchanging facts and which is recognized as being located in the world as discoverable 'truths' independent of the knower. The other type of knowledge is dynamic, which is created from changeable facts, cognitions, feelings, emotions, and which is of a tacit nature and dependent on the knower. In knowledge sharing between people, individuals tend to draw on both static and dynamic knowledge.

In order to advance strategic decision-making processes, a particular challenge for management is to establish a more employee-inclusive routine for effectively collecting, sharing and exploring such knowledge needed to implement strategic actions (Smith, 2005).

For instance, in every service company, frontline employees in particular accumulate both static and dynamic knowledge. In their daily knowledge sharing and interactions with diverse interest groups, they receive impressions of both changeable facts and unchangeable facts that provide a breeding ground for intuitive judgments. Such intuitive judgments by organizational members are of potentially strategic importance to management in terms of their knowledge of the particular service industry and the state of the business.

Daily knowledge sharing among service employees tends to both add to organizational capital by means of such factors as culture, learning and commitment, to informational capital by factors of knowledge of markets, technology, segments, competitors, and other stakeholders and to social/relational capital by means of relationships with colleagues, managers, customers, suppliers etc).

5.3 Formation of strategic capital and tacit knowledge

The preceding two sections have suggested a link between strategic decision-making and strategic capital by exploitation of firms' knowledge assets. The sections have shed light on the importance of knowledge sharing among employees for the creation of tacit knowledge and strategic capital. Hence, from a knowledge management perspective, it is relevant for management to acknowledge and nurture those factors that result in employees' positive attitudes to knowledge sharing, and thereby foster generation and sharing of knowledge (e.g. Nonaka & Takeuchi, 1995).

Organizational capital by the factor of culture is acknowledged to be crucial for development of effective knowledge management and the organization's strategic capital because it is grounded in basic assumptions, values, beliefs, artefacts and work systems (Schein, 1985) that can encourage or impede social capital and knowledge creation (Alavi & Leidner, 2001; Janz & Prasarnphanich, 2003). In a related vein, Hall and Goody (2007) proposed that power issues as a part of the management politics and culture are a major obstacle for knowledge sharing, and influence the rate of knowledge sharing between management and staff members.

The organization's strategic capital is to a large extent conditioned by the social capital that is formed by organizational members' relationship with each other. Initially the term social capital appeared in the sociology literature emphasising the importance of networks and the development of personal relationships that provides the basis for trust (Nahaphiet & Ghoshal, 1998). Within an organizational perspective, the term social capital may be defined as "the set of resources, tangible or virtual, that accrue to a corporate player through the player's social relationships facilitating the attainment of goals" (Gabbay & Leenders, 1999, p. 3). The social capital is composed of five dimensions: it works as information channels, it is embedded in social norms, it results in people's experience of identifying with the organization's values, it guides employees' obligations and expectations of the future and it

functions as a moral infrastructure which makes it possible for the organization to encourage norms (Hoffman et al., 2005). Yet, the social capital may be low as a result of distrust and lack of openness among employees or strong as a consequence of individuals' close relationships, which again is dependent on the overall organizational culture (Smith, 2006).

The social capital can influence the rate of informational capital in the sense that trust, as mentioned above, provides a good basis for informational interaction among people. The information, the firm collects and captures from employees of markets, competitors, colleagues, customers, leaders etc. in terms of both tangible and intangible aspects, is a capital good or strategic capital for the firm because it can affect the quality of management's strategic decisions and forecasts.

Although many other factors than those discussed above are likely to influence the advancement of strategic capital as a result of employees' knowledge sharing processes, management may particularly benefit from the discussed dimensions in relation to decision-making. Tapping knowledge pools via judgments of employees for input in strategic decision-making (Smith, 2006) and forecasting (Ghalia & Wang, 2000) can particularly be of value to management if they also have insight into the biases of human judgments (e.g. Tversky & Kahneman, 1974). In the coming chapter, literature on the use of intuitive judgments (as a product of tacit knowledge) in strategic decision-making will be presented in conjunction with literature on confidence and accuracy biases
.

6. Intuitive Judgments in Forecasting and Strategic Decision-Making

6.1. Intuitive judgments as a product of tacit knowing

The concept of intuition embraces a number of related meanings, and no universal definition of the concept exists (Agor, 1989). However, Vaughan (1979) summed up the general definitions of intuition that emerged from the literature, which in most cases contrast intuition in decision-making with reason, rationality and logical decision-making processes. He states that intuition is "… knowing without being able to explain how we know" (p. 46). This definition is closely related to Polanyi's (1966, p. 4) discussion of tacit knowledge. As he puts it, "we can know more than we can tell". Tacit knowledge that is anchored in a highly individualized knowledge stock and practical know-how gathered through years of experiences within a specific knowledge domain is the breeding ground for intuitive processing and judgments (Bennett, 1998; Brockmann & Anthony, 2002; Parikh et al., 1994; Polanyi, 1966; Sternberg et al., 1993; Wagner & Sternberg, 1985). Reber (1989) moreover proposes that the same elements of focus in studies of complex knowledge-acquiring processes are also identified in studies of intuitive processes. While learning is characterized by an unconscious process and produces abstract knowledge, an intuitive thought is "the end product of an implicit learning experience" (Reber, 1989, p. 232). Intuitive judgments are, therefore, the results of the individual's acquisition of knowledge needed for a particular matter in order to make such intuitive judgments (Shirley & Langan-Fox, 1996). In other words, intuitive processing and judgments are the end product of one's tacit knowledge stock, which is stored subconsciously, and intuition and tacit knowledge are thus interconnected in creating good decisions.

Intuition may be conceptualized in two distinct ways: as holistic hunch and as automated expertise (Miller & Ireland, 2005). In the holistic hunch conceptualization, intuition corresponds to judgments or choices made through a subconscious synthesis of information drawn from diverse experiences and impressions. Information stored in memory is subconsciously combined in complex ways to produce judgments or

choices that feel right, where "gut feeling" is often used to describe the final choice (Bastick, 1982; Miller & Ireland, 2005).

Intuition as automated expertise, on the other hand, corresponds to the subconscious recognition of a familiar situation and is a straightforward application of previous learning related to that situation (Miller & Ireland, 2005). This form of intuition develops over time as relevant expertise and tacit knowledge are accumulated within a particular domain (ibid, 2005).

6.2 Confidence and accuracy biases in intuitive judgments

In the early 1970s, Kahneman and Tversky (1972; 1973) introduced the theory of intuition, heuristics and biases in human judgment of frequencies and probabilities, with a departure in the theory of bounded rationality (e.g. Edwards, 1961). Their research aim was to understand how intuitive judgments can be de-biased and improved rather than accepting intuitive predictions or rejecting them.

They revealed that not only are the models of intuitive judgment simpler and more efficient because of their basic computations of the mind in comparison with the demands of rational models, but they are also categorically different (Gilovich et al., 2002).

In the last decade, studies of metacognition and metamemory in relation to judgmental performance have flourished (Metcalfe, 2000; Metcalfe & Shimamura, 1994). More specifically, the study of metamemory processes includes the understanding of future judgmental performance of experts versus non-experts resulting from their confidence in their knowledge repertoires. This theory relates particularly to confidence in the accuracy and comprehensiveness of individuals' memories when they make judgments about a particular event that occurred in the past without having had direct access to it (Brewer & Sampaio, 2006). The accuracy of a person's metamemory can be assessed by examining the relationship between a person's predicted and actual judgmental performance, known as the confidence–accuracy (CA) relationship (Bothwell, Deffenbacher, & Brigham, 1987). Experimental studies on metamemory (Brewer & Sampaio, 2006) reveal that confidence and accuracy performance depends on the difficulty of the judgmental task. Hence, one way to examine the relationship between confidence and accuracy is to examine items that differ in level of difficulty.

If participants' confidence is related to the accuracy of their memory, they should demonstrate greater confidence in easy tasks and less confidence in difficult ones.

Judgments are knowledge-dependent because individuals must recall necessary information from their memory in order to perform judgmental tasks (Nelson, Libby, & Bonner, 1995), thus the match between the information recalled and the task requirement is critical to the accuracy of judgmental outcomes.

Findings in studies of the effects on accuracy of audit experience reveal that experience builds up an auditor's abilities to process information, to make mental comparisons between alternative solutions and to take subsequent action (Gibbins, 1984). Libby (1995) suggests that inexperienced auditors have not developed the same abilities as experienced auditors who draw on complex memory structures of information on which they base their decisions.

Within the academic psychological literature, the conviction that overconfidence is a factor exercising profound influence on human biases in judgments under uncertainty is generally acknowledged. According to Griffin and Tversky (1992), people tend to attach too much weight to the strength of evidence (for instance, how well a candidate did in an interview) in relation to the actual credibility of that type of evidence (which in this case is limited insight gained from a single interview). Several studies have revealed the tendency to bias toward overconfidence in judgments. For example, von Winterfeldt and Edwards (1986, p. 539) assert that overconfidence in judgment is a "reliable and reproducible finding". This is supported by Yates (1990, p. 94), who states that "it is often believed that people's judgments are routinely overconfident".

Shiller (2000, p. 142) observed investor behaviour in the stock market and commented that "some basic tendency toward overconfidence appears to be a robust human character". Weinstein (1980) concludes that one of the common reasons people overestimate likelihoods of events is that they are generally optimistic about desirable events. Another significant factor in biases in human judgments is the characteristic of underconfidence, which is a phenomenon that follows the classical Bayesian studies of conservatism addressed by, for example, Phillips and Edwards (1966), who conclude that

people tend to overuse the middle values of a given probability scale (e.g., near 0.5) and underuse the extreme values on the scale (near 0 and 1).

Accordingly, overconfidence and underconfidence are common patterns in intuitive judgments. Prior experience is found to influence confidence in judgments. Fazio and Zanna (1978) found that inexperienced decision makers (novices) demonstrated lower confidence levels than experienced decision makers (experts). In comparison with inexperienced decision makers, experienced decision makers' accumulation of focused, domain-specific or task-related knowledge means that their behavior concerning a task within their particular knowledge domain may lead to greater confidence, because the task is subsequently repeated. For the most part, experts tend to be overconfident and novices tend to be underconfident when judging tasks they find difficult.

6.3 Judgmental biases of experts versus novices

Over the past 25 years, a large number of studies have been conducted investigating experts' versus non-experts' judgmental predictive performance (Lawrence et al., 2006). Most of these studies were experimental and laboratory based, concentrating on probability forecasting in meteorology (Murphy & Winkler, 1984), predictions of earnings (Whitecotton, 1996), exchange rates (Wilkie-Thomson, Onkal-Atay, Pollock, & Macaulay, 1999; Önkal, Yates, Simga-Mugan, & Oztin, 2003), sports games outcomes (Andersson, Edman, & Ekman, 2005) and stock prices (Muradoglu & Önkal, 1994). In all of these cases, experts provided better probability forecasts than non-experts.

Experimental studies in the intuition and heuristics tradition (e.g. Griffin & Tversky, 1992; Kahneman & Tversky 1973, 1974), which study intuitive judgmental biases, have focused on both experts' and laypeople's confidence in probabilistic judgments about financial, medical and personal outcomes. These especially concern the questions of when such probability judgments are likely to be calibrated and how they might be improved (Brenner, Griffin, & Koehler, 2005). In intuitive judgments of probability and frequency, Kahneman and Tversky (1973) and Tversky and Kahneman (1974) have revealed that people use heuristics that are responsive to some features of the information setting but not to others; hence heuristics (such as availability, representativeness, anchoring and adjustments) produce predictable patterns

of calibration and miscalibration in judgments (Brenner et al., 2005; Griffin &
Tversky, 1992; Massey & Wu, 2005). Studies of race oddsmakers (Griffith,
1949; Hausch, Ziemba, & Rubinstein, 1981) and expert bridge players (Keren,
1987) have revealed that intuitive judgments by experts are better calibrated
than those of novices when they have rich knowledge of the predictability
case in question. Yet, when predictability is low, experts have a tendency to
be more overconfident than lay people with limited knowledge of the case in
question. In areas of financial and economic forecasting, it is also observed
that "the combination of overconfidence and optimism is a potent brew, which
causes people to overestimate their knowledge, underestimate risks and
exaggerate their ability to control events" (Kahneman & Riepe, 1998, p. 54).
Studies of managers predicting industry-related and firm-related outcomes
have also revealed that experts tend to be overconfident in their judgments
(Russo & Schoemaker, 1992).

6.4 Intuitive judgments in forecasting and strategic decision-making

Management's capability to collect and capture information from
organizational members on internal and external environments tend to be
crucial for understanding emergent organizational threats and opportunities,
and thus for executing good strategic decisions. As stated earlier in the
previous chapter on tacit knowledge as strategic capital, scholars have begun
to acknowledge the value of tacit knowledge as a strategic asset resulting from
employees knowledge sharing both at the individual and at the group level
within the organization (Brockmann & Anthony, 2002; Muthusamy, 2008;
Saint-Onge, 1996; Smith, 2005, 2006).

Scholars have suggested that the use of tacit knowledge by means of
addressing intuitive judgments in strategic decision-making is particularly
relevant when time is short or when the situation is mostly uncertain and hard
to quantify based on historical data (Schoemaker & Russo, 1993). It is further
relevant to see tacit knowledge as a strategic tool for identifying and
confirming the existence of potential problems; to check on established
rational approaches, to by-pass in-depth analysis and to arrive quickly at a
plausible solution and then in particular in situations that are characterized by
familiarity. Tacit knowledge can also be used at the final stage of decision-
making such as when the decision is carried out to check if the choice solution
is appropriate or to judge the quality of information before the final decision
is executed (Agor, 1986; Brockmann & Anthony, 2002).

The use of intuitive judgments in decision-making and business forecasting has achieved increasing attention during the last 25 years and has undergone a significant transformation under the label of judgmental forecasting (Hogarth & Makridakis, 1981; Lawrence, Edmundson, & O'Connor, 1985). Although judgments have always played a role in business forecasting and planning, authors used to warn against judgments because of biases (see Hogarth & Makridakis, 1981 for an overview). For instance, Hogarth and Makridakis (1981, p. 194) point to two main key findings of biases in cognitive psychology with respect to human judgments: (1) the ability to process information is limited, and (2) people are adaptive. Consequently, the process of judgmental performance should be understood in terms of the context in which the judgment occurs and the biases related to information processing.

Despite academics' traditional scepticism about judgments as input in forecasting due to biases, the use of judgemental methods in practice is widely employed as it is generally recognized by business management that serious problems may occur if decisions are not supported by human judgments (Lawrence et al., 2006). Moreover, in recent years, several scholars in economics and within business strategy and planning have acknowledged the limitations of statistical techniques as untypical events cannot be predicted using historical data (Ghalia & Wang, 2000; Hogarth & Makridakis, 1981; Lawrence et al., 1986; Lawrence et al., 2006; Schwartz & Cohen, 2004).

The academic field of judgmental forecasting is continuously developing and there is still no general agreement about what human judgment is in forecasting. The field may be understood as methods in which intuitive judgments, opinions or subjective probability is incorporated, combined with statistical models, or separately applied or in fact applied as subjective components into the use of econometrics models (Wright & Ayton, 1987). As Brehmer states "the term is used to denote anything from probability judgments obtained under highly controlled conditions to rather loose statements about what may, or may not happen in the future"(1987, s. 199). A review of published research in the field of judgmental forecasting also reveals that there is no consensus among scholars on the decision of how the combination of statistical and judgmental approaches should be carried out (Ghalia & Wang, 2000). As there is a variety of approaches to human judgments in forecasting, it is not applicable to discuss judgmental forecasting in general (Brehmer, 1987), but rather in terms of its specific approaches.

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6.5 Confidence indices as a judgmental methodology in forecasting

In this thesis, one of the main research purposes is to develop a practical forecasting tool that can predict business performance using the intuitive judgements of frontline employees.

As argued earlier in the thesis, for the development of such a forecasting methodology it is relevant to turn to macroeconomic forecasting and confidence indices. The tradition of confidence indices is grounded in the idea of supplementing model-based forecasting with information from other more qualitative indicators by means of surveys (e.g. Batchelor & Dua, 1998).

Using systematic collection of survey data from time-series to construct confidence variables, these can be tested as predictors of other economic indicators like consumer spending/GNP in econometric forecasting models such as autoregressive distributed lag models (ADL) and vector autoregressive models (VAR). Current and/or lagged values of the confidence index are then tested for these target variables (Batchelor & Dua, 1998).

In many judgmental forecasting approaches, experts' judgments are not necessarily recorded in an econometric model, but are rather applied to adjust the existing forecasting model (Lawrence et al., 2006; Wright & Ayton, 1987). Yet, as it often happens when applying survey results as a separate statistical forecasting model, the information of the survey is likely to substitute such adjustments to other models, as confidence indices tend to have impounded the adjustment information (Batchelor & Dua, 1998).

In the coming chapter, the theoretical framework of the first six chapters of the thesis will be applied to the hospitality industry as the empirical research setting of the thesis. This concerns the practical use and empirical studies of knowledge management in the hospitality sector. Moreover, it concerns the role of judgmental forecasting in conjunction with traditional revenue management and assumptions of differences in knowledge sources between executives and frontline employees in the industry.

7. Research Setting: The Hospitality Industry

7.1 The state of knowledge management (KM) research

Although the academic research and the practical use of the concept of knowledge management (KM) has gained increasingly popularity in many sectors over the last 15 years, the application and empirical studies of the concept in the hospitality industry is relatively new. As stated earlier in the introduction, this may be seen as a consequence of KM concepts being mostly developed from a manufactured and multinational perspective (e.g. Nonaka & Takeuchi, 1995).

The KM literature which emerged in the mid-to late 1990's and onwards is argued to be mostly relevant for application to the tourism and hospitality industry due to the influence of information technology (Cooper, 2006). As the Information Age moved into the knowledge economy, knowledge became an essential resource for developing competitive advantage based on the production, distribution and use of information. Around the onset of the new millennium, some empirical studies on innovation and learning curves in the hospitality sector related to knowledge sharing appeared (Baum & Ingram, 1998; Ingram & Baum, 1997a, 1997b) and agglomeration effects of strategic positioning of hotels (Canina, Enz, & Harrison, 2005). As a result of an increasing use of technology in the service sector today, learning curves have shortened tremendously. Consequently, innovation activities across all areas of the tourism industry (Cooper, 2006) have become common in order to achieve sustainable competitive advantage. Davidson and Voss (2002, p. 32) offer a broad definition of KM, to which Cooper (Cooper, 2006, p. 51) adds the tourism emphasis: "…knowledge management is about applying the knowledge assets available to [a tourism] organization to create competitive advantage".

The fundamental lack of applied scientific knowledge of knowledge-based concepts in the development of tourism management impedes the practical debate on KM in the industry (Grizelj, 2003). Some authors also argue that the published KM research in both tourism and hospitality is limited, inconclusive, and mostly descriptive, focusing on anecdotal and one-off case studies (Ruhanen & Cooper, 2004). Others acknowledge that tourism research in general does not bring anything substantial or significant to the body of

research or to the industry because the research is mostly company or sector-specific and operationally focused (Cooper et al., 1994).

These findings are further supported in a review of KM in the hospitality industry of 2 365 articles, which revealed that overall empirical KM research of the industry is limited, inconclusive, low on generalization and testability (Hallin & Marnburg, 2008). It is suggested that future research should offer insight into actual learning dynamics to define what domain-specific knowledge means for hospitality management and employees, to investigate how to store real-time contextual knowledge, investigating employees' versus managers' knowledge ability in forecasting business change, and to illuminate how knowledge vision and knowledge activities may be aligned (Ibid, 2008).

7.2 What do we know about KM applications in the hospitality industry?

Today, only a relatively small number of hotels have implemented KM systems, although they are likely to gain benefits from KM due to chain requirements of an overall quality standard of their geographically dispersed hotels (Bouncken, 2002; Medlik, 1990). Existing efforts in KM practices are particularly observed within hotel chains, as they have to deliver an overall service quality standard. For instance, a case study of anecdotal character conducted by Bouncken (2002) of the Accor Hotel Group with 3 500 hotels worldwide, 130 000 employees and which owns brands like Formula One, Ibis, Novotel and Sofitel, revealed that the corporation is developing KM-based strategies and is engaged in KM activities. The Accor Corporation in Germany (with 6 000 employees) has implemented a KM system based on three stakes: a) IT-based knowledge accumulation; b) access to the IT-based knowledge system; and c) motivation for knowledge use and creation. An Internet-based intranet has been modified and improved with the aim of incorporating data about best practices, service innovations and training possibilities. Another example of KM approaches is that of the Hilton Corporation, which operates 2 700 hotels in more than 70 countries. The Hilton University, an established corporate university, is developing a learning culture for Hilton Hotels by encouraging and offering a consistent approach to training for team members at all levels using e-learning technology (Baldwin-Evans, 2006; Hilton University, 2006). Although Hilton International emphasizes knowledge sharing and on-the-job mentoring in respect to competency development of its members, they introduced a new innovative e-learning system in 2002 that is highly cost-effective and can advance generic skills in terms of communications and customer service

(Hilton University, 2006). Since Hilton University launched its e-learning system, more than 10 000 Hilton members have completed 100 000 e-learning programs (Ibid, 2006).

The previous examples demonstrate that some actors in the industry acknowledge their position in a knowledge-intensive industry that requires continuous advancement of learning and knowledge-sharing activities in order to improve their business. However, these examples are only some of the few. A recent study shows that hospitality management considers KM to be a relevant concept, but they are confronted with too many unclear KM strategies, activities and implementation techniques (Bouncken & Pyo, 2002). This opinion is confirmed by Yun (2004), who argues that the tourism and hospitality industry adapts slowly to KM strategies due to the complexity of the concept, which requires certain skills in data mining, statistics and substantial knowledge of tourism and hospitality management.

Enz and Siguaw (2003) found that innovation ideas and best practices champions in hospitality companies are hampered as innovation initiatives often begin and end with managers and as they leave their job, many of the practices they initiated are discontinued. These findings indicate something about the nature of hospitality best practices where two factors in particular appear to reduce the permanence of innovative initiatives: firstly, there is high mobility of managers in the industry an, secondly, there is a high rate of consolidation through mergers and acquisitions. This results in difficulties in maintaining benefits of individual learning in the organizational system. Therefore, hospitality companies may particularly benefit from KM systems in respect to codification of best practices and innovation ideas.

7.3 The role of judgmental forecasting in relation to revenue management

The majority of research on forecasting demand in the hospitality sector has concentrated on revenue management, also referred to as yield management, based on statistical techniques using time-series data derived from historical data and current reservation activity (Ghalia & Wang, 2000; Kimes, 1989). In the academic literature, forecasts of tourism visitor flows feature more predominantly than that of hotel visitor flows, as historical data on tourism visitation is more easily accessible than company data. However, most of the time-series forecasting techniques covered in the extensive literature on tourism forecasting is also relevant for making forecasts at the company level (e.g. Kimes, 1989; McGill & van Ryzin, 1999).

The general problem which hospitality management faces continuously concerns the decision at the operational level on the optimal use of the limited numbers of rooms (Bitran & Mondschein, 1995). The definitions of yield management are various. Grounded in a review of diverse definitions, Jauncy, Mitchell and Slamet (1995) define yield management as an integrated continuous and systematic approach of maximising room revenue through the manipulation of room rates in response to forecasted patterns of demand (p. 26).

As hospitality management is confronted with increasing complexity from the internal and external environment in decision-making processes it has been subsequently acknowledged that quantitative forecasting models, based on historical data, are not able to capture untypical events that can influence demand (Ghalia & Wang, 2000; Schwartz & Cohen, 2004). This complexity manifests itself in many forms such as coping with promotional activities, pricing strategies, innovation activities to stimulate customers' changing interests, control of capacity constraints, loans and fixed costs. Consequently, managers go through vast quantities of information to deal with day-to-day operations and to come up with the best and most effective course of action in their strategic decisions. Managers in the hotel industry are often aware of which factors affect their business, but the number of managers in a typical hotel is rather small, and to base judgmental forecasts on managers only may result in bias and high error.

Within the last decade, few studies have looked into the development and benefits of intelligent systems to support business forecasting by judgmental methodology in the hospitality industry. For instance, in a study by Ghalia and Wang (2000) the focus is on knowledge acquisition defined as "the transfer and transformation of problem solving expertise from some knowledge sources to a program" (p. 383). The study focuses on hotel managers as a knowledge source. The intelligent system is not intended to reduce the use of statistical techniques by yield management, but rather to aid managers in making adjustments to existing forecasts. Such knowledge acquisition consists of different steps such as unstructured interviews, structured interviews, follow-up questionnaires, gaining insight into the decision-making process by documented problem solving and scenario simulation and finally to conduct knowledge analyses to understand the decision-making process.

In recent years, some industry indicators have been developed to support strategic decision-making and forecasting based on executives' expectations

and judgments towards the industry in general. One such index is the monthly Lodging Executives Sentiment Index (LESI) developed by Raymond Goodman at the Whittemore School of Business & Economics, Department of Hospitality, at the University of New Hamshire (Goodman, 2007). This index provides information on executives' anticipations over the next 12 months in respect to present business activity, future business activity, reservations and employment activity for the U.S. hotel industry. Hospitality executives indicate whether they are positive, neutral or negative towards the development of each issue and results are published on a monthly basis in the magazine Lodging Hospitality. As for the tourism industry, the Travel Industry Association of America (TIA) has developed the Traveler Sentiment Index, which indicates travelers' perceptions about their personal finances, affordability and availability of time to travel (Travel Industry Association, 2007). Through indirect questions, these confidence surveys capture intuitive judgments of experts and consumers that can be applied in conjunction with or in support of econometric forecasts.

In another study by Schwartz and Cohen (2004) on judgmental forecasting in the hotel industry and managers' judgment biases, the conclusion focuses on the need for more research into human judgments in the revenue-management process to support forecasting models.

The preceding presentation of judgmental forecasting systems in relation to traditional revenue management in the hospitality industry has shed light on the relevance of more studies on judgmental forecasting in the industry. Revenue management is traditionally aimed at the operational level whereas no comprehensive forecasting tool has been developed at the strategic level to assess changes in overall company performance. The study by Ghalia and Wang (2000) is aimed mostly at the operational level, by suggesting a support system to existing revenue management systems and the LESI index is a strategic tool but is aimed at assessing overall market movements in the industry and not the performance of the individual hotel in relation to the market.

As the hospitality industry is becoming increasingly knowledge-based or knowledge-intensive due to the great influence and use of information and communication technology (Kahle, 2002), management's acknowledgement of the tacit knowledge component as a strategic asset in developing competitive advantage is vital. Wagner and Sternberg (1985) refer to tacit knowledge as knowledge below our conscious awareness that is not directly taught but learned as a result of domain-specific knowledge. In hotel

organizations, a major part of frontline personnel's domain-specific knowledge is developed due to their interactions with guests, managers, colleagues, suppliers, employees of competing hotels and other groups of people on a regular basis. Such interactions naturally result in frontline employees' accumulation of knowledge about how these groups perceive the state of the particular hotel. Subsequently, frontline employees' shape their confidence in the hospitality business' ability to succeed grounded in these impressions by signals and proxies towards the business. Hence, hospitality may benefit from collecting and systemizing frontline employees' perceptions and experiences and applying them to forecasting

7.4 Assumptions about qualitative differences in knowledge sources of executives and frontline employees

As stated above, it is reasonable to expect that frontline employees – those who daily interact with guests/customers and daily observe how the service delivery system works – also possess important knowledge that can contribute information for future predictions and strategic decisions. In fact, it is this *socialization process*, i.e. the learning which occurs in the daily work that Nonaka and Takeuchi (1995) point out as the initial source of knowledge creating.

In the classical work of Walsh & Ungson (1991) on organizational memory we are offered a systematic approach of sources for knowledge generation and memory. Organizational members develop cognitive heuristics based on their daily experiences and observations. Walsh & Ungson suggest that internal in the organization there may be found five sources of "memory": the individual characteristics, culture, organizational structure, ecology and transformations. In the following section, the author suggests possible reasons of why these sources of memory may result in systematic differences in knowledge sources of executives and operational personnel in the hospitality industry.

In hospitality companies there tend to be systematic differences in knowledge between top managers and frontline employees in a service organization: Top managers often have more education and longer work experience than frontline employees. As concerns culture, differences will probably mostly be related to the cultural information distributed in the organization (Schein, 1985) and the rate of knowledge sharing between organizational members (e.g. Al-Alawi, Al-Marzooqi, & Mohammed, 2007; Hall & Goody, 2007; Janz & Prasarnphanich, 2003) and then particularly across ranks.

Organizational structure provides implications for role behavior such as the expectations of organizational members expect from each other as a result of their positional status (i.e. the position as frontline employee versus the position as manager). Besides who gives orders to whom, role behavior also defines external contacts. The external contacts of top managers will embrace other top decision makers while frontline employees will probably have most contact with peers in other parts of the company and colleagues from other service businesses.

It is also reasonable to expect that the ecology of the physical structure of the organization (Walsh & Ungson, 1991, p. 65) in respect to size of the business (i.e. a chain hotel corporation versus an individual hotel) will contribute to qualitative differences in knowledge assets for strategic decision-making. However, above all factors 'transformation' is likely to represent the major qualitative differences in memory sources.

Transformation is defined as an input that is transformed to an output (Walsh & Ungson, 1991). The assumption underlying transformation processes is that the retrieval of past information resulting from past transformations guides current transformation processes. In cases where individuals carry out a more analytical approach to problem solving, the transformation process tends to be familiar. On the other hand, if situations or the task at hand is not familiar, individuals tend to rely on experiences, wisdom and intuition which direct problem solving behavior. This complexity characterized by a switch between personal experiences of what seems to be a familiar problem on hand, and what is not, is likely to result in the misuse of knowledge (Walsh & Ungson, 1991). In many instances, decisions may results in a routine decision response being carried out rooted in previous experiences and an analytical approach when actually a non-routine response is required due to a novel situation that is not recognized. The opposite situation is also likely to occur; and in both situations it results in reduced precision in judgmental forecasting and following strategic decisions. In making daily decisions, managers are habituated to rely on their memory capabilities and carrying out the switch between familiar and unfamiliar situations and may therefore be at particular risk of making wrong decisions.

The daily tasks of top management and employees are not only very different, but in addition to their daily tasks, one of the primary tasks that top managers have is to predict future development internally and externally and make strategic decisions according to these predictions. Due to this last difference,

it is reasonable to consider top managers experts in strategic judgments and further consider frontline employees novices in the same respect.

The earlier chapters have indicated that so far knowledge management tools to capture and systemize employees' dynamic and tacit knowledge have not been developed to support existing forecasting methods. In the coming chapter, a new leading strategic indicator, the *Employee Strategic Sentiment Index* (ESSI), is suggested to fill this gab in research and practice.

8. Employee Strategic Sentiment Index (ESSI)

8.1 Expectations

Given that consumers' collective tacit knowledge and leading confidence can predict the development of the economy at an aggregate level, it is reasonable to assume that this will also be feasible at the disaggregate business level for service businesses. The service enterprise is less complex than the economy as a whole, and service employees have firsthand knowledge of several aspects of the enterprise, and playing an active role in the service production and creation of firm reputation by their high degree of socialization.

Service employees tend to accumulate knowledge of potential strategic importance to management about the state (the reputation) of the business. In their daily interactions with guests, managers, colleagues, employees from competing businesses and other stakeholder groups, employees develop expectations about various aspects of their hotel company, including its ability to succeed. By introducing service employees' collective tacit knowledge and leading confidence as a resource in forecasting and following strategic decision-making enhances the knowledge base on which forecasts and decisions are built.

8.2 Conceptualization of ESSI

The study of ESSI draws on the methodology used for constructing consumer confidence indices (Curtin, 2006; Katona, 1951) and relies on theory of firm reputation (Dutton et al., 1994) for structuring the variables of ESSI. In the study of ESSI, relevant issues from the theory of firm reputation include perceived organizational reputation though organizational members' beliefs about how outsiders' perceive the firm (Carmeli & Tishler, 2004b; Dutton et al., 1994; Smidts et al., 2001) and perceived organizational identity through members' beliefs of the organization's distinctive, central and enduring attributes (Albert & Whetten, 1985; Dutton et al., 1994).

Reputation analysis at the firm level has been described as the knowledge about a firm's true characteristics and the stakeholder's emotions towards and confidence in the firm (Weigelt & Camerer, 1988). Organizational members may, for example, have confidence in their firm to be a tough competitor, a good place to work, and or/or offer quality products (Ferguson et al., 2000). Hence, reputations reflect members' knowledge and expectation about firms' future behavior and intentions (Weigelt & Camerer, 1988). A contribution of the study of ESSI is to measure how organizational members' perceptions of the firm changes over time.

However, the main goal of the study of ESSI is to establish a practical forecasting tool for hospitality management that can indicate early signals about changes in the competitiveness of the business. In an attempt to collect and systemize potential unique knowledge that frontline personnel possess, ESSI is constructed with 13 questionnaire items presented to frontline employees on a monthly basis. This is knowledge that to a large extent has not been available to hospitality management before and is likely to be complementary to the knowledge of the top management. Frontline employees are requested in these particular 13 items to elicit their intuitive judgments, as resulting from their tacit knowledge towards and confidence in their workplace over a 12-month period.

As stated earlier, the initial data collection of ESSI, as presented in this thesis, is carried out in the hospitality industry on frontline employees as an example of service employees. Figure 2 is an illustration of the different environmental spheres that may exercise influences on frontline employees' generation and accumulation of tacit knowledge on a daily basis and which may affect their confidence towards the future state of their workplace. The influences by the nature of signals, proxies and information stem from environmental spheres and they provide indicators for individuals about the state of one or several spheres, such as: a country, a local area (e.g. a destination), an industry and its sub-industries (e.g. the tourism industry and the hospitality industry), a group of competitors (e.g. a group of hotels/hotel chains), a corporation (e.g. a hotel chain), a business unit (a hotel unit) and employees' (e.g. frontline employees) personal conditions. Influences from a particular industry sphere such as the tourism industry and its sub-industries (the hotel industry) is likely to exercise influence on several spheres at the same time and are indicated by circles laying across the other spheres.

The arrow in the figure pointing inward towards employees' personality sphere implies that the individual employee may perceive signals and proxies,

and evaluate, and develop tacit knowledge from several influential indicators within each sphere.
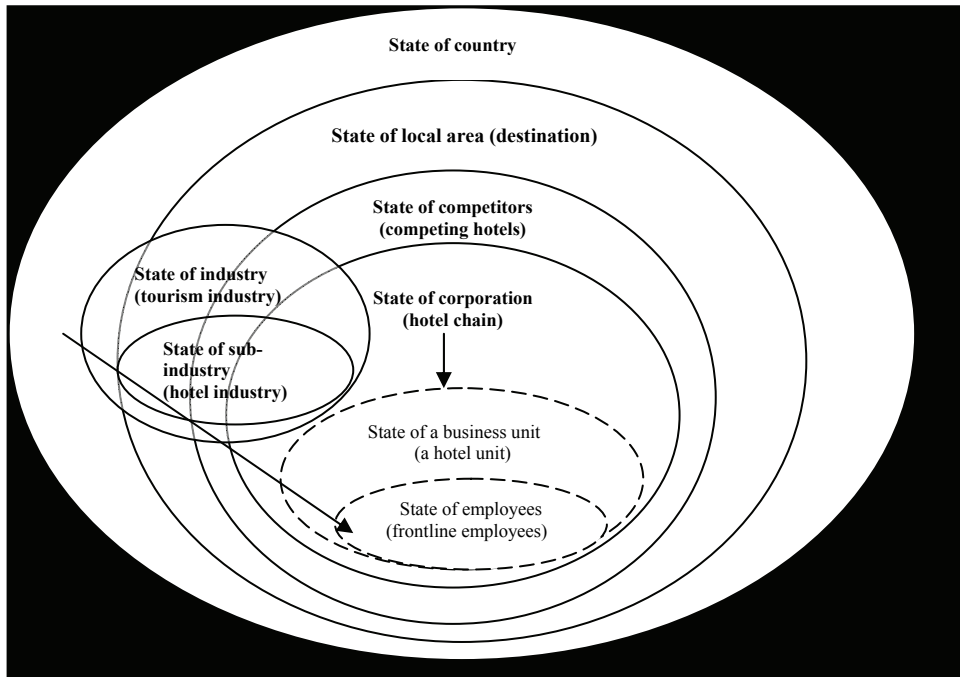
Figure 2. Spheres of influences on frontline employees' generation of tacit knowledge and reputation formation.

As the theoretical platform of the thesis is now grounded in the previous chapters, the methodology of the three studies of the thesis will be presented in the coming chapter.

9. Methodology

The main research statement of the thesis is *to explore the strategic impact of service employees' tacit knowledge on service businesses.* This research statement will be explored in three separate studies and presented in four papers. Table 1 below presents the main focus and methodology of each paper.

Table 1. Research focus and methodology in papers

Studies	Papers	Main focus	Methodology
First study	I. Knowledge Management in the Hospitality Industry: A Review of Empirical Research.	*To review* empirical KM research in the hospitality field.	Database search of 2 365 articles.
Second Study	II. Exploring Qualitative Differences in Knowledge Sources: A Study of Hierarchical Effects of Judgmental Confidence and Accuracy Performance.	*To explore* the confidence and accuracy judgmental performance of executives and frontline employees.	Survey quiz of 39 executives and 38 frontline employees in hotels in Scandinavia.
Third study	III. Using Employee Confidence to Predict Hotel Performance: An Exploratory Study of a New Leading Business Indicator	*To explore* the development of an indicator that can predict company performance based on frontline employees' confidence towards the future state of the business.	Three time-series studies with three hotel cases in Scandinavia. Observation periods are 18, 17 and 16 months.
Third study	IV. Applying Collective tacit knowledge as a Firm Capability for Forecasting Firm Performance: Further Evidence on Employee Strategic Sentiment Index (ESSI).	*To conceptualize* Employee Strategic Sentiment Index (ESSI) and *validate* it against Index of Consumer Sentiment (ICS) and Consumer Confidence Index (CCI).	Three time-series studies with three hotel cases in Scandinavia. Observation periods are 18, 17 and 16 months.

9.1 The first study of the thesis

The first study of the thesis presents the first conducted state-of-the-art survey of empirical KM research in the hospitality field. The study surveys and frames the empirical state-of-the-art research in KM in the hospitality sector at an industry, inter-organizational and intra-organizational level. It highlights loopholes and opportunities for further studies in order to advance the general quality level of research in the field.

9.1.1 Research questions

The research questions addressed in the study are: 1) Why may KM be important in the hospitality industry and 2) what are the challenges of KM applications for management? 3) What is the theoretical content of empirical contributions? 4) What strategic perspectives pertaining to static versus dynamic views on knowledge and knowledge development do authors employ? 5) What is the empirical quality in juxtaposition with theory-of-science criteria? 6) What are relevant future research directions?

9.1.2 Data sampling

The literature review took place from March to April 2006 and is founded on a search for the keywords "knowledge management" and "organizational learning" in hospitality and tourism-related databases.

In other relevant databases, the search was based on the keywords: a) "knowledge management and tourism/tourist destinations/travel industry/hospitality/ hotel(s)/lodging/hotel industry"; b) "knowledge and tourism/tourist destinations/travel industry/ hospitality/hotel(s)/lodging/hotel industry"; and c) "organizational learning and tourism/tourist destinations/travel industry/hospitality/hotel(s)/lodging/hotel industry."

9.1.3 Data sample

The total result of hits of all term combinations in the searched engines yielded a total of 2 365 contributions. These include theoretical, empirical and anecdotal contributions and newsletters from tourism and hospitality-related magazines. All 2 365 contributions were screened and sorted into four groups: a) theoretical contributions; b) empirical contributions; c) case stories of anecdotal character; and d) non-applicable contributions for each search engine. After sorting contributions into these groups for each search engine, each group was carefully filtered for hospitality-related contributions. Reoccurring publications were then filtered from each search engine. Finally, the findings of hospitality-related articles yielded 19 empirical and 14 case stories of anecdotal character. The case stories that appeared, however, will not be included in the evaluation of contributions.

9.1.4 Assessment tools

Evaluation of research contributions was performed by means of basic theory-of-science criteria. Criteria by Popper (1968) and Kuhn (1989)were employed for evaluation of the research's quality. This principally concerns criteria pertaining to testability and generalization. The testability (Popper, 1968) relates to whether the theory and the empirical applications are concise in such a way that other researchers can reproduce the research process to determine whether the contribution constitutes a scientific advance in the field of KM. The generalization criteria relates to whether the theory is broad in scope and extends beyond the particularly observed setting (Kuhn, 1989) in such a way that it may be applied to a general KM debate in the hospitality industry.

9.2 The second study of the thesis

The second study of the thesis builds on evidence put forward in the first empirical review of knowledge management in the hospitality industry. This first study, as presented in Paper I, indicated that knowledge is generated at different hierarchical levels in the organization. In the second study of the thesis, presented in Paper II, the focus is on linking knowledge management (KM) to strategic decision-making in service businesses through the constructs of strategic capital and knowledge sharing.

The study empirically explores qualitative differences in domain-specific knowledge of frontline employees and executives. The study draws on cognitive theory using confidence and accuracy theory. The study also explores the extent to which the knowledge of these subject groups is correct with respect to incorporating intuitive judgments by various employee groups into forecasting and subsequent strategic decision-making. This investigation was carried out through an exploratory study of the subject groups' confidence and accuracy (CA) performance in a constructed knowledge-based forecasting setting. The groups' intuitive judgmental performances were examined when predicting uncertain business and industry-related outcomes.

9.2.1 Propositions

The main aim of the second study is to improve information utilization and processing in strategic decision-making. For this matter, an examination of the judgmental CA performance of frontline personnel versus executives is relevant in order to understand differences in their intuitive judgmental patterns of uncertain industry-related and firm-related outcomes resulting from different socialization processes.

The following propositions were tested:

Proposition 1: Executives produce more accurate judgments for all difficulty levels of strategic judgmental tasks compared with frontline employees.

This proposition was grounded in empirical studies of the effects on accuracy due to experience. Studies have revealed that experience builds up a professional's abilities to process information, to make mental comparisons between alternative solutions and to take subsequent action (Gibbins, 1984). Studies have also revealed that inexperienced auditors have not developed the same abilities as experienced auditors who draw on complex memory structures of information on which they base their decisions (Libby, 1995). The consequence of this for executives in the service industry, who engage in strategic decision-making in their daily work, is that they are better at judging events accurately than frontline personnel who do not engage in strategic decision-making to the same extent.

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Proposition 2: Executives demonstrate overconfidence for all difficulty levels of strategic judgmental tasks compared with frontline employees, who demonstrate underconfidence.

This proposition is grounded in findings of earlier studies on CA which have indicated that prior experience is found to influence confidence in judgments. It has been found that inexperienced decision makers (novices) demonstrate lower confidence levels than experienced decision makers (experts) (Fazio & Zanna, 1978). In comparison with inexperienced decision makers, experienced decision makers' accumulation of focused, domain-specific or task-related knowledge means that their behavior concerning a task within their particular knowledge domain may lead to greater confidence, because the task is subsequently repeated. For the most part, experts tend to be overconfident and novices tend to be underconfident when judging tasks they find difficult. It is therefore expected that executives in the service industry, who work with strategic decision-making on a regular basis, will have greater confidence in judgments concerning tasks related to strategic issues.

Proposition 3: Executives' accuracy in judgments and confidence in knowledge are better calibrated compared with frontline employees.

Calibration is a measure of the correspondence between forecast probabilities or frequencies and the realized proportion of accurate predictions and over/underconfidence, depending on the task structure used (Lawrence et al., 2006). Outcomes of overconfidence, underconfidence and accuracy that indicate calibration performance are often presented in an index of subjects' probability assessments, either exceeding or falling short of the attained proportion of correct answers to the events predicted (Lawrence et al., 2006).

9.2.2 Sampling and research setting

The sampling of participants for the study was selected from 12 hospitality businesses in Norway and based on a cluster sampling procedure (Aaker, Kumar, & Day, 2001).

As the second study of the thesis mostly focuses on testing findings from laboratory research of causal relationships of confidence and accuracy measures in a field setting, the issue of random sampling becomes less relevant.

A cluster of hotels was selected based on their size, expressed through the number of employees. We chose size as a criterion for selection of the hotel to ensure homogeneity in the sample of hotels. The hotels had between 50 and 250 employees and according to the European Commission's definition between 50 and 250 employees belong to the category of SME small and medium-sized enterprises (European Commission, 2007). Both individual and chain hotels were included in the sample of hotels. The number of employees at the hotels was assumed to play an important role in the division of work among employees and in the amount of accumulated strategic knowledge by frontline employees (Ruiz-Mercader, Merono-Cerdan, & Sabater-Sanchez, 2006).

These 12 hotels were drawn from a list of hotels in the city of Stavanger (Stavanger Travel, 2006). All the hotel managers who were contacted and asked to take part in the study volunteered to participate.

9.2.3 Sample

The survey sample consisted of 77 participants. Thirty-nine of these were hospitality executives who were involved in strategic decision-making on a regular basis for their hotel companies. The executives were general managers, hotel managers and functional managers such as human resource managers, key account managers, sales managers, revenue managers and some front office managers. The 38 frontline personnel worked at front desks in the hotel companies. However, only 37 frontline personnel completed the actual survey quiz.

It was assumed that the frontline personnel were novices, while the executives were experts. Frontline employees did not participate in strategic decision-making to the same extent as executives in service businesses. It was therefore assumed that frontline personnel and executives had received different dosages of strategic information at the point of observation. However, in order to group executives in the study as experts and frontline employees as novices, we carried out a manipulation check of their experience of prior knowledge of the type of tasks addressed in the survey quiz. These results are presented in the empirical results.

Both executives and frontline personnel were recruited to our study through personal contact with executives at the hotels included in the study. The sample of businesses in the study comprised of 12 hotels in Norway. These 12

hotels were drawn from a list of hotels in the city of Stavanger (Stavanger Travel, 2006).

In the sample of executives and frontline personnel, 67.5% were female and 32.5% were male. The ages of the participants ranged from 18 to 62 years, M = 34.07. The age of front personnel in the sample was M = 29.53 years, while that of executives was M = 38.26.

The frontline personnel's full-time work experience in the hospitality and tourism industry was M = 6.68 years, SD = 6.58 for full-time work and M = 4.29 years and SD = 2.07 for part-time work. For executives, their full-time job experience in the industry was M = 11.26 years and SD = 9.17, while their part-time job work experience was M = 5.36 years and SD = 3.27.

9.2.4 Material and Procedure

A survey quiz with 43 questions was administered to frontline employees (novices) and executives (experts) at their workplace (in hotels). Participants were asked to take a 15-minute quiz about the hotel industry and performance indicator results for different pairs of destinations from the year 2004. Participants were told to rank orders of two alternatives of economic performance of the lodging industry at the local, regional and European level and then indicate their confidence level in their rankings. The participants had no access to aids when filling out the survey and sat in meeting rooms in the hotels while taking the quiz. Participants were observed while they took the quiz in order to ensure that none of them communicated with each other about their answers.

9.2.4.1 Design

The source of inspiration for the research design of Paper II was derived from a study designed by Griffin and Tversky (1992). The present study was characterized by a between-participants design, and both executives and frontline personnel received identical tasks. Task difficulty was operationalized using different performance indicators for this particular service industry and the geographic proximity of results for different destinations in Norway and Europe. In the hotel industry, widely used

performance measures are: average room revenue, average RevPar[1] and average occupancy rate (Horwath Consulting, 2005). Task difficulty in terms of geographic proximity was operationalized using newer economic geographic theory on knowledge formation (Amin & Cohendet, 2005), which provides evidence concerning the importance of geographic proximity between individuals to the transfer of knowledge. According to this theory, local knowledge formation is distinguished from global knowledge formation, suggesting that actors within a local geographic area tend to draw on the knowledge generation of other actors in that area, thus enhancing knowledge formation. While knowledge exchange and relational proximity within a local milieu is likely to enhance actors' knowledge of events in a local area, knowledge exchanges based on long distance and knowledge generation stemming from global events occur less frequently and more formally and often result in a lower domain-specific knowledge (Amin & Cohendet, 2005).

To ensure a representative sampling of performance indicator results for different geographical proximity levels for the three industrial performance indicators, two pairs of destinations for each different geographic level from 2004 were selected at random (i.e., European cities, Norwegian counties and Norwegian cities). This resulted in a matrix of 18 paired destinations as presented in Table 2. The majority of paired destinations and performance results of room revenue, RevPar and occupancy rate at the different geographic levels were drawn from different lists presented in the Norwegian Hotel Study of 2005 (Horwath Consulting, 2005, pp. 7, 12, 34). For results concerning RevPar at national level, room revenue at regional level and occupancy rate at regional level, we used accommodation statistics from Statistics Norway.

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[1] RevPar is a measure of profit and is calculated as follows: RevPar = Rooms revenue × occupancy rate. In recent years, RevPar has become a common performance indicator in the hotel industry because it is a quick indicator of the competitiveness of the business compared with other hotel businesses. This key measure is used to compare profitability of hotels, regions and markets (Horwarth Consulting, 2005).

Table 2. Judgmental tasks: Paired Destinations

Geographic Proximity Level	Performance Indicator 1 (Room Revenue)	Performance Indicator 2 (RevPar)	Performance Indicator 3 (Occupancy Rate)
European city level	Copenhagen – Glasgow 2004	Berlin – Amsterdam 2004	Edinburgh – Brussels 2004
	Amsterdam – Brussels 2004	Frankfurt – Copenhagen 2004	Glasgow – Stockholm 2004
Domestic county level	Buskerud – Nordland 2004	Nord-Trøndelag – Hedmark 2004	Hordaland – Østfold 2004
	Aust-Agder – Sør-Trøndelag 2004	Troms – Møre-Romsdal 2004	Finmark – Møre-Romsdal 2004
Domestic city level	Trondheim – Bergen 2004	Tromsø – Oslo 2004	Trondheim – Bergen 2004
	Kristiansand – Bergen 2004	Tromsø – Trondheim 2004	Stavanger – Bergen 2004

To test the validity of the classes, "expert" for executives and "novice" for frontline personnel, a t-test was conducted of the differences in prior knowledge of tasks between groups. Frontline personnel had a prior knowledge score of $M = 3.18$, $N = 35$ of the tasks, while executives had a score of $M = 3.69$, $N = 39$. The difference is significant ($p < .05$) and supported the assumption that the sampled frontline personnel were novices and that the executives were experts.

The manipulation check of the validity of diverse difficulty levels between judgmental tasks was performed using a paired samples t-test. The results of this manipulation check will be presented under results.

9.2.4.2 Measures

The dependent variables used in the study were: accuracy in judgments of tasks, confidence in the accuracy of participants' judgments and CA calibration performance.

The independent variables were based on accuracy tasks addressed in Table 2 and a confidence item. Accuracy was measured using performance indicator results for different indicators and for different geographic proximity levels. Subjects were asked to choose which of the destinations in each pair had achieved the highest performance results in 2004 for different indicators. After each task, the subjects' confidence in their answers was tested, employing a seven-point confidence scale developed by Brewer and Sampaio (2006). On the scale, 1 was labelled as totally uncertain (a guess) and 7 was labelled as absolutely certain. Participants were instructed to tick 1 if they had absolutely no confidence that their judgments of events were correct and to tick 7 to indicate that they were totally confident that their judgments were correct.

9.2.4.3 Pilot-test

The instrument was pilot-tested with ten third-year bachelor students at the Norwegian School of Hotel Management in Stavanger, Norway. The pilot test resulted in a reduced survey and changes in structure of the survey. It was noted that the questions triggered mostly the use of guesses which seemed frustrating. Consequently, the survey was tested with five frontline employees in hotels and the same comments were made. However, respondents' experience of guesses was a part of the aim of the research design. It was, in other words, necessary to trigger their guesses to elicit their intuitive judgments of tasks.

9.2.5 Analysis

To test the participants' performance on manipulation tasks, accuracy of judgmental tasks, confidence in their knowledge and calibration performance, descriptive analyses and paired samples statistics were performed using SPSS version 15. The analytical approach and data presentation was inspired by Griffin & Tversky (1992).

9.2.6 Validity

In this second study of the thesis, the validity evaluation concerns meeting principles in line with formative measures (Bagozzi, 1994). According to the formative (cause, causal) measure principles, indicator variables are causing rather than being caused by the latent variables, and involves applying single variables or creating an index rather than a scale (Bollen, 1984). Issues of internal consistency of the measures become therefore less relevant.

In the second study, only two types of individual items (a confidence measure and an accuracy measure) are employed and the calibration performance between the two variables is investigated. The validity of the study (Bagozzi, 1994) is, thus, primarily characterised by the external validity of the measures as this study refrains from applying an index that would have required extensive validity considerations. A manipulation test was carried out in advance to meet the challenges of external validity of task difficulty and differences in perceptions of task difficulty between the subject groups. The validity of the instrument was confirmed as it performed as expected. In further validation of the items, it would require locating external personal criteria variables that can ensure validity, by for instance educational level, years of experience in the industry, experience from other types of industries that may affect CA performance of executives versus frontline personnel.

The single industry, homogenous company size, and homogenous surroundings (single city) of the sample should have reduced error variance and have improved the power of the study.

9.3 The third study of the thesis

The third study of the thesis is presented in two papers and describes the development of *the Employee Strategic Sentiment Index (ESSI)*. Paper III focuses on the technical construction and preliminary tests of ESSI and Paper IV is a conceptualization and validation paper. In Paper IV, ESSI is validated in a "prediction contest" with the macro indices of *Index of Consumer Sentiment (ICS)* and *Consumer Confidence Index (CCI),* which have been inspiration sources for the construction of ESSI.

The purpose of the construction of the ESSI is to establish a practical forecasting tool that can indicate early signals about changes in the competitiveness of the business built upon frontline employees' tacit knowledge and confidence towards the future state of the company.

Distributed lag models are applied to test whether hotel company performance can be predicted using the ESSI as a leading indicator variable.

Data sampling as presented in Papers III and IV is based on monthly data from frontline employees in three different hotel companies during one and a half years, and the initial results indicate that ESSI has predictive power.

9.3.1 Research statement and hypotheses

In paper III, the research statement is defined as:

An exploratory study of a practical judgmental forecasting tool for hospitality management that can indicate early signals about changes in the competitiveness of the business built upon frontline employees' confidence towards the future state of the business.

In paper IV, two hypotheses were put forward that concern the validation of ESSI.

First it is argued that while the ESSI measures microeconomic performance, it is expected that ESSI is a stronger predictor of competitiveness of the individual firm than ICS which measures macro economic conditions, although ICS also contains personal conditions measures like ESSI. Thus the following hypothesis is proposed:

Hypothesis 1: The ESSI is a stronger predictor of competitiveness of the firm than ICS.

In Paper IV it is also argued that ESSI is a stronger predictor of CCI at the microeconomic level despite the fact that CCI also contains questions related to frontline employees' present situation and is constructed to measure macroeconomic conditions at the local level. The following hypothesis is hence proposed:

Hypothesis 2: The ESSI is a stronger predictor of competitiveness of the firm than CCI.

9.3.2 Data Sampling

The ESSI survey which includes 13 ESSI items, 5 ICS items and 5 CCI items, was monitored electronically on a monthly basis between the 10th and the 16th of the month during 18, 17, and 16 months respectively, with three major hotels in Scandinavian.

These hotels (one five-star and two four-star hotels) were selected as belonging to three different international types of hotel corporations. It was assumed that frontline employees' answers would differ depending on the identity and type of organization but also according to the particular market. Thus in the research design of the study it was assumed that three different time-series (three different hotels and corporations) and two different markets would tend to strengthen the validity of the instrument.

As the ESSI study focuses on exploring causal relationships of ESSI measures in relation to hotel performance measures, the issue of random sampling of hotels becomes less relevant.

The hotel organizations and frontline employees were recruited to the study by setting up personal meetings with top management of these hotels aiming at establishing project cooperation. The sampling was conducted with the idea of: 1) the hotels should represent some of the major international chains for all hotels in Scandinavia in such a way that further testing and new studies of the instrument in international settings would be possible. 2) The hotels should also represent up-scale hotels, as these hotels tend to operate with a larger power distance between employees due to their size (Ruiz-Mercader et al., 2006), culture and service requirements. A larger power distance between the hierarchical levels would likewise presuppose different types of knowledge generation by operational staff and top-management resulting from their daily contact with different type of knowledge sources.

The administration and the monthly data collection were time-consuming and demanding tasks. In order to sustain motivation amongst frontline employees in answering the ESSI survey each month, it required the design and implementation of a quarterly token gift lottery. At the end of each quarter during the observation period, a monthly winner from each of the previous

three months was drawn randomly from a list of respondents for each of the months. The list was based on identification initials, which the respondents were asked to provide for each survey round before they could answer the survey. The identification code consisted of the first three initials in the respondent's mother's name and the number of children she has. For instance, if one's mother's name is Alice and she has two children, one would write ALI2. In this way, respondents were identified in the gift lottery. The gifts consisted of a gift voucher to a music and film chain. The author experienced that the gift lottery had a positive effect on the motivation of employees to participate. This was also confirmed by respondents in a final meeting with management and staff of the hotels.

9.3.3 Data Sample

The ESSI items were monitored with "Hotel Case 1" from February 2006 to June 2007, "Hotel Case 2" from April 2006 to September 2007, and "Hotel Case 3" from May 2006 to September 2007. It should be noted that July 2007 generated no answers from Hotel Case 3, and hence resulted in a total of only 16 observations. The above observation periods generated a total of 626 answers from frontline employees of the three hotels.

The population of frontline employees at each hotel included all hospitality associates from all kinds of front office stations, restaurants, show kitchens, housekeeping departments, conference and banquet departments, and sales departments. The response rate for each month varied from observation to observation and from hotel to hotel (in the range of 10 to 50%) and was influenced by several factors. Firstly, a generally high turnover exists amongst hospitality employees, resulting in a lower response rate. Secondly, seasonality and the workload are other factors that are likely to influence the response rate on a monthly basis because in busy periods, answering the ESSI survey is given a lower priority by managers and front office personnel. Access to e-mail at work is also a factor that influences the response rate. In the hotels included in the study, it is common that only a few employees in the housekeeping, banquet and bar departments have e-mail access at work. However, even if the response rate varies, it is important to bear in mind that frontline employees in the ESSI survey are viewed as "experts" in that they give their expert predictions of the future based on their experience in the front office, customer-contact positions. Hence, the validity of the ESSI does not depend on a high response rate, although it is desirable.

In the hotel industry, frontline personnel work shifts. Therefore, in order to ensure that the entire population of frontline employees was reached at the different hotels, the present author operated with a longer data-sampling period. Thus, it should be noted that the respondents amongst the pool of frontline employees might change from observation to observation. Each month, a survey link was sent out to department managers at the different hotels, who then forwarded the link to their employees. It was agreed with department managers that newly hired employees should not be included in the sample as they would have difficulties in judging different firm activities and their performance.

Tables 3 and 4 present characteristics of the sample for each hotel case.

Table 3. Sample characteristics

Control Variables	Hotel Case 1 (N= 208)	Hotel Case 2 (N=279)	Hotel Case 3 (N=139)
Sex	Female = 51 %	Female = 71,3%	Female = 65 %
	Male = 49 %	Male = 28,7%	Male = 35%
Years of working experience in the particular chain?	M= 2.27 SD= 1.72	M= 3.71 SD= 2.55	M=10.63 SD= 7.59
Years of working experience in the hospitality and tourism industry?	M= 5.60 SD= 3.68	M= 6.15 SD= 3.92	M=13.32 SD= 6.47

As is shown in Table 3, the number of years of working experience of frontline employees is highest in hotel case 3. In hotel case 3, a regular pool of employees included in the sample on a regular basis each month was over 40 years. This seemed to have resulted in a higher mean of years of working experiences. Below is the distribution of the respondents by hotel department presented.

Table 4. Distribution of respondents by hotel department*.

Hotel department	Hotel Case 1 N = 208	Hotel Case 2 N = 279	Hotel Case 3 N = 139
Front Office	35.6	37.6	23
Banquet/Bar Meeting/Event	4.8	8.2	28.1
Guest Service	17.8		
Reservations		20.8	
Housekeeping	20.2	22.2	6.5
Restaurant	11.5	7.9	2.2
Kitchen	9.6		4.3
Sales department			26.6
Other	0.5	3.2	9.3

Distribution by percentage.

As is shown in Table 4, the majority of respondents were recruited from the front office departments at the three hotels, but as presented in column 4, banquet/bar and meeting and event and sales contribute greatly to the response rate for hotel case 3. Housekeeping is also represented as one of the most contributing departments for all three hotels to the ESSI survey.

9.3.4 Employee Strategic Sentiment Index (ESSI) Survey

The approach to the development of the ESSI measures is twofold. The establishment of the ESSI survey in terms of the technical approach to the construction of the independent variables and how to address questions that tap into respondents' future expectations of a given future state of the business, is inspired by the ideas of behaviour economics and the construction of ICS (Curtin, 2006; Katona, 1951). The structure of measures rely on reputation theory (e.g. Albert & Whetten, 1985; Carmeli & Tishler, 2004b; Dutton et al., 1994).

9.3.4.1 ESSI measures

The ESSI measures are structured around two dimensions in the literature of firm reputation: a) perceived organizational reputation by members' perceptions of outsiders' beliefs of the organization and b) perceived organizational identity by members' perception of the organizational

performance across various unique attributes of the organization. While validated scales of consumer-based corporate reputation exist in the strategic management literature (e.g. Walsh & Beatty, 2007) and the relationship between corporate reputation and financial performance is supported (Carmeli & Tishler, 2004a, 2004b, 2005), there is a lack of quantitative studies and validated scales of organizational members' perceived organizational identity (Elstak, 2008). As for perceived organizational reputation, Smith and Allen (1990) have developed Fortune's America's Most Admired Corporations index on eight attributes. Yet this index is based on ranking other competitors by name in their own industry, and thus cannot be adapted to our study as ESSI is based on measuring primarily the internal state of the business. Hence, this study uses dimensions of these two latter theories for structuring and systemizing the variables of ESSI.

The ESSI Survey comprises six dimensions of the business related to: (1) behavior of competitors, (2) organizational performance issues, (3) guest issues, (4) managerial issues, (5) teamwork issues, and (6) personal conditions of frontline personnel. These dimensions include 13 constructed ESSI items pertaining to frontline employees' confidence towards the future over a 12-month period compared with the present situation. The thirteen items are presented in Table 5. The chosen dimensions reflect the selected dimensions of reputation aspects and should be seen as a sample frame of ESSI variables. The ESSI items are measured on a five-point scale with 1 and 2 being employees' negative anticipations about a given future state and 4 and 5 indicating positive anticipations towards the future. Point 3 on the scale is a neutral point of the present situation and used as a benchmark for the other two directions of anticipations.

Table 5. ESSI dimensions and measures.

Dimensions of measures	Measures	Scale Interval	Response Category
1) Behavior of competitors	*ESSI 1* EXPECTATION Please think about the level of respect that associates of other competing hotels show you because you work for hotel x? How do you think their level of respect will be for you in the next 12 months versus now?	1-5	1 = Decrease 2= Somewhat decrease 3= Stay the same 4= Somewhat increase 5= Increase 6 = Don't know
2) Organizational performance issues	*ESSI 2* EXPECTATION How do you think the ability of Hotel X in developing new and creative services, systems and processes will be in the next 12 months compared with now?	1-5	1 = Worse 2= Somewhat worse 3= The same as now 4 = Somewhat better 5 = Better 6 = Don't know
	ESSI 3 EXPECTATION How do you think the ability of Hotel X in competing in the hotel industry will be in the next 12 months compared with now?	1-5	1 = Worse 2= Somewhat worse 3= The same as now 4 = Somewhat better 5 = Better 6 = Don't know
3) Guest issues	*ESSI 4* EXPECTATION Please think about the guests who have recently visited or stayed in Hotel X. How do you think they will talk about their experiences at the hotel to others during the next 12 months?	1-5	1 = Unpleasantly 2 = Somewhat unpleasantly 3= Somewhat unpleasantly & somewhat pleasantly 4= Somewhat pleasantly 5 = Pleasantly 6 = Don't know

Table 5 (continued). ESSI dimensions and measures.

Dimensions of measures	Measures	Scale Interval	Response category
4) Managerial issues	*ESSI 5* EXPECTATION How do you think your department manager will solve problems successfully in your department during the next 12 months compared with now?	1-5	1 = Unsuccessfully 2 = Somewhat unsuccessfully 3 = Somewhat unsuccessfully and somewhat successfully 4 = Somewhat successfully 5= Successfully
			6 = Don't know
	ESSI 6 EXPECTATION How do you think that management of hotel X will solve problems successfully in the hotel during the next 12 months compared with now?	1-5	1 = Unsuccessfully 2 = Somewhat unsuccessfully 3 = Somewhat successfully and somewhat unsuccessfully 4 = Somewhat successfully 5= Successfully
			6 = Don't know
5) Teamwork issues	*ESSI 7* EXPECTATION In the department where you work, how do you think the teamwork will be during the next 12 months versus now?	1-5	1 = Worse 2 = Somewhat worse 3= The same as now 4= Somewhat better 5= Better
			6= Don't know
	ESSI 8 EXPECTATION How do you think the corporation between departments will be during the next 12 months compared with now?	1-5	1 = Worse 2 = Somewhat worse 3= The same as now 4= Somewhat better 5= Better
			6= Don't know

Table 5 (continued). ESSI dimensions and measures

Dimensions of measures	Measures	Scale Interval	Response category
6) Personnel conditions of frontline employees	*ESSI 9* EXPECTATION How interesting do you think your job assignments will be in the next 12 months versus now?	1-5	1= Uninteresting 2= Somewhat uninteresting 3= The same as now 4= Somewhat interesting 5= Interesting 6= Don't know
	ESSI 10 EXPECTATION In the next 12 months, do you think you will be less or more interested in entering a higher position at the hotel versus now?	1-5	1 = Uninterested 2= Somewhat uninterested 3= The same as now 4= Somewhat interested 5= Interested 6= Don't know
	ESSI 11 EXPECTATION In the next 12 months, do you think your chances for being offered a higher position at the hotel will be worse or better versus now?	1-5	1 = Worse 2 = Somewhat worse 3= The same as now 4= Somewhat better 5= Better 6= Don't know
	ESSI 12 EXPECTATION In the next 12 months, do you think your earnings (including bonuses and tips) at the hotel will be worse or better compared with now?	1-5	1 = Worse 2 = Somewhat worse 3= The same as now 4= Somewhat better 5= Better 6= Don't know
	ESSI 13 EXPECTATION In the next 12 months, do you think you will be less or more interested in getting a job with another employer compared with now?	1-5 (Converted scale)	1 = Uninterested 2= Somewhat uninterested 3= The same as now 4= Somewhat interested 5= Interested 6= Don't know

The ESSI items reflect two dimensions of the firm's reputation: a) organizational members' perceived organizational reputation and b) members' perceived organizational identity.

In measuring perceived organizational reputation the question is about "how do outsiders think of me because of my association with this organization?" (Dutton *et al.*, 1994). The *ESSI 4* item addresses employees' anticipations of guests' experiences and taps into aspects of perceived organizational reputation "Will they tell a nice story about their stay at the hotel in the next 12 months?" Market information also concerns the competitive behavior with respect to how fellow employees working for other hotels in the local market consider the present hotel represented by *ESSI 1*: "Please think about the level of respect that associates of competing hotels show you because you work for the hotel. How do you think their level of respect will be in the next 12 months?

Organizational identity factors can be observed through structures, systems, artefacts, symbols, processes, decision-making, operations and communications (Whetten, 2003), and by goals and missions and modes of performance and products (Elsbach & Kramer, 1996). As no validated scales exist of perceived organizational identity (Elstak, 2008), it is thus essential to address the particular aspects that occupy service employees in their daily work.

Frontline employees are addressed questions about the ability of the hotel to develop new and creative services, systems and processes from a 12-month perspective by *ESSI 2*, and the ability to compete in the market from a 12-month perspective represented by *ESSI 3*. Additionally, frontline employees are addressed four items pertaining to how frontline employees expect department management and top management to solve problems successfully in the hotel over the next 12 months through *ESSI 5* and *ESSI 6*, and how the employees evaluate the cooperation of employees within departments and amongst departments from a 12-month perspective through *ESSI 7* and *ESSI 8*. Finally, the ESSI survey includes five questions covering the employees' own personal conditions by addressing whether they expect interesting job assignments, promotions or better earnings, and whether they expect to look for another job in another company through *ESSI 9, ESSI 10, ESSI 11, ESSI 12* and *ESSI 13*.

The ESSI study uses ICS and CCI as validation instruments in a 'prediction contest' of three different time-series (3 different hotel cases) and the original items of these indices are included in the ESSI survey. Below is a presentation of ICS and CCI.

9.3.4.2 Validation measures

While the ESSI primarily focuses on the measurement of the microeconomic spheres, i.e., the *state of the business*, the ICS primarily measures the *state of the country*, and the CCI measures indicators of the *state of the local area* (the destination) *and industries* (e.g. the hospitality industry). The three indices thereby measure the state of different environmental spheres, even if all three indices contain questions that address frontline employees' (consumers') personal financial situation.

The questions that address future economic conditions of the ICS and CCI are different. ICS contains questions of medium to long-run expectations of consumers, while CCI measures short-run expectations. However, the difference in time horizons between the indices appear to have little effect on response patterns and thus on the final index results (Ludvigson, 2004). The most significant difference between the two surveys concern the sample size which affects sampling error, reliability and index construction, and thus affect the range of movement in the indices (Ludvigson, 2004, pp. 32-33). Another difference between the two indices is the questions addressed in their surveys. While the CCI addresses questions tied to labour market conditions in the local area and the level of economic activity, the ICS is less closely tied to labour market conditions but taps into household purchasing and tends to reflect changes in the economy. For both indices, survey participants are asked to respond to questions on a three-point scale in terms of positive, neutral or negative. Answers from respondents are then grouped into these categories and used to construct the indices. During the last twenty years, various studies have indicated mixed results on the correlation between ICS and CCI (see Garrett, Hernández-Murillo & Owyang, 2005; Huth et al., 1994 for an overview). Below follows a presentation of each index.

Index of Consumer Sentiment (ICS) measures

The monthly national American Survey of Consumer Sentiment is administered and maintained by the University of Michigan's Survey Research Center since it was devised in the late 1940's by George Katona. In 1952 it was converted to a quarterly survey and in 1978 to a monthly survey. The data collection, of approximately 500 telephone interviews, is received

from adults living in households in the United States. A rotating panel design ensures that one survey is made up of 60% new respondents and 40% being interviewed for the second time (Surveys of Consumers, 2007).

The ICS consists of two dimensions: the Index of Current Economic Conditions (ICC), consisting of two items addressing consumers' present financial situation and the Index of Consumer Expectations (ICE) with three items measuring consumers' expectations in a 12-month and five-year perspective. The three ICE questions address pocketbook concerns such as personal well-being and security of the household level and the collective interest associated with long-term expectations of the national economy. The ICS is derived by computing the results of these two dimensions (Bechtel, 1997) and uses 1996 as its benchmark with the value of 100 (Ludvigson, 2004). The ICS measures are presented in Table 6.

Table 6. ICS dimensions and measures

Dimensions of measures	Measures	Scale Interval	Response category
1) State of frontline employees (consumers)	*ICS* X2 PRESENT We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?	1-3	1= Worse off 2= The same 3= Better off 4= Don't know
	ICS X5 EXPECTATION Now looking ahead – do you think that a year from now you (and your family living there) will be better off financially or worse of or just about the same as now?	1-3	1= Worse off 2= The same 3= Better off 4= Don't know

Table 6 (continued). ICS dimensions and measures

Dimensions of measures	Measures	Scale Interval	Response category
2) State of country	*ICS* X3 EXPECTATION Now turning to business conditions in the country as a whole – do you think that in the next twelve months we'll have good times financially, or bad times, or just about the same as now?	1-3	1= Bad times 2= Good and bad times 3= Good times 4= Don't know
	ICS X1 EXPECTATION About the big things people buy for their homes – such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or bad time for people to buy major household items?	1-3	1= Bad times 2= Good and bad times 3= Good times 4= Don't know
	ICS X4 EXPECTATION Looking ahead, which would you say is more likely – that in the country as a whole -we'll have continuous good times during the next five years or so, or that we'll have periods of widespread unemployment or depression, or what?	1-3	1= Bad times 2= Good and bad times 3= Good times 4= Don't know

Consumer Confidence Index (CCI) measures

Consumer Confidence indices have been produced since 1967 by the Conference Board in the United States and have been published monthly since 1977. The sample consists of 5000 randomly selected lay individuals who are mailed, of which a mean of 3500 questionnaires are returned.

The CCI consists of two dimensions: the present situation index (CP) and the expectation index (CE). While the two items related to the present situation tap into respondents' evaluation of current business and current employment conditions in the local area, the three CE items tap into business, employment and total family income considerations in the next 6 months. The CCI uses the same computation principles as the ICS, but uses 1985 as its benchmark = 100 (Ludvigson, 2004). The CCI measures are presented in Table 7.

Table 7. *CCI dimensions and measures*

Dimensions of measures	Measures	Scale Interval	Response category
1) State of frontline employees (consumers)	*CCI* X5 EXPECATATION How would you guess your total family income to be six months from now?	1-3	1= Lower 2= Same 3= Higher 4= Don't know
2) State of area (destination)	*CCI* X1 PRESENT How would you rate the present general conditions in your area?	1-3	1= Bad 2= Normal 3= Good 4= Don't know
	CCI X3 EXPECTATION Six months from now, do you think the general business conditions will be:	1-3	1= Worse 2= Same 3= Better 4= Don't know
	CCI X2 PRESENT What would you say about available jobs in your area right now?	1-3	1= Hard to get 2= Not so many 3= Plenty 4= Don't know
	CCI X4 EXPECTATION Six months from now, do you think available jobs will be More/same/fewer?	1-3	1= Fewer 2= Same 3= More 4= Don't know

9.3.5 Pilot-testing

The pre-testing of the ESSI survey consisted of two steps. First, the ESSI survey was tested with different professional survey experts from Questback.com. The focus of the pre-test was to test question structure, scales, and overcome unwillingness to answer. The first pre-test resulted in a more informative and simple language of the survey. The style of scales was

also corrected and the use of different types of scales was pinpointed as being complex both in relation to the survey and from an analytical point of view.

Next, the survey was pre-tested in the hospitality field setting with ten third-year bachelor hospitality students from the Norwegian School of Hotel Management, who were employees in the industry. The second pre-test round resulted in comments on the language style of the survey. It was mentioned that English might be difficult to understand for some employee groups in the industry. This issue was examined further together with top management of the hotels included as cases in the study. For hotel case 1 it was required that the language was English, for hotel cases 2 and 3 top management found that their employees would be able to answer the survey.

Overall, the language issue brought challenges to the research design. The survey could not be translated into a Scandinavian language for two hotel cases, as this would require a validation of one survey being translated into English with another in a Scandinavian language.

9.3.6 Performance measures

The dependent variable to be forecasted in the ESSI studies is based on a transformation of revenue per available room (RevPar). RevPar shows average daily room revenue taking into account the hotel's total room capacity. This can be calculated as

$$RevPar_t = \frac{(Total\ daily\ revenue\ from\ room\ rentals_t)}{(Total\ number\ of\ rooms_t)} \tag{1}$$

where subscript t indicates the time period.

A number of variables influence hotel performance as measured by RevPar: management, macroeconomic variables, seasonality, competition, etc. As the primary aim of the ESSI index is to use the sentiments of the frontline employees to gauge variables that are not easily observable, in particular, those that relate to internal conditions in the hotel and which are reflected in perceived organizational reputation (Carmeli & Tishler, 2005; Dutton et al., 1994) and their perceived organizational identity (Albert & Whetten, 1985), a performance measure based on RevPar was developed.

As the ESSI measures are aiming at forecasting the competitiveness of the hotel by assessing its' performance *relative to the rest of the industry,* the effects of common market movements on the hotel's performance indicators have to be filtered out.

It is proposed to use a measure closely related to the concept of excess returns used in finance that in a hotel industry context captures a hotel's performance relative to competing hotels.

Thus, the following performance measure, *Pfm*, for hotel *i* at time *t* is proposed:

$$Pfm_{i,t} = \Delta ln(RevPar_{i,t}^{firm}) - \beta \Delta ln(RevPa\,r_{i,t}^{industry}),\qquad(2)$$

where the company's average room revenue, $RevPar_{i,t}^{firm}$, is subtracted from a factor β multiplied by the industry average room revenue, $RevPar_{i,t}^{industry}$. The variable transformation using the first difference of the logarithm implies that the variables are measured approximately as % change. β measures the covariance between the hotel company's RevPar with the industry's average RevPar.

Hence, when subtracting $\beta\Delta ln(RevPar_{i,t}^{industry})$ from the enterprise's return $\Delta ln(RevPar_{i,t}^{firm})$, removes the variance in the hotel company's return that is caused by external market movements such as capacity changes in the hotel industry, economic up- or downturns, seasonality and so forth.

Competitiveness is thus measured as changes in return that are not caused by general market movements, but are specific to the hotel enterprise.

9.3.7 Constructing ESSI

The construction of ESSI largely follows the structure and computation of the index of consumer sentiment. First, a diffusion measure is constructed for

each of the 13 questionnaire items. The diffusion measure is calculated as the difference between the number of positive and negative responses in each time period (month) divided by the total number of responses in that period (month), plus 100. When the positive responses outnumber the negative ones, the diffusion measure will show a number larger than 100, and in the opposite case, it will be lower than 100. This can be formulated as:

$$\text{X}_{it} = \frac{(\text{No. of positive responses}_{it} - \text{no. of negative responses}_{it})}{\text{Total no. of responses}_{it}} + 100 \, , \qquad (3)$$

where X_{it} is the diffusion measure, i is the questionnaire item and t is the time period. The ESSI index is then calculated by aggregating the 13 diffusion measures for each period and then dividing by the sum in the period that has been chosen as a base period as follows:

$$ESSI_t = \frac{\sum_{i=1}^{13} X_{it}}{\sum_{i=1}^{13} X_{i0}} \times 100 \, . \qquad (4)$$

To follow the convention, the author multiplies by 100 and gets the usual representation of an index, where the base period is equal to 100. Using this computation, an ESSI greater than 100 indicates that frontline employees are more confident about the future state of the hospitality business, relative to the base period, while an ESSI less than 100 indicates that employees are less confident about the future state of the business. In Figure 3 the movements of the constructed ESSI for Hotel Cases 1, 2 and 3 are presented for the given observation periods.

Figure 3. Constructed ESSI for Hotel Cases 1, 2 and 3.

9.3.8 Analysis: Empirical models

To test whether the ESSI index can be used to predict company performance, hotel performance measures are constructed according to equation 2. Then the author will proceed to put forward the distributed lag models, where the usefulness of the ESSI variable as a leading indicator is evaluated using Granger causality tests.

The analysis is performed with time-series regression using distributed lag (DL) models where the usefulness of the ESSI as predictor (Paper III) and with ESSI, ICS and CCI as predictors (Paper IV) is tested. A distributed lag model is a single equation time-series regression model using ordinary-least squares regression (OLS), where the dependent variable is regressed on lagged values of one or more explanatory variables.

One can argue that using parsimoniously specified distributed lag (DL) models is sensible because of the short time-series available and the types of variables used. Firstly, the data is in first difference form (i.e., the author is not looking at the levels of the variables, but their changes from one period to

another), which implies that they should be stationary, a requirement for valid inference using OLS. Secondly, the ESSI index is most likely exogenous in the DL model because the questionnaire items relate to aspects of the hotel enterprise that are not directly related to RevPar. Thirdly, a large part of the monthly variation in RevPar has been filtered out in the performance measure variable that is used, *Pfm*, which means that less information is needed to account for the remaining variation and, consequently, there is less chance of omitted variable bias. Hence, a DL estimated by OLS should yield unbiased coefficients.

In order to evaluate ESSI as a leading indicator, Granger causality is employed as a technique for determining if a time-series (lagged values of *X*) can forecast another time-series (Y). The notion of Granger causality is based on the criterion of incremental forecasting value. A value *X* is said to "Granger cause" another variable *Y*, if "Y can be better predicted from the past of *X* and Y together than the past of Y alone". A necessary condition for variable *X* to be exogenous to another variable Y is that Y fails to Granger cause *X*. This means that by testing for Granger causality one justifies that Y does not cause X, thus ensuring a fitting of one-way distributed lag models (Freeman, 1983, p. 327-328)

The analysis is performed in PcGive Software version 10.0, which is an econometric software tool.

9.3.8.1 Estimating betas

To construct the performance measures, one must first estimate the beta in equation 2 for each hotel firm individually. As a measure of the industry return $R_{industry,}$ average RevPar for the regional hotel market is used for hotel case 1 and total turnover in the regional hotel market for hotel cases 2 and 3. In the latter two cases, the average RevPar is not available for the relevant geographical market. However, there is a high correlation between industry turnover and average industry RevPar, so the measurement error should be small. The betas are estimated with a simple OLS regression:

$$\Delta ln(R_{firm})_{i,t} = \alpha + \beta \Delta ln(R_{industry})_{i,t} + u_{i,t} , \qquad (5)$$

where the left-hand-side variable is the log difference of the hotel company's RevPar, while the right-hand-side variable is the corresponding

transformation of industry RevPar/turnover. A beta equal to 1 implies that the hotel's return on average moves in proportion to the market. If there is any deterministic trend in the movement of the company's return relative to the market's average return, this will be accounted for by the α. Normally one will expect the α to be insignificant. In the contrary case, the return of the hotel will be either decreasing or increasing systematically relative to the rest of the market, implying an imminent bankruptcy or an exceptional revenue trajectory. There is little reason to believe that there should be such a trend, at least not a deterministic one.

Table 8 reports the estimated alphas and betas for the three hotel cases. For all three hotels, the alpha is not significantly different from zero, as expected. The estimated betas for hotel cases 1, 2 and 3 all have similar values, 0.94, 0.98 and 0.88 respectively. This means that RevPar for hotel case 2 has the highest correlation with the market, while hotel case 3 has the lowest. The estimated betas, however, indicate that RevPar in all three hotels tends to move closely with their respective markets.

Table 8. Estimated alphas and betas

Hotel	α	β
Case 1	0.00	0.94**
Case 2	0.00	0.98**
Case 3	0.00	0.88**

** Indicates statistical significance at the 1 percent level.

After estimating the β measures, the estimation of the empirical models can now be employed. This is where the potential role of the ESSI as a leading indicator is explored.

9.3.8.2 Estimation of forecasting models

As stated earlier, parsimoniously specified distributed lag models are proposed. This seems a sensible choice given the short time-series available and the types of variables used. Firstly, the data is in first difference form,

which implies that it should be stationary. Secondly, the ESSI index can most likely be considered exogenous because it is based on questionnaire items relating to a number of different aspects of the hotel firm that are not directly related to room rates and occupancy. Thirdly, a large part of the monthly variation in RevPar has been filtered out in the performance measure variable that is used, *Pfm*, which means that less information should be needed to account for the remaining variation and, consequently, less chance of omitted variable bias. Hence, a DL estimated by OLS should yield unbiased coefficients. In a general form, the models are specified as DL models:

$$Pfm_{i,t} = \sum_{j=1}^{q} \delta_j \Delta \ln ESSI_{i,t-j} + u_{i,t}, \tag{6}$$

where $Pfm_{i,t}$ is the performance measure introduced in equation 1 for hotel i at time t. A general to specific modelling strategy is selected where lag length is reduced till the highest significant lag. Because the data collection is based on few observations from a time-series perspective, the author starts out with no more than four lags. For the majority of models, one or two lags are sufficient to obtain an error term that is normally distributed and not serially correlated.

In Paper IV, ESSI is validated in a prediction "contest" with ICS and CCI. Following empirical models are proposed:

The models are specified as DL models of the form:

$$Pfm_{i,t} = \sum_{j=1}^{q} \delta_j \Delta \ln ESSI_{i,t-j} + u_{i,t}, \tag{7}$$

$$Pfm_{i,t} = \sum_{j=1}^{q} \delta_j \Delta \ln ICS_{i,t-j} + u_{i,t}, \tag{8}$$

$$Pfm_{i,t} = \sum_{j=1}^{q} \delta_j \Delta \ln CCI_{i,t-j} + u_{i,t}, \tag{9}$$

where $Pfm_{i,t}$ is the performance measure introduced in equation 1 for hotel i at time t. For each model q lags of the explanatory variable are included, starting from t-1. A general to specific modeling strategy is used starting with $q = 4$ and reducing the number of lags until the last lag is significant, providing there are no signs of autocorrelation or non-normally distributed residuals. For the majority of the models 2 lags are sufficient. Since there are three hotels and three model specifications (7)-(9) per hotel to be estimated, the total number of models estimated is nine.

The above presentation of empirical forecasting models of ESSI will in the following lead to validity considerations on its construction.

9.3.9 Validity

Issues of validity and reliability of time-series studies have not been paid the same amount of attention as for cross-sectional studies. This may be seen as consequence of the fact that time-series typically involve non-personal variables such as sales, advertising, expenditures and are not subject to human limitations affecting measure quality (Didow & Franke, 1984).

The ESSI study relies on principles of formative measures based on formative indicators. The measures produce the construct so to speak (Bagozzi, 1994, p. 332), and which sharply differentiate the ESSI study from reflective measures studies where the removal of a variable does not change the essential nature of the underlying construct. Consequently, usual procedures employed to assess validity and reliability of scales composed of reflective measures, are not appropriate for indices with formative indicators (Diamantopoulos & Winklhofer, 2001, p. 270)

In general, guidelines for constructing indices are difficult to find. Based on a review of the literature on formative indicators, Diamantopoulos and Winklhofer (2001) put forward four criteria which are critical to successful index construction: content specification, indicator specification, indicator collinearity and external validity. Of these four criteria, indicator collinearity will not be examined in the validation discussion of the index, as multiple regression is not applied. Additionally, for the evaluation of validity it is relevant to turn to concerns of threats of internal validity due to the nature of time-series studies based on human behaviour and judgments (Didow & Franke, 1984; Shadish, Cook, & Campbell, 2002).

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Content specification concerns capturing the range of resources that can tap into the forecasting task in fairly broad terms. Under formative measurement the latent variable is determined by its indicators, hence failure to consider all facets of the construct will lead to an exclusion of relevant indicators (Diamantopoulos & Winklhofer, 2001, p. 271). In the ESSI study the latent variable is collective tacit knowledge captured by a confidence index as formed from six dimensions of a hotel business related to: (1) behavior of competitors, (2) organizational performance issues, (3) guest issues, (4) managerial issues, (5) teamwork issues, and (6) personal conditions of frontline personnel. These dimensions were assumed to cover the main areas of frontline employees' confidence towards their daily work. Simultaneously, these dimensions are reflected in dimensions of perceived organizational reputation and perceived organizational identity. As ESSI can forecast excess return for two hotel cases and the models explain R^2 36% and R^2 39% respectively, whilst one hotel case was not predicted by the items of these dimensions, there is room for finding new index dimensions of the hotel business that can contribute to frontline employees' tacit knowledge as the latent variable. Hence, the content specification may be improved, but the existing index is a promising indicator of frontline employees' collective tacit knowledge so far.

The findings described above for content specification are related to the extent of the indicator specification of items of the index (Diamantopoulos & Winklhofer, 2001). Reputation theory by the categories of perceived organizational reputation and perceived organizational identity were selected for structuring the dimensions and variables. As no validated scales were found within these reputation categories (Elstak, 2008; Smith & Allen, 1990) for the purpose of tapping into employees' judgments of the internal conditions of the business, variables were selected from these dimensions relying on reputation theory as presented by Albert and Whetten (1985), Carmeli and Tishler (2004b) and Dutton et al. (1994).

The external validity of formative measurement models for assessing the suitability of indicators is defined by Bagozzi (1994, p. 333): "the best we can do ... is to examine how well the index relates to measures of other variables". The ESSI was validated against ICS and CCI, which are macroeconomic indices. Hence, it was tested if ESSI would measure differently from these indices, thus tapping into internal conditions of the business. The external validity is found to be precise as the correlations coefficients between the indices perform as expected. See Tables 11, 12 and 13 in the findings section for Paper IV. ICS and CCI are highly correlated

compared to ESSI and ICS and ESSI and CCI. External validity in time-series also concerns whether the cause-effect relationship holds over variation in persons, settings and measurement variables (Shadish et al., 2002). A high external validity has been of major focus in the design of the ESSI study. To meet this challenge of use of human judgments in time-series, the research design included three different and independent time-series (hotel cases) from three different international hotel corporations carried out in two different Scandinavian countries (two different markets). This preliminary study of ESSI provides some indications that the external validity of ESSI is acceptable as it can predict changes in hotel performance for two out of three hotel cases. Yet, the results also indicate that the validity of ESSI can be improved. Further validation may include conducting a similar survey as ESSI with executives to measure different performance and it may also include to validate against such as job commitment scales.

Threats to internal validity due to the use of human judgments in time-series include particular issues of selection, instrumentation and history. Treats of selection biases (Shadish et al., 2002) may have occurred, and as one basic precaution it was agreed with management that the monthly ESSI surveys should not be sent to newly hired employees due to their incompetence in judging the business. However, in particular for hotel case 1, there was an abrupt change in the group of frontline employee staff due to high staff turnover, and consequently, newly hired employees had to be included in the sample for this case in order to obtain answers to the ESSI survey.

Other threats to the internal validity of the study concern the history during the measurement period. The hospitality industry has been operating in a favourable market before and during the measurement period, where the numbers of tourists for most nations have been increasing considerably resulting from growing prosperity (World Tourism Organization, 2009). This may have resulted in respondents' responding with an extraordinary optimism towards the answers. It would have been interesting to continue the time-series measures into and during the financial crisis of 2008 and onwards to measure changes in response patterns.

Another internal validity threat of the ESSI study is instrumentation (Shadish et al., 2002). It was agreed with top management of the three hotels included in the study that they would participate on a monthly basis if they could receive feedback from the surveys each month. This issue may have threatened internal validity, as it is likely that management have changed their behaviour accordingly to make their performance look good. Nevertheless, in

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regular meetings with hospitality management, it was observed that the results of ESSI provide similar indications to results management achieved from other employee surveys. It was also agreed that should the index be of significance to management, it was preferable with regular feedback of ESSI results. In other words, ESSI is designed to be a practical forecasting tool to assess the future state of business, and hence should provide feedback on a regular basis. It may at the same time suffer from the possibility of adjustments to its results, but this should not affect the results in the long run as employees' perceptions and confidence would change accordingly towards the future state of the business.

Although, several validity concerns have been put forward above, it is worth noting that the general validity of the ESSI is overall acceptable resulting from the meticulously research design of the three parallel time-series. That being said, it is worth continuing the exploration of the index to understand why the index did not predict for hotel case 2.

9.3.10 Response bias

Response bias may have affected the reliability of the study due to repetition of the same ESSI questions being addressed to respondents each month during the observation periods. It is likely that due to fatigue, boredom, misinterpretation of the questions and/or unwillingness to answer the ESSI survey by the respondents that systematic response errors have occurred (Aaker et al., 2001). Yet, the research design of three parallel time-series studies should meet the challenges of threats to reliability as a consequence of response bias.

In the following chapter, the findings of the three studies for each of the four papers of the thesis will be presented.

10. Results

This chapter presents the findings of the four papers. The main findings presented emphasize the response to the overall research aim: *to explore the strategic impact of service employees' tacit knowledge on service businesses.*

10.1 Findings in Paper I

Paper I is an empirical review of KM research in the hospitality field. The first two research questions addressed why KM may be important in the hospitality industry and what the challenges of KM applications are for management?

The findings indicate that in the hotel industry, only a small number of hotels have implemented KM systems, although they are likely to gain benefits from KM due to chain requirements of an overall quality standard of their geographically dispersed hotels (Bouncken, 2002; Medlik, 1990).

Existing efforts in KM practices are particularly observed within hotel chains, which have to deliver an overall service quality standard. For instance, a case study of anecdotal character conducted by Bouncken (2002) of the Accor Hotel Group with 3 500 hotels and 130 000 employees worldwide, and which owns brands like Formula One, Ibis, Novotel and Sofitel, revealed that the corporation is developing KM-based strategies and is engaged in KM activities. The Accor Corporation in Germany (with 6 000 employees) has implemented a KM system based on three stakes: a) IT-based knowledge accumulation, b) access to the IT-based knowledge system, and c) motivation for knowledge use and creation. An Internet-based intranet has been modified and improved with the aim of incorporating data about best practices, service innovations, and training possibilities. Another example of KM approaches is that of the Hilton Corporation, which operates 2 700 hotels in more than 70 countries. The Hilton University, an established corporate university, is developing a learning culture for Hilton Hotels by encouraging and offering a consistent approach to training for team members at all levels using e-learning technology (Baldwin-Evans, 2006; Hilton University, 2006). As Hilton International emphasizes knowledge sharing and on-the-job mentoring in respect to competency development of its members, they introduced in 2002 a new innovative e-learning system that is highly cost-effective and can

advance generic skills in terms of communications and customer service (Hilton University, 2006). Since Hilton University launched its e-learning system, more than 10 000 Hilton members have completed 100 000 e-learning programs (Ibid, 2006).

The abovementioned examples of KM initiatives, however, are some of the few. A recent study shows that hospitality management considers KM and information to be relevant concepts, but they are confronted with too many unclear KM strategies, activities, and implementation techniques (Bouncken & Pyo, 2002, p. 3). This opinion is confirmed by Yun (2004), who argues that the tourism and hospitality industry adapts slowly to KM strategies due to the complexity of the concept, which requires certain skills in data mining, statistics, and substantial knowledge of tourism and hospitality management.

Enz and Siguaw (2003) find that innovation ideas and best practices champions in hospitality companies both begin and end with individuals. Unfortunately, when managers who have brought about creative ideas for implementation leave their job, many of the practices they initiated are discontinued. These findings indicate something about the nature of hospitality best practices where two factors in particular appear to reduce the permanence of innovative initiatives: First, there is high mobility of managers in the industry; second, there is a high rate of consolidation through mergers and acquisitions. This results in difficulties in maintaining benefits of individual learning in the organizational system. Therefore, hospitality companies may particularly benefit from KM systems in respect to codification of best practices and innovation ideas.

In light of the general lack of implementation of KM strategies in the industry in comparison to other industries (see Nonaka & Takeuchi, 1995 for an overview). the acknowledgement of operational employees' tacit knowledge as a strategic asset is correspondingly low within the industry (Yang, 2004a, 2004b)

A third research question addressed in Paper I concerned what the theoretical content of empirical contributions are in KM?

By scanning research databases, 2 365 contributions were found. Nineteen empirical contributions addressing KM and related concepts (e.g. learning, training methods, and information management) were identified within the hospitality field.

In the search of hospitality-related empirical studies, three categories of reported studies were found. One category focuses on using an industrial perspective, another on inter-organizational issues within destinations, and the third research stream uses a business approach, an intra-organizational perspective. The contributions for each of these categories can be divided into two dimensions which become important: whether or not knowledge should be explicit and formalized under management control, and whether knowledge is empirically known and should be defined and planned (static view) or is something that continuously changes (dynamic view) (e.g., Stacey, 2001) i.e. knowledge that is primarily tacit of nature (Nonaka & Takeuchi, 1995).

Of the 19 empirical articles, 5 articles addressed a purely static view, where knowledge strategies are about filling the gap between existing and needed knowledge. However, the majority of articles, 12, addressed a purely dynamic view on knowledge, pertaining to creation of continuous learning and change through facilitation and development. Thus, the number of articles adhering to this latter view seems to indicate the recognition of knowledge as something in perpetual change - as tacit knowledge is by nature. Some articles addressed both a static and dynamic view on KM.

The theoretical assumptions in the majority of studies seem to indicate a trend towards a more dynamic way of seeing knowledge development and KM (Baum & Ingram, 1998; Canina et al., 2005; Gjelsvik, 2002; Ingram & Baum, 1997a, 1997b, 2001; Yang & Wan, 2004), and even recognizing the importance of non-linear relationships in predicting future state of hospitality businesses as a consequence of knowledge evaluation and forecasting of demands (Ghalia & Wang, 2000).

A fourth research question addressed in Paper I concerns the issue of what the empirical quality of contributions is in juxtaposition with theory-of-science criteria by Kuhn (1989) and Popper (1968). Only 5 of the empirical articles were considered excellent: Baum and Ingram (1998), Ingram and Baum (1997a, 1997b, 2001) and Canina et al. (2005). The findings of the quality of empirical articles thus justify observations of other researchers claiming that studies of KM are limited, inconclusive, and mostly descriptive, focusing on anecdotal and one-off case studies. The majority of articles differ greatly with regard to the soundness of theoretical foundation, and all the studies have a more or less serious design with methodological and inferential shortages. It is argued that pragmatic theoretical perspectives of KM were particularly employed.

The review of published studies in KM revealed lacks in both theoretical foundation and methodology. One reason for this may be confusion or doubt about what the phenomena KM is: that is, which elements of business and social systems should be included or not, and what is the objective of KM. To answer such questions in a general way, such as "KM should give competitive advantages" and "The objective is to use knowledge more efficiently", is probably not a good justification for KM in a research project. Researchers have to be more specific concerning what are important objectives in the actual population they study.

The final research question addressed in Paper I concerns to identifying relevant future directions within the hospitality sector. It was found that the review, evaluation, and discussion of published empirical research within KM in the field of hospitality have revealed some strong indications of potentials and obstacles for the hospitality industry and hospitality companies. Moreover, the insight into knowledge processes is scarce and dim, implying a great research potential.

From a static perspective on knowledge, it is recommended to carry out research concerned with how to fill and control knowledge gaps through planned training efforts that combine exploitation of one's own routines and exploration of new routines, thus enhancing innovation. There is also a need for understanding how hotels can avoid falling into competency traps by too much exploitation of one's own routines versus competitors' knowledge positions. Other research issues of the static perspective concern understanding the ability of employees versus managers in forecasting the future state of business embedded in their knowledge, and how to align knowledge vision and knowledge activities. KM research should be more aware of which company objectives KM is a part of, in order to make it meaningful beyond general normative formulations.

Within the dynamic knowledge perspective, there is a need to know more about what knowledge means for hotel companies and what predicts good and bad learning climates and knowledge sharing processes before speeding up the implementation process of KM systems. It is important to carry out investigations on storage systems that can facilitate the sharing and distribution of real-time contextual knowledge in hospitality organizations. Finally, there is a great need for empirical KM studies founded on a sound and proper research design of results that can be generalized, and thus contribute to an overall and comprehensive research debate of KM in hospitality.

Overall, the findings of the evaluation of the empirical articles in Paper I may however indicate that hospitality management slowly adapts to the idea of recognizing the importance of employees' generating knowledge of strategic importance. This may be seen as a result of hotel chains beginning to adapt to KM systems, as exemplified by the Accor hotel chain and the Hilton Hotel Corporation.

10.2 Findings in Paper II

In Paper II, which is an exploratory study of the confidence and accuracy judgmental performance of executives and frontline employees, three propositions were examined.

Data was collected by means of a quiz survey from executives and frontline employees in 12 hotels in Norway. Three propositions were tested.

The manipulation check of the validity of diverse difficulty levels between judgmental tasks was performed using a paired samples t-test. As the results for the paired performance indicators and the different geographic proximity levels revealed, there were significant differences ($p < .05$) between the groups' prior knowledge of tasks in 5 out of 6 types of task. The results for indicators 1 and 3 were not significant ($t < 2$, ns). It should be mentioned that these results indicate only some tendencies because they address subjects' perceptions of their own knowledge, while the actual results of the survey quiz revealed the groups' actual performance across tasks of varying degrees of difficulty.

Firstly, it was proposed that executives produce more accurate judgments for all difficulty levels of strategic judgmental tasks compared with frontline employees. The results for the first proposition did not confirm prior theory (Muradoglu & Önkal, 1994; Önkal et al., 2003) that suggests that experts produce significantly more accurate judgments than novices because of their knowledge of the case in question. Although experts demonstrated the highest mean sense of prior knowledge in comparison with frontline employees (3.69 versus 3.18) in the manipulation check, the results did not reveal significant differences in accuracy for tasks related to both performance indicators and geographic proximity.

The values in mean difference of judgmental accuracy for results of different types of industrial performance indicators between executives (N = 39) and frontline employees (N = 37) were not significant for occupancy rate (52.99 versus 49.55, t < 2, ns), RevPar (55.98 versus 53.15, t < 2, ns) and room revenue (44.02 versus 42.34, t < 2, ns). Similar to the results of the testing of accuracy judgments of results for different performance indicators, there were no statistical differences between executives' and frontline employees' judgments. The results for domestic cities were (58.97 versus 55.41, t < 2, ns), for domestic counties: (55.98 versus 51.35, t < 2, ns) and for European cities: (38.03 versus 38.29, t<2, ns). Proposition 1 is thereby rejected as plausible.

In addition to the first proposition, a second proposition was investigated in which it was suggested that executives demonstrated overconfidence in judgmental tasks at all difficulty levels compared with frontline employees, who demonstrated underconfidence. Contrary to earlier studies (Russo & Schoemaker, 1992) of decision makers predicting industry and firm-related outcomes, which revealed that experienced decision makers tend to be overconfident and inexperienced decision makers tend to be underconfident (Fazio & Zanna, 1978), our tests revealed that this was not the case. We found no significant differences in confidence–accuracy values for different tasks between executives and frontline personnel.

Frontline employees' judgments of tasks exhibited underconfidence in 4 out of 6 tasks. However, concerning the first group of tasks concerning performance indicators (room revenue, RevPar and occupancy rate), the results indicated that frontline employees only demonstrated significant underconfidence for RevPar in comparison with room revenue (–13.38 versus 1.48, p < .05). For the second group of tasks, with respect to geographic proximity, the statistical results exhibited significant underconfidence for domestic counties versus European cities (–12.93 versus 2.96, p < .05) and for domestic cities versus European cities (–9.14 versus 2.96, p < .05). On the other hand, executives were overconfidence in four out of six instances.

Their confidence ratings exhibited overconfidence in 4 out of 6 tasks. This tendency to overconfidence is also supported in the statistical results, which demonstrated overrated confidence by executives in their ratings of room revenue versus RevPar (11.35 versus –6. 22, p < .05) and of room revenue versus occupancy rate (11.35 versus 3.3, p < .05). Moreover, there was a significant overconfidence in executives' ratings of accuracy judgments of European cities versus domestic counties (9.41 versus –4.45, p < .05).

A t-test revealed that there were no significant differences between executives and frontline personnel for any of the tasks in their over/underconfidence ratings (1.48 versus 11.35; −13.38 versus −6.22; −7.21 versus 3.3; 2.96 versus 9.41; −12.93 versus −4.45; −9.14 versus 3.48 (t < 2, ns). Consequently, it is concluded that Proposition 2 is not supported.

Finally, a third proposition was tested, in which it was proposed that executives' accuracy in knowledge and confidence in knowledge were better calibrated than frontline employees. Again, contrary to earlier studies, we found no significant differences in calibration performance between the groups. For instance, studies of horse race oddsmakers (Griffith, 1949; Hausch et al., 1981) and expert bridge players (Keren, 1987) revealed that intuitive judgments of experts are better calibrated than novices when they have rich knowledge of the prediction task in question. This indicates that the executives in this study did not have a significantly better sense of 'gut feeling' than the frontline employees about uncertain indicator results in the industry as a result of their domain-specific knowledge.

The results indicate that the actual difference between the groups in their CA calibration performance is only 9.18 scale points (−6.37 for novices versus 2.81 for executives). This difference between the groups was not significant (t < 2, ns) according to a t-test. Proposition 3 is therefore not supported.

The practical implications of these findings are that frontline employees' intuitive judgments about uncertain events are not more biased in terms of accuracy in judgments and confidence in knowledge than those of executives. This indicates that executives are not necessarily better performers in a forecasting setting than frontline employees when judging performance indicator results for the industry. For management of service businesses, this means that in a knowledge management perspective when incorporating judgmental forecasting as an isolated strategic tool or in combination with statistical forecasting systems to enhance strategic decision-making, both executives and frontline employees can be included in the sample as forecasters. These findings may indicate that frontline employees indeed have knowledge repertoires that are of strategic importance to management because of their daily interactions and communications with different groups of people. This may also indicate that employees' knowledge sharing processes are not necessarily qualitatively different from executives.

Another implication of this finding concerns the assumptions of potential qualitative differences in executives and frontline personnel as knowledge

sources. The fact that such differences were not confirmed may be explained either by the two groups generating knowledge from the same information sources or because they generate knowledge from different information sources but arrive at the same answer. Nevertheless, if one relies on the assumptions of qualitative differences in knowledge sources between the subject groups resulting from different information sources among other reasons, the findings of this study have indeed indicated the important value of knowledge sharing among various employee groups as there was no differences in their performance. The study evidently has not examined what the underlying qualitative differences resulting from different knowledge sources are. In further studies in knowledge management it would be relevant to empirically address these differences.

Overall, the findings of the study lead to consideration of the importance of strategic capital and knowledge management in service businesses. As for the strategic capital, the study has demonstrated that frontline personnel's knowledge, consisting of both explicit and tacit knowledge (Smith, 2005, 2006) is as strong a strategic capital as that of management. Nevertheless, should this finding be consistent over time with new empirical studies of the topic, it may be worth addressing the following issue: namely, if new knowledge is generated on a natural and continuous basis that is as reliable input in strategic decision-making as leaders' knowledge; and assuming that better and more effective decisions are carried out by management when relying on diverse knowledge pools and intuitive judgments thereby promoting competitive advantage, what will the role of management be in managing knowledge? Knowledge processes, knowledge sharing and subsequent knowledge generation happen in an informal way under all circumstances, and this study may have indicated that the way to elicit some of the tacit knowledge stock of employees is to employ intuitive judgments as input in judgmental forecasting and strategic decision-making.

10.3 Findings in Paper III

Paper III is an exploratory study of the development of an indicator that can predict company performance. The following research statement was investigated: "To explore the development of a practical judgmental forecasting tool for hospitality management that can indicate early signals about changes in the competitiveness of the business built on frontline employees' confidence towards the future state of the business".

This research statement was tested with monthly collected time-series data from frontline employees at three hotels in Scandinavia. Observation periods were respectively 16, 17 and 18 months. These observation periods generated a total of 626 answers.

The results indicate that the constructed indicator ESSI and its predictors appear to be statistically significant in the estimated models. These models concern hotel cases 1 and 3, while for hotel case 2, the ESSI index does not appear to contain valuable information for forecasting purposes. For the time being, the author will concentrate on the results from the models that yielded significant results before returning to a more general discussion about the usefulness of the ESSI index in forecasting.

For hotel case 1, the ESSI index appears to be useful for forecasting the performance measure based on RevPar. The estimated model is written as:

$$Pfm_{1,t} = -0.003 - 0.2527\Delta\,ln\,ESSI_{2,t-1} + 0.951\Delta\,ln\,ESSI_{2,t-2} + u_{2,t}$$
$$(0.016)\quad(0.309)\qquad\qquad(0.410)\qquad\qquad\qquad . \quad(10)$$

Standard errors for the estimated coefficients are reported in parentheses. Only the second lag of the ESSI variable is statistically significant. It has the expected sign i.e. an increase in the ESSI index is associated with an increase in the performance indicator *Pfm*. The long-run response for a 1% increase in the ESSI index is associated with an almost 0.7% increase after two periods. The R^2 is 36%, which, although modest, can still be of importance in an industry where profit margins are low.

All the reported specification tests from the PcGive software are used, which include tests for normality, heteroscedasticity, autocorrelation and model specification (RESET), and suggest that the above model is well specified. A test of Granger causality rejects the null hypothesis that the two lagged ESSI indices are not significantly different from zero at the 5% significance level and with an $F_{2,12}$ value of 6.7547.

The other model that yields significant results relates to hotel case 3. The results are:

$$Pfm_{1,t} = -0.009 + 2.080\Delta\ln ESSI_{2,t-1} + 3.798\Delta\ln ESSI_{2,t-2} + u_{2,t}$$
$$(0.037)\quad(1.467)\qquad\qquad(1.397\,)\qquad\qquad\qquad ,\quad(11)$$

Both of the included ESSI lags have the expected sign, but as in model (10) for hotel case 1, only the second lag of the ESSI variable is statistically significant. The long-run response for a 1% increase in the ESSI index is an almost 6% increase in the performance indicator after two periods, which is a considerably larger response than in model (10). On the other hand, R^2 is 39%, which is quite similar to model (10).

The reported specification tests indicate well-behaved residuals. A test of Granger causality rejects the null hypothesis that the two lagged ESSI indices are not significantly different from zero at the 5% significance level with an $F_{2,15}$ value of 7.5179.

The results of the thesis have extended the theory on judgmental forecasting. The results indicate the potential usefulness of systemizing collective human knowledge and judgments as a forecasting tool. Moreover, the results indicate the usefulness of applying the ideas of consumer confidence indices at a disaggregate level.

The preliminary results suggest that for two out of the three hotel firms in our sample, the ESSI index is useful when forecasting relative hotel performance. This provides some support for the hypothesis that frontline employees possess expert knowledge that is valuable for forecasting the performance of hotel companies. Yet, the relatively short data period implies that additional empirical studies are needed to settle the issue of why ESSI was not useful in predicting one hotel case.

10.4 Findings in Paper IV

Paper IV is a conceptualization and validation study of ESSI. In this paper two hypotheses are tested. The first hypothesis proposes that *ESSI is a stronger predictor of competitiveness of the firm than ICS.* The second hypothesis suggest that *ESSI is a stronger predictor of competitiveness of the firm than CCI.*

The hypotheses are tested with monthly collected time-series data from frontline employees at three hotel**s** in Scandinavia. Observation periods were respectively, 16, 17 and 18 months. These observation periods generated a total of 626 answers.

Pearson zero-ordered correlations among the ESSI, ICS and CCI are presented in Table 9, Table 10 and Table 11 for each time-series (each hotel case). As presented in the tables, the correlation coefficient results confirm the assumption that ESSI contains different information than that of ICS and CCI: the correlation between ESSI and ICS is low: with an $r = 0.27$ for Hotel Case 1, an $r = -0.10$ for Hotel Case 2 and with an $r = -0.22$ for Hotel Case 3. Moreover, the results have proved that ESSI also measures differently from CCI with an $r = 0.32$ for Hotel Case 1, an $r = 0.10$ for Hotel Case 2 and with an $r = 0.08$ for Hotel Case 3. Yet, ESSI is more positively correlated with the measures of CCI in comparison to ICS (although not significantly correlated), which was also expected as the measures of CCI are targeted at the local level (destination level). The external validity, which concerns the extent to which ESSI items are measuring what they are purposed to measure as reflected in perceived organizational reputation and perceived organizational identity by employees' collective tacit knowledge, is thereby strengthened.

The results presented in the correlations matrices also demonstrate that there is a higher and more positive correlation between CCI and ICS, hence confirming that these indices are more related to one another and tap into employees' judgments of macroeconomic conditions. Although at two different aggregate levels, the local level and the national level respectively.

Table 9. Correlation matrix of indices - Hotel Case 1

Hotel Case 1	ESSI	ICS	CCI
ESSI	1.00		
ICS	0.27	1.00	
CCI	0.32	0.32	1.00

N= 16.

Table 10. Correlation matrix of indices - Hotel Case 2

Hotel Case 2	ESSI	ICS	CCI
ESSI	1.00		
ICS	-0.10	1.00	
CCI	0.10	0.54	1.00

N= 17.

Table 11. Correlation matrix of indices - Hotel Case 3

Hotel Case 3	ESSI	ICS	CCI
ESSI	1.00		
ICS	-0.22	1.00	
CCI	0.08	0.44	1.00

N= 15.

The hypotheses proposed that ESSI is a stronger predictor of competitiveness of the firm than ICS and CCI. Table 12 reports the empirical results for the distributed lag models. For two out of the three hotel cases the ESSI predictor appears to be statistically significant of excess return. These two models relate to hotel case 1 and 3. In both cases the second lag of ESSI is statistically significant at the $\alpha= 0.05$ level. Moreover, the estimated coefficients are positive, which suggests that higher values of ESSI are associated with higher excess return. This is according to what was expected, since higher values of ESSI reflect that the frontline personnel have more positive expectations to the various reputation aspects of the hotel business. Granger causality is also tested, which is simply an F-test of whether the lagged values of the regressor are jointly significant. In both models 1 and 3 the null hypothesis of no Granger causality is rejected at the $\alpha= 0.05$ significance level. This provides further support that ESSI has predictive power.

Table 12. Prediction of Excess Return Using ESSI, ICS and CCI

Index:	ESSI			ICS			CCI		
No. of lags: Dep. Var.:	Pfm1	Pfm2	Pfm3	Pfm1	Pfm2	Pfm3	Pfm1	Pfm2	Pfm3
1	-0.253	- .090	2.078	-0.187	0.017	-0.589	-0.232	-0.829	1.044
2	0.951*	0.135	3.799*	0.209	-0.060	0.163	0.102	-0.339	2.198*
3							0.671	-0.495	
Constant	-0.003	-0.007	-0.012	-0.004	-0.007	-0.010	-0.010	0.004	-0.022
R^2	0.36	0.00	0.39	0.28	0.00	0.09	0.16	0.31	0.33
H_0: No autocorr.	3.579	3.234	0.861	2.530	3.046	0.519	1.5271	1.623	0.031
H_0: Normal errors	1.290	1.307	0.115	2.282	1.283	4.045	3.393	4.602	4.574

* Indicates statistical significance at a 5% level.

ICS does not appear a significant predictor in any of the models, while CCI is a significant predictor only for hotel case 3 (Pfm3). For this model the hypothesis of Granger causality is only rejected at the 10% significance level. Furthermore, one notes that R^2 is slightly higher for hotel case 3 (Pfm3) in the case of ESSI as regressor compared with CCI as regressor. Consequently, the models provide support to both hypothesis 1 and hypothesis 2.

In the following chapter, the results presented will be discussed in relation to the research statement of the thesis and contrasted to earlier theory. The findings' contribution to knowledge and practice will be put forward, which leads to a discussion on the contribution's limitations and implications and to reflections on future research directions within the field.

11. Discussion and implications

11.1 The research statement and main findings

This thesis explored the strategic impact of service employees' tacit knowledge on service businesses. The thesis relied on an applied research approach grounded in compounded theories of knowledge management, strategic management, cognitive science and behavioural economics.

The research statement was explored with the hospitality industry as the research setting of service businesses. The underlying assumption of the thesis was that executives in the hospitality industry are traditionally considered to be knowledge experts in strategic processes compared with subordinates because of their continuous access to, and handling of, strategic information. In hospitality businesses, however, the role of frontline employees may be particularly important to strategic decision matters because of their continuous interaction and knowledge sharing with customers/guests, managers, colleagues, employees from other competing businesses within the industry and other interest groups. It was therefore reasonable to expect that important strategic tacit knowledge will be created at particularly two different hierarchical levels in the organization: top management level and at the operational level.

The research statement and assumptions were explored in three separate studies and presented in four papers. The results of the three studies have indicated that frontline employees do possess tacit knowledge that can have a strategic impact on service management. These indications will be presented in the coming sections.

In the first study of the thesis, it was found that the empirical research on the strategic role of KM and tacit knowledge in the hospitality industry is scarce and dim. The content of empirical studies of KM in the industry indicates that there is a general need for a more dynamic view of knowledge if the hospitality industry should adapt to a KM perspective acknowledging tacit knowledge as a strategic asset (Nonaka & Takeuchi, 1995; Saint-Onge, 1996). This relates particularly the exploration of new routines and new ways of organizing the hotels' total products. The findings of the study have demonstrated that for hotel organizations to be continuously innovative, they

must be aware not to fall into competency traps where they only adhere to exploitation practices of existing routines (Ingram & Baum, 1997a, 2001) instead of capture generated knowledge within a competitive group or market (Canina et al., 2005). These findings thus provide indications of the benefit of organizational members being in regular contact with the market as this would tend to bring about new knowledge.

The empirical studies also provide strong indications that should the hospitality industry adapt to KM initiatives with focus on tacit knowledge, hotel management must emphasize product development incorporating a dynamic and double-loop learning initiative to evaluate existing routines according to market strategic decisions (Baum & Ingram, 1998; 2005; 1997a; Ingram & Baum, 1997b, 2001) and take advantage of being in a strategic position within a particular agglomeration of hotels as this tend to bring new knowledge to the organization due to the proximity of competing hotels (Canina et al., 2005). However, there seems to be a number of obstacles in the industry for knowledge sharing and knowledge capturing. First, in general employees from operations tend not to be accepted as knowledge experts within their job domain and as contributor to strategic decision-making. Some qualitative findings indicate that obstacles to knowledge sharing between middle management and operational personnel are particular related to supervisors' lack of knowledge sharing with sub-ordinates due to their fear of sub-ordinates being prioritized for promotion, and management's philosophy towards the work environment (Yang, 2004a, 2004b).

The empirical contributions also provided some few indications of the strategic importance of drawing on expert knowledge such as tacit knowledge in relation to revenue management and forecasting. This concerns the exploration of a judgmental forecasting system in which judgments are being systemized and used in combination with an existing forecasting system (Ghalia & Wang, 2000). Nevertheless, such judgmental inputs are reserved for top management and not for operational employees. And although it is common that hospitality management relies daily on intuitive judgments and experiences in their decision-making (Ghalia & Wang, 2000; Schwartz & Cohen, 2004), all the empirical studies put forward in the thesis of the use of KM in the industry, and in terms of recognizing tacit knowledge in strategic decision-making, are at the outset seen from a theoretical perspective. Notably, in the study of Ghalia and Wang, the focus is particularly on top managements' knowledge and not on the strategic capital (Hughes & Morgan, 2007; Smith, 2005, 2006) of operational staff. Accumulated knowledge of the latter group is assumed to be different from that of management as they are

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continuously in contact with different knowledge sources on a daily basis resulting from their hierarchical positions.

The second study of the thesis explored certain qualitative differences in knowledge sources between executives and frontline employees by means of confidence and accuracy theory. This study was a field study building upon previous CA studies conducted in laboratory settings. It appeared that there were no significant differences in the groups' judgmental confidence and accuracy performance in terms of their knowledge of the tailored strategic tasks in the study, although differences in their CA performance were hypothesized. This indicates that executives are not necessarily better performers in a forecasting setting than frontline employees in the judgments of some types of performance indicators, and that operational staff may thereby constitute a strategic capital for service businesses. For management of service businesses, this means that from a knowledge management perspective when incorporating judgmental forecasting as an isolated strategic tool or in combination with existing statistical forecasting systems to enhance strategic decision-making, both executives and frontline employees can be included in the sample as judgmental forecasters. These findings may indicate that frontline employees indeed have knowledge repertoires that are of strategic impact to management because of their daily interactions and communications with different groups of people, and can constitute a strategic capital to service businesses (Hughes & Morgan, 2007; Smith, 2005, 2006) This may also indicate that employees' knowledge sharing processes are not necessarily qualitative different from those of executives. However, it should be mentioned that the aim of the second study was not to investigate the substance in qualitative differences. The findings indicated that either the groups generate knowledge from the same information sources or that they generate knowledge from different information sources but arrive at the same answer.

The third study was designed to build upon findings in the second study and to explore that frontline employees possess collective tacit knowledge capabilities which can predict changes in economic performance of hospitality companies. The third study included two papers with the purpose of exploring the development of a judgmental forecasting instrument *Employee Strategic Sentiment Index* (ESSI) for predicting economic business performance based on frontline employees' confidence (as embedded in their tacit knowledge) towards the future state of the hospitality company. The study drew on behavioral economics and confidence indices for the technical construction of the index (Curtin, 2006; Katona, 1960) and on reputation theory (Albert &

Whetten, 1985; Carmeli & Tishler, 2004b; Dutton et al., 1994) for structuring the 13 variables of the index. The instrument was tested with time-series data from frontline employees at three hotels during 16, 17 and 18 months respectively. For two out of three hotel cases the regression models using lagged ESSI variables as leading indicator could explain a substantial share of the variation in the hotel performance measures, excess return of RevPar. The models could predict R^2 of 36% and of 39%, respectively. ESSI could not predict excess return for one hotel case. In the third study, ESSI was also validated in a "prediction contest" with *Index of Consumer Sentiment* (ICS) and C*onsumer Confidence Index* (CCI). The findings of this paper indicated that ESSI is a stronger predictor of competitiveness than the two validation indices. ESSI predicts differently from the two validating indices as expected, and thus measures internal conditions of the hospitality business as represented by employees' judgments as reflected in their perceived organizational reputation (Carmeli & Tishler, 2004b; Dutton et al., 1994) and perceived organizational identity (Albert & Whetten, 1985; Elsbach & Kramer, 1996).

Overall, the findings in the three studies of the thesis have provided some contributions to existing knowledge and research within and outside the hospitality industry. Contributions put forward in the thesis thereby add to existing knowledge within the fields of knowledge management, strategic management, cognitive science and behavioral economics.

11.2 Contributions to knowledge

The findings of the thesis have extended the body of empirical research of knowledge management within the hospitality sector (Hallin & Marnburg, 2008). Previous research in knowledge management has not offered an evaluation of the existing empirical literature on the concept of KM within the hospitality industry. The review of empirical research put forward in this thesis is the first state-of-the-art survey of empirical KM research in the hospitality field. The review has offered an approach for assessing empirical contributions in the field of knowledge management by employing a combination of theory-of-science criteria with a typology of knowledge foci in the contributions. The author applied theory-of-science criteria by Popper (1968) in concern to testability and Kuhn (1989) in respect to generalization principles. These criteria were employed in juxtaposition with an assessment if the empirical contributions presented a static or dynamic view on knowledge and whether management's objectives are measurement, control or storage, or rather facilitation and development.

The findings of the second study of the thesis have also extended previous research in cognitive science with focus on CA performance of novices and experts, in respect to their intuitive judgmental predictive performance (Hallin, Øgaard, & Marnburg, 2009). Most of the existing body of CA literature is experimental and laboratory based (e.g. Andersson et al., 2005; Murphy & Winkler, 1984; Whitecotton, 1996; Önkal et al., 2003). In this thesis, the CA theory was tested in a real field setting with hospitality executives as experts of strategic information and frontline employees as novices. The findings in this thesis were not able to verify previous laboratories findings of CA performance of expert and novices. Previous research evidence have provided strong indications that experts produce significantly more accurate judgments than novices due to their accumulated experience (e.g., Muradoglu & Önkal, 1994; Önkal et al., 2003). In this thesis this finding was notably not confirmed, as there was no significant difference between novices and experts' accuracy judgments. Contrary to earlier studies (Russo & Schoemaker, 1992) of decision makers predicting industry and firm-related outcomes, which revealed that experienced decision makers tend to be overconfident and inexperienced decision makers tend to be underconfident (Fazio & Zanna, 1978), the findings of the thesis indicated that this was not the case. The author found no significant differences in confidence–accuracy values for different tasks between executives and frontline personnel. Also, contrary to earlier studies, the author found no significant differences in calibration performance between the groups. As previous noted, studies of race oddsmakers (Griffith, 1949; Hausch et al., 1981) and expert bridge players (Keren, 1987) have revealed that intuitive judgments of experts are better calibrated than those of novices when they have rich knowledge of the prediction task in question. This study however indicates that the executives analyzed did not have a significantly better sense of 'gut feeling' than the frontline employees about uncertain indicator results in the industry as a result of their domain-specific knowledge.

These findings may thereby have extended the CA theory by applying it to a real business setting of employee groups in service businesses. The findings have also extended knowledge within the hotel industry where the assumption is that there are qualitative differences (Walsh & Ungson, 1991) in knowledge repertoires due to differences in hierarchical position (Yang & Wan, 2004).

The theory put forward in the second study of the thesis has also extended theory in knowledge management by linking the newly introduced construct of strategic capital (Hughes & Morgan, 2007; Smith, 2005, 2006) in KM to forecasting and following strategic decision-making within a KM perspective.

The construct of strategic capital is introduced as a link that combines knowledge management, knowledge sharing with the construct of judgmental forecasting within the field of strategic decision-making.

The findings of the third study of the thesis have extended research in behavioural economics (Katona, 1960) by proposing a disaggregate index, *Employee Strategic Sentiment Index* (ESSI) similar to the construction of the macroeconomic *Index of Consumer Sentiment* (ICS).

To the author's knowledge, no previous studies have applied the theoretical ideas of confidence indices at the business level and employed time-series of employees' confidence towards the future state of the business. The results of the thesis have indicated the usefulness of applying the ideas of consumer confidence indices to a disaggregate level.

During the research period of this thesis, another type of index *the Employee Confidence Index* has become increasingly acknowledged by companies in the US. The index is maintained by the Sperion Corporation, which is a recruiting and staffing company. The index measures employees' overall confidence in the economy, the future of their employer, the availability of jobs, and employees' ability to find other employment. However, this index also functions at an aggregate level, and is an indicator for employers and their employees of employees' general optimism in a society towards the future economy and their employer. To the authors' knowledge this index has not been empirically documented (Sperion Atlantic Enterprises LLC, 2009).

The results of the ESSI study also offer an extension of theory on judgmental forecasting tools within and outside the hospitality industry. The results of the third study point to the potential usefulness of systemizing operational collective human knowledge and judgments as a more general forecasting tool. A study by Ghalia and Wang (2000) has proposed an intelligent system to support judgmental forecasting and traditional revenue management. Yet, this system combines managers' judgments about future room demands with traditional statistical forecasting techniques, and is intended to function as an adjustment system to existing forecasts. Within the hospitality industry the Lodging Executives Sentiment Index (LESI) has also been developed (Goodman, 2007) at an aggregate macro level. Thus, this index provides information on executives' expectations over the next 12 months regarding present business activity, future business activity, and reservation and employment activity for the US hotel industry. Thus, the index does not opt

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for operational employees' judgments. To the present author's knowledge the LESI is not documented empirically.

The results of the third study of the thesis extend the reach of the RBV and KBV on empirical documentation of the link between intangible assets and economic firm performance, by the idea of using employees' collective tacit knowledge as a firm capability for forecasting economic firm performance. So far studies within the RBV and KBV traditions have focused on intangible assets as explanatory factors of economic firm performance and have put forward evidence on the relationship between intangible assets and economic firm indicators (e.g., Carmeli & Tishler, 2004a, 2004b; Hansen & Wernerfelt, 1989; Hitt & Ireland, 1985b). Although studies within these traditions have proved that intangible assets underlie economic firm performance, no studies have actually focused on collective tacit knowledge as an unexploited resource that can be used to forecast economic firm performance. Hence, the methodology of ESSI put forward in the thesis differs from other studies as the author was not interested in measuring the level of intangible assets as such, but instead exploited the usefulness of intangible asset for forecasting performance. In the thesis, intangible assets were thought of as unexploited human capital of a firm's employees, grounded in their collective tacit knowledge, and reflecting employees' perceptions of the reputation of the individual firm, leading to the possibility of developing confidence indices.

Moreover, the findings have expanded previous research into the realms of reputation in two aspects. So far the reputation literature has mostly focused on corporate firm reputation by customer-based reputation, but no validated scales exist for the dimensions of perceived organizational identity (Elstak, 2008). The Most Admired Corporations index (Smith & Allen, 1990) is developed to assess perceived reputation. Yet, this index is compiled from top executives, asking them to rate the largest companies in their own industry on eight attributes, and does not tap into perceptions of attributes in relation to internal conditions of the business. In the RBV, empirical studies have been put forward by Rao (1994) and Carmeli and Tishler (2004a; 2004b). However, in these studies organizational reputation is either defined as outsiders' perceptions of the competence of the organization by number of victories in certification contests (Rao, 1994) or by a reputation index by Smith and Allen (1990) measuring perceptions of other companies as applied in the studies by Carmeli and Tishler (2004a; 2004b). In other words, none of these studies have offered an instrument to assess employees' judgments of a future firm reputation.

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11.3 Contributions to practice

The review, evaluation and discussion of published empirical research within KM in the field of hospitality, have provided some strong indications of potentials and obstacles for the hospitality industry and hospitality companies, but also for service businesses in general.

The content in the empirical contributions widely demonstrated that KM practice within the hospitality sector is considerably limited. Yet, some empirical contributions have been put forward that provide indications of the state of the hospitality industry from a knowledge management perspective and its acknowledgement of tacit knowledge as a strategic asset.

In the hospitality industry, the acknowledgement of KM activities of employees' knowledge generation, distribution and application are new phenomena (Cooper, 2006) compared to other industries where KM strategies have been increasingly practiced over the last fifteen years (Nonaka & Takeuchi, 1995). It is only during the recent years that the hotel industry has begun to increasingly adapt to existing efforts in KM practices. Major chains such as Accor and Hilton are concerned with KM activities in their daily operations, and acknowledge the great benefits that KM may bring them, especially in respect to learning and knowledge sharing.

KM may be especially relevant for building up competitive advantage of a hospitality and service company. Many sub-industries of the service sector are knowledge intensive, and the hospitality industry is becoming increasingly knowledge intensive as a result of intensive use of technology and the nature of the service product, which is based on interaction between hospitality employees and guests/customers. Consequently, guests'/ customers' perceptions of service quality are dependent on employees' skills of how to meet customer needs. Service businesses are likely to gain benefits from KM activities emphasizing knowledge sharing, which can improve employees' knowledge of unique guests'/customers' needs. KM may be of particular relevance for hotel chains and other types of service chains, in terms of their requirement for consistency in quality standards of their geographically dispersed units. Moreover, service companies can benefit from KM activities and systems in respect to development of knowledge networks among clusters of service enterprises.

On the other hand, the findings of the second study of the thesis on executives and frontline employees' qualitative differences in knowledge also lead to questioning the role of managing knowledge in service businesses. In the

second study of the thesis, it was found that executives and frontline employees can both be sampled as forecasting performers in judging future performance indicator results because there were no differences in their judgmental CA performance. Hence, the author questioned what management should do to manage the knowledge of employees when knowledge generation and distribution are happening in an informal way anyway amongst service employees. In the following the author of the thesis will elaborate on this particular question to arrive at the role of management in deciding on their knowledge strategy in relation to various judgmental forecasting methodologies.

The present author proposes that the management of service businesses recognizes differences in the nature of the knowledge structure, i.e. that knowledge can both be explicit and tacit as stressed in this thesis. It is suggested that management adapt their managerial activities accordingly when dealing with different types of knowledge activities and strategies. A framework was suggested in the thesis concerning questions management could address when dealing with different knowledge management related activities in terms of: 1) whether knowledge is viewed as static or dynamic, and 2) how essential it is for management to make the knowledge explicit and measurable and able to control it. When a static view of knowledge is employed, one can define what knowledge is or should lead to, based on experience. Such a perspective would tend to focus more on explicit knowledge than tacit knowledge to assess current knowledge level and to determine future activities. A dynamic view, on the other hand, implies that knowledge is continuously changing and new ideas are created that could be of value for the company. Such knowledge generated in exploratory activities tends to be more tacit of nature. In other words: a static view will serve the need to operate known routines for management, and a dynamic view will serve the need to continuously develop.

In this thesis, the focus has mainly been on the tacit knowledge and has emphasized a dynamic perspective on knowledge in forecasting (Hallin & Marnburg, 2008) In the first study of the thesis, it was argued by the author that when modifying forecasting tools by adjustments to existing revenue management systems, typically a static perspective is applied, as one emphasizes exploiting routines such as those applied in the study by Ghalia and Wang (2002). Here adjustments are made to existing figures in a revenue management system. However, in a forecasting situation in which new knowledge is created that is not related to an existing revenue management system and which does not necessarily emphasize adjustments and

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modifications, such as with ESSI, the author agues that a more dynamic knowledge focus is enhanced. According to such a perspective one would bring in employees' accumulated tacit knowledge by means of their intuitive judgments about the future, which leads to indications of changes in the business performance.

The preceding reflections have shed light on the implications of knowledge perspectives in relation to the thesis and to service management. For a given forecasting setting that mostly relies on the individual's total experiences and rely on tacit and dynamic knowledge, this thesis has suggested a way to systemize and capture such knowledge without necessarily manage it. On the other hand, if knowledge is explicit and can be codified, also in terms of judgmental forecasting when making adjustments, it makes sense for service chains to manage such knowledge as it can be distributed via databases.

The ESSI study has offered the potential usefulness of a forecasting tool that can be applied solely at a strategic level or tactical level or in support of an existing revenue management system to assess changes in the economic performance of businesses, but also to assess employees' perceptions of a future state of the company by their perceptions of the reputation of the firm. The instrument may also be beneficial for other service industries. However, this would require some modifications of the survey.

The ESSI comprises various aspects of the enterprise. The more positive the frontline employees feel about the various aspects of the enterprise, the higher their responses to the five-point scale. This is important because it implies that the ESSI index is not only potentially useful as a forecasting tool but it also enables management to identify the aspects of the business where the employees' sentiments have changed. Specifically, the individual ESSI items can provide early warning signals from the frontline employees regarding various aspects of the hotel company. Furthermore, if, in addition to standard time series models, judgmental forecasting models are considered, the ESSI provides potentially useful information for the forecaster.

ESSI also offers a way of assessing changes in competitiveness and reputation relative to the market by using excess return as a performance measure. As the output of ESSI does not result in a given figure, as in revenue management when forecasting such as occupancy rate and RevPar, ESSI should rather be regarded and treated as a strategic tool for assessing changes in future. In sum, the results of the ESSI studies have indicated the potential usefulness of systemizing collective human knowledge and judgments as a forecasting tool,

but the development of the instrument needs to be investigated further to draw further conclusions on its quality as a forecasting tool.

11.4 Limitations and future research

The research and the findings of the thesis have some empirical limitations that provide a foundation for suggesting future research into the different areas to which the thesis has contributed.

The empirical review of KM in the hospitality industry was based on a sampling of 2 365 articles. The limitations of this study particularly concern the scope of the review. For generalizing the findings of the review in the service industry, it is required that other sub-industries in the service sector be reviewed to. Future reviews of KM research in the service sector would thus be highly relevant to compare findings on KM research in the hospitality sector.

In future, it would likewise be relevant to investigate some of the loopholes or lacunae pinpointed in the empirical review of KM research, which imply a great research potential in the hospitality industry. According to a static perspective on knowledge, there seems to be a need for understanding when hotels risk of falling into competency traps by too much exploitation of own routines versus relying on exploratory efforts.

Within the dynamic knowledge perspective of knowledge, the review indicated a need to know more about what predicts good and bad learning climates, and what promotes and hinders knowledge-sharing between diverse employee groups in the hospitality industry. Such future studies may lay the foundation to our understanding the basis of what promotes the strategic capital of service employees, which would tend to advance the quality of judgmental forecasting and related strategic decision-making.

Overall, the review revealed that there is a great need for empirical KM studies in the hospitality context founded on sound and proper research designs that ensure satisfactory testability and generalization, and thus contribute to an overall and comprehensive research debate of KM in hospitality.

The exploratory study of CA performance of executives and frontline employees in the hospitality industry has some limitations. As this study was

rather occupied with exploration of causal relationships of confidence and accuracy measures outside laboratory settings, generalization of findings was a less relevant issue of the study. The sample size of the study was thus relatively small, represented by a sample of 39 executives and 38 frontline employees from 12 hotels belonging to the same size category (medium-sized businesses). The sample, which was recruited from the same city in Norway, and is sampled from hotels with the same size category, tends to result in a homogenous sample and reduce error variance. It would be relevant to sample from different cities and hotel corporations in future to assess the external validity of the instrument.

The difficulty levels of the strategic tasks addressed in the survey and the categorization of executives and frontline employees were assessed by a manipulation test. However, future studies may validate the issue of the strategic tasks addressed in the study, as it would be pertinent to investigate further if these tasks lie outside executives' knowledge domain given that there were no qualitative differences in executives versus frontline employees' CA performance. Such studies may also include validating the confidence measure and the accuracy measures by control variables, by for instance, educational level, years of experience in the industry, and experience from other types of industries that may affect CA performance of executives versus frontline personnel.

The results of the second study of the thesis led to new considerations and research questions within knowledge management and cognitive theory with focus on intuitive judgmental performance of confidence and accuracy biases of executives and frontline employees. The author suggest that further research be carried out to examine the different factors that may influence CA performance between executives and frontline employees in order to understand which organizational factors influence individuals in their knowledge sharing, knowledge generation and following CA performance.

Valuable research on the psychology of judgmental and knowledge-based forecasting has been carried out by Kahneman and Riepe (1998), Kahneman and Tversky (1972; 1973), Tversky and Kahneman (1974) and Gilovich et al. (2002), who investigated the cognitive structures of biases in intuitive judgments. Further research is needed on explanatory variables of the organization that may influence the CA performance of executives and frontline personnel. The author suggests the following possible variables: organizational politics and culture by power distance in organizations, social

capital, transformation processes by the misuse of knowledge and size of business.

The findings of the ESSI studies have limitations. Firstly, due to the relatively short data period operated in the ESSI studies, (with 18, 17 and 16 observations), additional empirical studies are needed to settle and verify the findings of hotel cases that could be predicted with ESSI and to gain knowledge in the implications of why ESSI could not predict for one hotel case. In the initial tests of the ESSI study, the index was tested with house profit as performance indicator (which includes both lodging and banquet). The results for hotel case 2 proved significant with coefficients of the ESSI variables significant at the 5% level. Yet, here the performance measure of RevPar was selected, as this is a more comparable and standardized measure across companies. In future, it is therefore relevant to investigate why RevPar was not predicted by ESSI for hotel case 2. Future research needs to carry out longer time-series and use a larger sample of individual firms from different corporations.

One important aspect, which the author was not able to explore because of the short data period, is out-of-sample forecasting. Most of the items in the monthly survey comprise questions related to 12 months into the future. An important question is how much time it takes on average from a "symptom" in the hotel business being detected by frontline employees until it manifests itself in the accounting sheets of the firm. One can reasonably imagine a considerable time lag from frontline employees signalling a problem until the company's profits are actually affected. This will be an issue for future studies. A related issue is sampling frequency. If there is a considerable time lag between symptom and effect (disregarding what might be the link between the two manifestations), one may argue that a quarterly or even half-yearly data frequency is more appropriate.

The major challenges in developing an effective, practical and leading indicator for hospitality businesses and service businesses, which can predict their future performance based on employee tacit knowledge and confidence toward the future, are related to costs, time consumption and validity of the instrument. From a firm perspective, lower-frequency data sampling will be less costly. Monthly sampling of the staff is time-consuming, especially if it involves many survey questions. Hospitality businesses are often very busy and tend to have low profit margins, which imply that costs can soon outweigh the benefit of a data-sampling scheme when it becomes time-consuming. This implies that future studies should use a larger number of

hotel cases to test the 13 items and reduce these to a few, highly explanatory items of company performance.

The limitations in the survey also concern the comparison of ESSI, which is based on a five-point scale, with ICS and CCI's three-point scale, as variance tends to be reduced with small samples and a tight scale. Yet, we aimed at testing ESSI, ICS and CCI with their original structures at the disaggregate level.

Another limitation of the study is the sample structure of items and the chosen groups of dimensions within the theory of perceived organizational reputation and perceived organizational identity, e.g. issues of evaluation of competitors, teamwork, customers (guests), managerial issues and personal conditions. In future studies, it would be relevant to test the items and their dimensions with a factor analysis in order to confirm the items' 'belongingness' to these dimensions. However, as a formative measures were applied in this study, internal consistency was not an issue.

In this study, however, the author has solely been occupied with validating the performance of ESSI. The results have so far proved its potential as a new strategic tool for service management to assess employees' perception of future firm reputation and predict changes in economic performance.

In this initial study of the ESSI, the findings have demonstrated that the instrument is promising, but further data is required to assess reasons to why ESSI did not predict excess return for one out of three hotel cases. Explanatory factors one may look at are qualitative differences in markets (destinations) of the hospitality industry such as competitive set and structure, and company differences including such factors as organizational culture and structure, performance measures and content, management styles and size of company. Future research into the area may include validating the index with a similar index as ESSI, but for hospitality executives, to assess differences in the subject groups' knowledge capabilities in judgmental forecasting. Moreover, further validation of ESSI may include validating against job commitment scales, which assumedly will correlate positively with some of the ESSI variables, as these questions tend to be related to aspects of job commitment.

In the following, the author's reflections and conclusions are presented.

12. Conclusions

The aim of this thesis was to explore the strategic impact of service employees' tacit knowledge on service businesses. To investigate this research objective, the thesis drew on knowledge management (KM) theory, strategic management theory, cognitive theory and behavioral economics and applied these theories to the hospitality industry as the research setting within the service sector.

The thesis' main focus was on exploration and validation of a new strategic indicator and forecasting tool *Employee Strategic Sentiment Index (ESSI)* for predicting changes in economic hotel performance grounded in frontline employees' tacit knowledge and built upon confidence and intuitive judgments towards the future state of the business. The study was based on time-series observations of ESSI and was presented in two papers. The first paper on ESSI presented the development of ESSI. The author relied on Index of Consumer Sentiment and behavioral economics for construction of the index and on firm reputation theory for structuring the variables of ESSI. In the second paper on ESSI, the index was validated in a "prediction contest" with the well-established US macroeconomic indices ICS and CCI.

The thesis also included the first state-of-the-art survey of empirical KM research in the hospitality field. The objectives of this study were to identify the importance and challenges of KM for hospitality companies: to review the theoretical content of empirical contributions against a static versus dynamic perspective on knowledge, and to review the empirical quality of contributions against theory-of-science criteria.

Furthermore, the thesis involved exploring possible qualitative differences in knowledge sources, through a quiz survey of hierarchical effects of hospitality executives' and frontline employees' confidence and accuracy biases and performance in their intuitive judgments of hotel performance indicators.

In light of these three studies presented in four papers, the main conclusion of the thesis is that service employees do possess tacit knowledge that has a strategic impact on service businesses.

The review of the theoretical content of KM contributions in the hospitality sector revealed that research and practice of knowledge management processes is scarce and dim, implying great research potential and challenges in practice. Database searches of the KM concept and related topics yielded 2 365 hits, of which only 19 empirical articles were identified. Of these, only five empirical contributions were found to offer research of high quality, while the remaining studies demonstrate that empirical KM research is limited, inconclusive, and low on generalization and testability.

The review, evaluation and discussion of published empirical research within KM have revealed some strong indications of potentials and obstacles for the hospitality industry and hospitality companies. For hospitality companies, KM may be especially relevant for building up competitive advantage. The sector is becoming knowledge intensive as a result of intensive use of technology and the nature of the service product, which is based on interaction between hospitality employees and guests/customers. From a static perspective on knowledge, it is relevant to investigate how hotels can avoid falling into competency traps through too much exploitation of their own routines. Within the dynamic knowledge perspective of knowledge, the review indicated a need to know more about what predicts good and bad learning climates and what promotes and hinders knowledge-sharing between diverse employee groups in the hospitality industry. Such future studies may lay the foundations towards understanding the basis of what promotes the strategic capital of service employees, which would tend to advance the quality of judgmental forecasting and related strategic decision-making.

The findings of the thesis also indicate that there are no qualitative differences in intuitive judgmental confidence and accuracy performance between frontline employees and executives in the hospitality industry, in respect of judgments of strategic tasks based on performance measures. The principal findings of this study indicated that there were no significant differences between the subject groups in accuracy performance, in confidence performance and in calibration performance when judging strategic tasks. The findings thereby indicated that frontline employees' intuitive judgments about uncertain events are not more biased in terms of accuracy in judgments and confidence in knowledge than those of executives. This indicates that executives are not necessarily better performers in a forecasting setting than frontline employees when judging performance indicator results for the industry. For management of service businesses, this means that in a knowledge management perspective, when incorporating judgmental forecasting as an isolated strategic tool or in combination with statistical

forecasting systems to enhance strategic decision-making, both executives and frontline employees can be included in the sample as forecasters. Hence, these findings provide some indications that the knowledge of frontline employees can constitute a strategic capital asset to service businesses. However, the author recommends further external validation of the instrument and its confidence and accuracy measures with a larger sample of executives and frontline employee, along with investigation of organizational factors, such as organizational culture, size of organization and misuse of knowledge in response patterns that may affect results. Further examination of the validity of the formative measures may also be performed against personal criteria measures, i.e. educational background and years of experience from the industry versus from other industries.

The key findings of the third study are that ESSI has shown some indications of being capable of predicting economic changes. For two out of three hotel cases the regression models using lagged ESSI variables as leading indicator could explain a substantial share of the variation in the hotel performance measures, excess return of RevPar. The models could explain R^2 of 36% and 39% respectively in excess return. Yet, ESSI could not predict one hotel case. The validation study of ESSI proved that ESSI measures differently from the macroeconomic indices ICS and CCI, hence ESSI has proved its ability in tapping into internal conditions of the hospitality business building upon frontline employees' confidence and intuitive judgments towards the future state of the business within a twelve months perspective. This was also confirmed in the "prediction contest" of the indices, which proved that ESSI is a stronger predictor of excess return than ICS and CCI. The conclusion of the ESSI studies is that one needs further investigation of the index to assess its qualities as a practical and effective judgmental forecasting tool for hospitality management. This concerns reducing the 13 items to fewer items and to reduce frequency of measurements from monthly to quarterly observations. Such efforts are suggested particularly in order to lower costs and time consumption in the industry. For advancing the validity of the index, a longer period of data sampling is likewise required in order to avoid out-of-sample forecasting. In this initial study of the ESSI, the author has demonstrated that the instrument is promising, but further data is required to assess reasons as to why ESSI did not predict excess return for one out of three hotel cases. The ESSI study has also proved its potential as in indicator of assessing future perceived reputation of the firm, by drawing on the dimensions of perceived reputation and perceived organisational reputation.

Overall, this thesis has empirically documented that service employees possess tacit knowledge of strategic importance to service businesses. While previous studies have put forward evidence on the existence of tacit knowledge and its relationship with economic firm performance, this thesis has provided some evidence on the "real" value of service employees' tacit knowledge for strategic management.

The author would like to encourage other scholars to continue this fascinating journey of gaining insight in the strategic impact of tacit knowledge. The author completes this thesis acknowledging time-series research as a valuable methodology in studying the dynamic nature of tacit knowledge. Although conducting time-series research is highly demanding in all aspects, it is undoubtedly worth the effort.

13. References

Aaker, D.A., Kumar, V., & Day, G.S. (2001). *Marketing Research.* (7th ed). New York, NY: John Wiley & Sons, Inc.

Adams, D., & Mullins, P. (1984). Conscience. Tacit knowledge and the art of judgment: Implications of Polanyi's thought for moral reflection. In *Soundings, Vol.66*, (pp. 34-45).

Agassi, J. (1975). Genius in science. *Phil. Soc. Science, 5*, 145-161.

Agor. (1986). The logic of intuition: how top executives make important decisions. *Organizational Dynamics, 14*(3), 5-29.

Agor. (1989). *Intuition in organizations: leading and managing productivity*. Newbury Park, CA: Sage.

Al-Alawi, A. I., Al-Marzooqi, N. Y., & Mohammed, Y. F. (2007). Organizational culture and knowledge sharing: critical success factors *Journal of Knowledge Management, 11*(2), 22-42.

Alavi, M., Kayworth, T. R., & Leidner, D. E. (2005). An empirical examination of the influence of organizational culture on knowledge management practices. *Journal of Management Information Systems, 22*(3), 191-224.

Alavi, M., & Leidner, D. E. (2001). Review: knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107-136.

Albert, S., & Whetten, D. A. (1985). Organizational identity. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7). Greenwich, CT.: JAI Press.

Ambrosini, V., & Bowman, C. (2001). Tacit knowledge: Some suggestions for operationalization. *Journal of Management Studies, 38*(6), 811-829.

Amin, A., & Cohendet, P. (2005). Geographies of knowledge formation in firms. *Industry and innovation, 12*(4), 465-486.

Andersen, A. (1998). *Knowledge Measurement*. Pittsburgh, PA: Next Generation Research Group.

Andersson, P., Edman, J., & Ekman, M. (2005). Predicting the World Cup 2002 in soccer: Performance and confidence of experts and non-experts. *International Journal of Forecasting, 21*(3), 565-576.

Argyris, C., & Schön, D. A. (1978). *Organizational learning a theory of action perspective*. Reading, Mass.: Addison-Wesley Pub.

Bagozzi, R. P. (1994). Structuring equation models in marketing research: basic principles. In R. Bagozzi (Ed.), *Principles of Marketing Research* (pp. 317-385). Oxford: Blackwell.

Baldwin-Evans. (2006). Hilton highlights link between staff loyality and e-learning. *Human Resource Management International Digest, 14*(1), 36-38.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

Bastick, T. (1982). *Intuition: How we think and act*. New York: Wiley.

Batchelor, R., & Dua, P. (1998). Improving macro-economic forecasts - The role of consumer confidence. *International Journal of Forecasting, 14*(1), 71-81.

Baum, J. A. C., & Ingram, P. (1998). Survival-enhancing learning in the Manhattan hotel industry, 1898-1980. *Management Science, 44*(7), 996-1016.

Bechtel, G. G. (1997). A Dual-Source Indicator of Consumer Confidence. *Sociological Methodology, 27*(1), 299-324.

Bennett, R. H. I. (1998). The importance of tacit knowledge in strategic deliberations and decisions *Management Decision, 36*(9), 589-597.

Bitran, G. R., & Mondschein, S. V. (1995). An application of yield management to the hotel industry considering multiple day stays. *Operations Research, 43*(3), 427-443.

Bollen, K. (1984). Multiple indicators: Internal consistency of no neccessary relationsship? *Quality and quantity 18*, 377-385.

Bollen, L., Vergauwen, P., & Schnieders, S. (2005). Linking intellectual capital and intellectual property to company performance. *Management Decision, 43*(9), 1161-1185.

Bontis, N. (1996). There's a price on your head: managing intellectual capital strategically. *Business Quarterly*, 40-47.

Bontis, N. (2001). Assessing knowledge assets: a review of the models used to measure intellectual capital. *International Journal of Management Reviews, 3*(1), 41-60.

Bontis, N., Crossan, M. M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies, 39*(4), 437-469.

Bontis, N., Dragonetti, N. C., Jacobsen, K., & Roos, G. (1999). The knowledge toolbox: a review of the tools available to measure and manage intangible resources. *European Management Journal, 17*(391-401).

Bothwell, R. K., Deffenbacher, K. A., & Brigham, J. C. (1987). Correlation of eyewitness accuracy and confidence: Optimality hypothesis revisited. *Journal of Applied Psychology, 72*, 691-695.

Bouncken, R. (2002). Knowledge management for quality improvements in hotels. *Journal of Quality Assurance in hospitality and tourism, 3*(3/4), 25-59.

Bouncken, R., & Pyo, S. (2002). Achieving competitiveness through knowledge management *Journal of Quality Assurance in hospitality & tourism,3*(3/4), 1-4.

Brehmer, B. (1987). Social judgment theory and forecasting. In G. Wright & P. Ayton (Eds.), *Judgmental forecasting* (pp. 199-213). GB, Wiltshire: John Wiley & Sons Ltd.

Brenner, L., Griffin, D., & Koehler, D. J. (2005). Modelling patterns of probability calibration with random support theory: Diagnosing case-based judgment. *Organizational Behavior and Human Decision Processes,* (97), 64-81.

Brewer, W. F., & Sampaio, C. (2006). Processes leading to confidence and accuracy in sentence recognition: A metamemory approach. *Memory, 14*(5), 540-552.

Brockmann, E. N., & Anthony, W. P. (2002). Tacit Knowledge and Strategic Decision-making. *Group & Organization Management, 27*(4), 436.

Canina, L., Enz, C. A., & Harrison, J. S. (2005). Agglomeration effects and strategic orientations: Evidence from the US lodging industry. . *Academy of Management Journal, 48*(4), 565-581.

Capurro, R. (2004). Skeptical knowledge management. In H.-C. Hobohm (Ed.), *Knowledge Management* (pp. 44-57). Munich: IFLA (International Federation of Library Associations and Institutions)..

Carmeli, A., & Tishler, A. (2004a). The relationships between intangible organizational elements and organizational performance. *Strategic Management Journal, 25*(13), 1257-1278.

Carmeli, A., & Tishler, A. (2004b). Resources, capabilities, and the performance of industrial firms: a multivariate analysis. *Managerial and Decision Economics, 25*, 299-315.

Carmeli, A., & Tishler, A. (2005). Perceived organizational reputation and organizational performance: an empirical investigation of industrial enterprises. *Corporate Reputation Review, 8*(1), 13-30.

Carroll, C. D., Fuhrer, J. C., & Wilcox, D. W. (1994). Does consumer sentiment forecast household spending? If so, why? *The American Economic Review, 84*(5), 1397-1408.

Chauvet, M., & Guo, J. T. (2003). Sunspots, animal spirits, and economic fluctuations. *Macroeconomic Dynamics, 7*(1), 140-169.

Cooper, C. (2006). Knowledge management and tourism. *Annals of Tourism Research, 33*(1), 47-64.

Cooper, C., Sheperd, R., & Westlake, J. (1994). Tourism and hospitality education Guilford: University of Surrey.

Curtin, R. T. (2006). *Surveys of consumers: Index calculation* Retrieved February, 2006, from www.sca.isr.umich.edu/ documents.php?c=1.

Davenport, T. H., De Long, D. W., & Beers, M. C. (1998). Successful knowledge management projects. *Sloan Management Review, 39*(2), 47-57.

Davidson, C., & Voss, P. (2002). *Knowledge Management*. Auckland: Tandem.

Day, G. S. (1999). *Market-driven strategy, processes for creating value*. New York, NY: Free Press.

De Boef, S., & Kellstedt, P. M. (2004). The Political (and Economic) Origins of Consumer Confidence. *American Journal of Political Science, 48*(4), 633-649.

Diamantopoulos, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research, XXXVIII* (May), 269-277.

Didow, N. M., & Franke, G. R. (1984). Measurement issues in time-series research: reliability and validity assessment in modelling the macro-economic effects of advertising. *Journal of Marketing Research, XXI*(February), 12-19.

Drucker, P. F. (1959). *A report on the new post-modern world* NY, New York: Harper colophon books.

Drucker, P. F. (1993). *Post-capitalist society*. Oxford: Butterworth-Heinemann Ltd. .

Drucker, P. F. (1999). Knowledge-worker productivity: the biggest challenge. *California Management Review, 41*(2), 79-94.

Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational images and member identification. *Administrative Science Quarterly, 39*(2), 239-236.

Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: realizing your company's true value by finding its hidden brainpower*. NY, New York: HarperBusiness.

Edwards, W. (1961). Behavioral decision theory. *Annual Review of Psychology, 12*, 473-498.

Elsbach, K. D., & Kramer, R. M. (1996). Members' responses to organizational identity threats: Encountering and countering business week rankings. *Administrative Science Quarterly, 41*(3), 442-476.

Elstak, M. N. (2008). The paradox of the organizational identity field. *Corporate Reputation Review, 11*(3), 277-281.

Enz, C. A., & Siquaw, J. A. (2003). Revisiting the best of the best: innovations in hotel practice *Cornell Hotel & Restaurant Administration Quarterly, 44*(5/6), 115-123.

Erden, Z., von Krogh, G., & Nonaka, I. (2008). The quality of group tacit knowledge. *Journal of Strategic Information Systems 17*, 4-18.

European Commission. (2007). *Enterprise and Industry: SME definition*. Retrieved April, 2007, from http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm

Fazio, R. H., & Zanna, M. P. (1978). Attitudinal qualities relating to the strength of the attitude-behavior relationship. *Journal of Experimental Social Psychology, 14*, 398-408.

Feigenbaum, E. A., McCorduck, P., & Nii, P. (1988). *The rise of the expert company*. New York: Times Books.

Ferguson, T. D., Deephouse, D. L., & Ferguson, W. L. (2000). Do strategic groups differ in reputation? *Strategic Management Journal, 21*, 1195-1214.

Fine, G. A. (2001). *Difficult reputations: collective memories of the evil, inept and controversial*. Chicago University of Chicago Press.

Flores, F., Graves, M., Hartfield, B., & Winograd, T. (1988). Computer systems and the design of organizational interaction. *ACM Transactions on office information systems, 6*, 153-172.

Flyvbjerg, B. (2001). *Making social science matter. Why social inquiry fails and how it can succeed again*. Cambridge, UK: Cambridge University Press.

Foss, N. J. (2007). Scientific progress in strategic management: the case of the resource-based view. *International Journal of Learning and Intellectual Capital, 4*(1-2).

Foss, N. J., & Knudsen, C. (1996). *Towards a competence-based theory of the firm*. London, UK: Routledge.

Freeman, J. R. (1983). Granger causality and the times series analysis of political relationships. *Journal of Political Science, 27*(2), 327-358.

Freiling, J. (2004). A competence-based theory of the firm. *Management Revue, 15*(1), 27-52.

Gabbay, S. M., & Leenders, R. (1999). The structure of advantage and disadvantage. In R. L. &. S. M. Gabbay (Ed.), *Corporate social capital and liability* (pp. 1-14). Boston, MA.: Kluwer Academic Publishers.

Garrett T. A, Hernández-Murillo R., & Owyang M. T. (2005). Does consumer sentiment predict regional consumption? *Federal Reserve Bank of St. Louis Review. 87*(2) (part 1): 123–135.

Ghalia, M. B., & Wang, P. P. (2000). Intelligent system to support judgmental business forecasting: the case of estimating hotel room demand. *Fuzzy Systems, IEEE Transactions on, 8*(4), 380-397.

Ghoshal, S., & Westney, D. E. (1991). Organizing competitor analysis systems. *Strategic Management Journal, 12*, 17-31.

Gibbins, M. (1984). Propositions about the psychology of professional judgment in public accounting. *Journal of Accounting Research, 22*(1), 103-125.

Gilovich, T., Griffin, D., & Kahneman, D. (2002). *Heuristics and Biases*. NY: Cambridge University Press.

Gjelsvik, M. (2002). Hotels as learning arenas. *Scandinavian Journal of Hospitality and Tourism, 2*(1), 31-48.

Goodman, J. R. J. (2007). *Hospitality management: Raymond J. Goodman Jr*. Retrieved August 2007, from www.wsbe.unh.edu/ raymond-j-goodman-jr-ph-d

Gourlay, S. (2006). Towards conceptual clarity for tacit knowledge: a review of empirical studies. *Knowledge management Research & Practice 4*, 60-69.

Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review, Spring* 114-135.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*, 109-122.

Griffin, D., & Tversky, A. (1992). The Weighing of Evidence and the Determinants of Confidence. *Cognitive Psychology 24*, 411-435.

Griffith, R. M. (1949). Odds adjustments by American horse-race bettors. *American Journal of Psychology 62*, 290-294.

Grizelj, F. (2003). Collaborative knowledge management in virtual service companies - approach for tourism destinations. *Tourism 51*(4), 371-385.

Gross, K., Brewer, P. A., & Aday, S. (2009). Confidence in government and emotional responses to terrorism after September 11,2001. *American Politics Research, 37*(1), 107-128.

Hall, H., & Goody, M. (2007). KM, culture and compromise: Interventions to promote knowledge sharing supported by technology in corporate environments. *Journal of Information Science, 33*(2), 181-188.

Hall, R. (1993). A framework linking intangible resources and capabilities to sustainable advantage. *Strategic Management Journal, 14*(8), 607-618.

Hallin, C. A., & Marnburg, E. (2008). Knowledge management in the hospitality industry: a review of empirical research. *Tourism Management, 29*(2), 366-381.

Hallin, C. A., Øgaard, T., & Marnburg, E. (2009). Exploring qualitative differences in knowledge sources: A study of hierarchical effects of judgmental confidence and accuracy performance. *International Journal of Knowledge Management, 5*(4), forthcoming October, 2009.

Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston, MA: HBS Press.

Hansen, G. S., & Wernerfelt, B. (1989). Determinants of firm performance: the relative importance of economic and organizational factors. *Strategic Management Journal, 10*, 399-411.

Harlow, H. (2008). The effect of tacit knowledge on firm performance. *Journal of Knowledge Management, 12*(1), 148-163.

Hausch, D. B., Ziemba, W. T., & Rubinstein, M. (1981). Efficiency of the market for racetrack betting. *Management Science, 27*, 1435-1452.

Hilton University. (2006). *E-Learning*, April 2006, from http://www.hilton-university.com/e-learning/

Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal, 44*(1), 13-28.

Hitt, M. A., & Ireland, R. D. (1985a). Corporate distinctive, competence, strategy, industry and performance. *Strategic Management Journal, 6*, 273-293.

Hitt, M. A., & Ireland, R. D. (1985b). Strategy, contextual factors and performance. *Human Relations, 38*(8), 793-812.

Hoffman, J. J., Hoelscher, M. L., & Sherif, K. (2005). Social capital, knowledge management, and sustained superior performance. *Journal of Knowledge Management, 9*(3), 93-100.

Hogarth, R. M., & Makridakis, S. (1981). Forecasting and Planning: An Evolution. *Management Science, 27*(2), 115-216.

Horning, B. C. (1995). Information, capital and organization. *Econ.Theory, 5*, 263-275.

Horwath Consulting. (2005). *The Norwegian Hotel Industry 2005* (Industry report). Oslo, Norway: Horwath Consulting AS.

Hosseini, H. (2003). The arrival of behavioral economics: from Michigan, or the Carnegie School in the 1950s and the early 1960s. *Journal of Socio-Economics, 32*, 391-409.

Howrey, P. (2001). The predictive power of the index of consumer sentiment. *Brookings Papers on Economic Activity 1*, 175-216.

Hughes, P., & Morgan, R. E. (2007). A resource-advantage perspective of product-market strategy performance & strategic capital in high technology firms. *Industrial Marketing Management, 36*, 503-517.

Hunt, S. D. (2000). *A general theory of competition*. Thousand Oaks, CA: Sage.

Hunt, S. D., & Morgan, R. M. (1995). The resource-advantage theory of competition. *Journal of Marketing, 59* (April), 1-15.

Huseman, R., & Goodman, J. (1999). *Leading with knowledge.* London: Sage.

Huth, W. L., Eppright, D. R., & Taube, P. M. (1994). The Indexes of Consumer Sentiment and Confidence - Leading or Misleading Guides to Future Buyer Behavior. *Journal of Business Research, 29*(3), 199-206.

Ingram, P., & Baum, J. A. C. (1997a). Chain affiliation and the failure of Manhattan hotels, 1898-1980. *Administrative Science Quarterly, 42*, 68-102.

Ingram, P., & Baum, J. A. C. (1997b). Opportunity and constraint: Organizations' learning from the operating and competitive experience of industries. *Strategic Management Journal, 18*, 75-98.

Ingram, P., & Baum, J. A. C. (2001). Interorganizational learning and the dynamics of chain relationships. *Multiunit Organization and multimarket strategy, 18*, 109-139.

Irwin, T. (1999). *Classical Philosophy.* UK, Oxford: Oxford University Press.

Itami, H. (1987). *Mobilizing Invisible assets.* Cambridge, MA: Harvard University Press.

Janz, B. D., & Prasarnphanich, P. (2003). Understanding the antecedents of effective knowledge management: The importance of a knowledge-centered culture. *Decision Sciences, 34*(2), 351-384.

Jauncey, S., Mitchell, I., & Slamet, P. (1995). The meaning and management of yield in hotels. *International Journal of Contemporary Hospitality Management, 7*(4), 23-26.

Jones, W. T. (1980). *A history of Western philosophy. The classical mind.* (2nd ed. Vol. I). NY: Harcourt Brace Javanovich Inc.

Jowett, B. (2003). Meno by Plato: Project Gutenberg Free eBook Library.

Kahle, E. (2002). Implications of "new economy" traits for the tourism industry. *Journal of Quality Assurance in hospitality and tourism, 3*(3/4), 5-23.

Kahneman, D., & Riepe, M. W. (1998). Aspects of investor psychology. *The Journal of Portfolio Management, 24*(4), 52-65.

Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness. *Cognitive Psychology, 3*, 430-454.

Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review, 80*, 237-251.

Kane, H. C. M. (2003). Reframing the knowledge debate. With a little help from the Greeks. *Electronic Journal of Knowledge Management, 1*(1), 33-38.

Katona, G. (1951). *Psychological analysis of economic behavior* New York: McGraw-Hill Book Company, Inc.

Katona, G. (1960). *The powerful consumer.* New York: McGraw-Hill Book Company, Inc.

Katona, G., & Mueller, E. (1953). *Consumer attitudes and demand 1950-1952*. Ann Arbor, MI: University of Michigan Press.

Keren, G. (1987). Facing uncertainty in the game of bridge: A calibration study. *Organizational Behavior and Human Decision Processes, 39*, 98-114.

Kimes, E. (1989). Yield management: a tool for capacity constrained service firms. *Journal of Operations Management, 8*, 348-363.

Kotler, P., Bowen, J., & Makens, J. (1999). *Marketing for hospitality and tourism*. NJ: Upper Saddle River: Prentice-Hall International.

Kuhn, T. (1989). Objectivity, value judgments and theory choice. In B. B. &. R. Grandy (Ed.), *Readings in the philosophy of science*. NJ, Engelwood Cliffs: Prentice-Hall.

Lawrence, M., Edmundson, R., & O'Connor, M. (1985). An examination of the accuracy of judgmental extrapolation of time series. *International Journal of Forecasting, 1*, 25-35.

Lawrence, M., Edmundson, R., & O'Connor, M. (1986). The accuracy of combining judgmental and statistical forecasts. *Management Science, 32*, 1521-1532.

Lawrence, M., Goodwin, P., O'Connor, M., & Önkal, D. (2006). Judgmental forecasting: A review of progress over the last 25 years. *International Journal of Forecasting, 22*(3), 493-518.

Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review, 40*(3), 112-132.

Libby, R. (1995). The role of knowledge and memory in audit judgment. In R. H. A. & A. H. Ashton (Ed.), *Judgment and decision-making research in accounting and auditing* (pp. 176-206). NY: Cambridge University Press.

Liebeskind, J. P. (1996). Knowledge strategy and the theory of the firm. *Strategic Management Journal, 17* (Winter /special issue), 93-107.

Lord, R. G., & Maher, K. L. (1991). *Leadership and information processing: Linking perceptions and performance.* London: Unwin Hyman, Inc.

Ludvigson, S. G. (2004). Consumer confidence and consumer spending *Journal of Economic Perspectives, 18*(2), 29-50.

Massey, C., & Wu, G. (2005). Detecting regime shifts: The causes of under- and overreaction. *Management Science, 51*(6), 932-947.

Matsusaka, J. G., & Sbordone, A. M. (1995). Consumer Confidence and Economic-Fluctuations. *Economic Inquiry, 33*(2), 296-318.

McCorduck, P. (1979). *Machines who think: A personal inquiry into the history and prospects of artificial intelligence.* San Francisco, CA: W.H. Freeman and Company.

McGill, J. I., & van Ryzin, G. J. (1999). Revenue management: research overview and prospects. *Transportation Science, 33*(2), 233-256.

Medlik, S. (1990). *The business of hotels* (2nd ed.). Oxford: Heinemann.

Metcalfe, J. (2000). Metamemory. In E. T. F. I. M. Craik (Ed.), *The Oxford handbook of memory* (pp. 197-211). New York: Oxford University Press.

Metcalfe, J., & Shimamura, A. P. (1994). *Metacognition: knowing about knowing.* Cambridge, MA: MIT Press.

Miller, C. C., & Ireland, R. D. (2005). Intuition in strategic decision-making: Friend or foe in the fast-paced 21(st) century? *Academy of Management Executive, 19*(1), 19-30.

Muradoglu, G., & Önkal, D. (1994). An Exploratory Analysis of Portfolio Managers Probabilistic Forecasts of Stock-Prices. *Journal of Forecasting, 13*(7), 565-578.

Murphy, A. H., & Winkler, R. (1984). Probability forecasting in meteorology. *Journal of American Statistical Association 79*, 489-500.

Muthusamy, S. (2008). Minding the cognition: toward a strategic knowledge management for competitive advantage. *Strategic Change 17*, 145-153.

Nahaphiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242-246.

Nelson, M. W., Libby, R., & Bonner, S. E. (1995). Knowledge Structure and the Estimation of Conditional Probabilities in Audit Planning. *Accounting Review, 70*(1), 27-47.

Nonaka. (1991). The knowledge creating company. *Harvard Business Review, 72*(6), 104-114.

Nonaka, & Takeuchi. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. NY, New York: Oxford University Press.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York, NY: Oxford University Press, Inc.

Nosek, J. T. (2004). Group cognition as a basis for supporting group knowledge creation and sharing. *Journal of Knowledge Management, 8*(4), 54-64.

Parikh, J., Neubauer, F. F., & Lank, A. G. (1994). *Intuition: The new frontier of management*. Cambridge, MA: Blackwell.

Peteraf. (1993). The cornerstone of competitive advantage: A resource-based view *Strategic Management Journal, 14*(3), 179-191.

Phillips, L. D., & Edwards, W. (1966). Conservatism in a simple probability inference task. *Journal of Experimental Psychology 72*, 346-354.

Polanyi, M. (1962). *Personal knowledge: Towards a post-critical philosophy*. London: Routledge & Kegan Paul.

Polanyi, M. (1966). *The tacit dimension*. New York: Doubleday & Co.

Popper, K. R. (1968). *The logic of scientific discovery*. London: Hutchinson & Co.

Porter, M. E. (1980). *Competitive strategy*. New York: Free Press.

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review, May-June*, 79-91.

Prusak, L. (2001). Where did knowledge management come from? *IBM Systems Journal, 40*(4), 1002-1007.

Quinn, J. B. (1992). *Intelligent enterprise. A knowledge and service based paradigm for industry*. New York: The Free Press.

Rahn, W. M. (2000). Affect as information: The role of public mood in political reasoning. In A. Lupia, M. D. McCubbins & S. L. Popkin (Eds.), *Elements of reason* (pp. 130-151). Cambridge, UK: Cambridge University Press.

Rao, H. (1994). The social construction of reputation: Certification contests, legitimation, and the survival of organizations in the American automobile industry: 1895-1912. *Strategic Management Journal, 15*, 29-44.

Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General, 118*, 219-235.

Roos, J., Roos, G., Dragonetti, N. C., & Edvinsson, L. (1997). *Intellectual capital: navigating in the new business landscape.* London: Macmillan.

Ruhanen, L., & Cooper, C. (2004). Applying a knowledge management framework to tourism research. *Tourism Recreation Research, 29*(1), 83-88.

Ruiz-Mercader, J., Merono-Cerdan, A. L., & Sabater-Sanchez, R. (2006). Information technology and learning: Their relationship and impact on organisational performance in small businesses. *International Journal of Information Management, 26*(1), 16-29.

Russo, J. E., & Schoemaker, P. J. H. (1992). Managing Overconfidence. *Sloan Management Review, 33*(2), 7-17.

Saint-Onge, H. (1996). Tacit knowledge: The key to the strategic alignment of intellectual capital. *Strategy and Leadership* (March/April), 10-14.

Sanchez, R., Heene, A., & Thomas, H. (1996). *Dynamics of competence-based competition.* New York, NY: Elvesier.

Schein, E. H. (1985). *Organizational culture and leadership.* CA, San-Francisco: Jossey-Bass.

Schoemaker, P. J. H., & Russo, J. E. (1993). A Pyramid of Decision Approaches. *California Management Review, 36*(1), 9-31.

Schwartz, Z., & Cohen, E. (2004). Hotel revenue-management Forecasting: Evidence of expert-judgment bias. *Cornell Hotel and Restaurant Administration Quarterly, 45*(1), 85-98.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference.* Boston, MA: Houghton Mifflin Company.

Shiller, R. J. (2000). *Irrational exuberance*. Princeton, NJ: Princeton University Press.

Shirley, D. A., & Langan-Fox, J. (1996). Intuition: A review of the literature. *Psychological Reports, 79*, 563-584.

Shiu, H. J. (2006). The application of the value added intellectual capital coefficient to measure corporate performance: evidence from technological firms. *International Journal of Management 23*(2), 356-365.

Simon, H. (1986a). Rationality in Psychology and Economics. *Journal of Business 59*(4), 209-224.

Simon, H. (Ed.). (1986b). *Handbook of Behavioral Economics*. (Vol. A). Eds. B. Gilad and K. Stanley. Greenwich, Conn (pp. xvi).

Smidts, A., Pruyn, A., & van Riel, C. B. M. (2001). The impact of employee communication and perceived external prestige on organizational identification. *Academy of Management Journal, 44*(5), 1051-1062.

Smith, P. A. C. (2005). Knowledge sharing and strategic capital. The importance and identification of opinion leaders. *The Learning Organization, 12*(6), 563-574.

Smith, P. A. C. (2006). Enhancing strategic capital In *Handbook of Business Strategy* (pp. 15-199). Bradford: Emerald Group Publishing

Smith, S., & Allen, T. (1990). America's most admired corporations. *Fortune, 121,* 58-90.

Souleles, N. S. (2004). Expectations, Heterogeneous Forecast Errors, and Consumption: Micro Evidence from the Michigan Consumer Sentiment Surveys. *Journal of Money, Credit, and Banking, 36*(1), 39-72.

Spender, J.-C. (1996). Making knowledge as the basis of a dynamic theory of the firm. *Strategic Management Journal, 17* (Special Issue), 45-62.

Sperion Atlantic Enterprises LLC. (2009). *April*. Retrieved April 12, 2009, from http://www.spherion.com/pressroom/index.php?s=65&item=77

Stacey, R. (2001). *Complex responsive processes in organizations: Learning and knowledge creation*. London: Routledge.

Stavanger Travel. Retrieved May 15, 2006, from http://www.stavanger travel.com/index.cfm

Sternberg, R. J., Forsythe, G. B., Hedlund, J., Horvath, J. A., Wagner, R. K., Williams, W. M., et al. (2000). *Practical intelligence in everyday life*. NY: Cambridge University Press.

Sternberg, R. J., Wagner, R. K., & Okagaki, L. (1993). Practical intelligence: the nature and role of tacit knowledge in work and at school. In H. Reese & J. Pluckett (Eds.), *Advances in lifespan development* (pp. 205-277). Hillsdale, NJ: Erlbaum.

Strumpel, B., Morgan, J. N., & Zahn, E. (1972). *Human behavior in economics affairs*. Amsterdam, The Netherlands: Elsevier Scientific Publishing Company.

Surveys of Consumers. (2007). *Index calculations*. Retrieved January 2007, from http://www.sca.isr.umich.edu/

Sveiby, K. E. (1997). *The new organizational wealth: managing and measuring knowledge-based assets*. San-Francisco: Barrett-Kohler.

Sveiby, K. E. (2001). *What is knowledge management?* Retrieved February, 2006, from http://www.sveiby.com/Portals/0/articles /KnowledgeManagement.html

Sveiby, K. E., & Lloyd, T. (1987). *Managing know-how*. London: Bloomsbury.

Taube, P. M., Huth, W. L., & MacDonald, D. N. (1990). An Analysis of Consumer Expectation Effects on Demand in a Dynamic Almost Ideal Demand System. *Journal of Economics and Business, 42*(3), 225-236.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management *Strategic Management Journal, 18*, 509-503.

Travel Industry Association. (2007). *Current travel indicators-Traveller Sentiment Index*. Retrieved August 2007, from www.tia.org/researchpubs/travel_indicators_traveler_sentiment.htm

Tuomi, I. (2002). The future of knowledge management. *Lifelong Learning in Europe. VII*(2), 69-79.

Tversky, A., & Kahneman, D. (1974). Judgement under uncertainty: Heuristics and biases. *Science, 185*, 1124-1131.

Varela, F. J., Thompson, E., & Rosch, E. (1991). *The embodied mind: cognitive science and human experience*. Cambridge, MA: MIT Press.

Vaughan, F. E. (1979). *Awakening intuition* Garden City, NY: Anchor Press/Doubleday.

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von Krogh, G., Ichijo, K., & Nonaka, I. (2000). *Enabling knowledge creation. How to unlock the mystery of tacit knowledge and release the power of innovation.* UK, Oxford: Oxford University Press.

von Winterfeldt, D., & Edwards, W. (1986). *Decision analysis and behavioral research.* Cambridge, England: Cambridge University Press.

Wagner, R. K., & Sternberg, R. J. (1985). Practical Intelligence in Real-World Pursuits: The role of tacit knowledge. *Journal of Personality and Social Psychology, 49*(2), 436-458.

Walsh, G., & Beatty, S. E. (2007). Measuring customer-based corporate reputation: scale development, validation, and application. *Journal of Academic Marketing Science, 31*(1), 127-143.

Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review, 16*(1), 57-91.

Weick, K. E. (1995). *Sensemaking in organizations.* Thousand Oaks, CA.: Sage.

Weigelt, K., & Camerer, C. (1988). Reputation and corporate strategy: a review of recent research and applications. *Strategic Management Journal, 9*(5), 443-454.

Weinstein, N. D. (1980). Unrealistic optimism about future events. *Journal of Personality and Social Psychology 39*, 806-820.

Wernerfelt, B. (1984). The resource-based view of the firm. *Strategic Management Journal, 5*, 171-180.

Whetten, D. A. (2003). Organizational identity, *Corporate Identity and Marketing Conference.* Hamilton, Ontario.

Whitecotton, S. M. (1996). The effects of experience and a decision aid on the slope, scatter, and bias of earnings forecasts. *Organizational Behavior and Human Decision Processes, 66*(1), 111-121.

Wiig, K. M. (1997). Knowledge management: where did it come from and where will it go? *Expert Systems With Applications 13*(1), 1-14.

Wiig, K. M. (Ed.). (2000). *Knowledge horizons: the present and promise of knowledge management.* Woburn, MA: Butterworth-Heinemann.

Wilkie-Thomson, M. E., Onkal-Atay, D., Pollock, A. C., & Macaulay, A. (1999). The influence of trend strength on directional probabilistic currency predictions. *Technological Forecasting and Social Change, 61*(1), 79-80.

Winograd, T., & Flores, F. (1986). *Understanding computers and cognition: A new foundation for design*. Norwood, NJ: Ablex Publishing Corporation.

World Tourism Organization. (2009). *Historical perspectives of world tourism*. Retrieved April 2009, from http://www.unwto.org/facts/eng/historical.htm

Wright, G., & Ayton, P. (Eds.). (1987). *Judgmental forecasting*. GB, Wiltshire: John Wiley & Sons Ltd.

Yang, J. T. (2004a). Job-related knowledge sharing: comparative case studies. *Journal of Knowledge Management, 8*(3), 118-126.

Yang, J. T. (2004b). Qualitative knowledge capturing and organizational learning: Two cases in Taiwan hotels. *Tourism Management, 25*, 421-428.

Yang, J. T., & Wan, C. S. (2004). Advancing organizational effectiveness and knowledge management implementation. *Tourism Management, 25*(593-601).

Yates, J. T. (1990). *Judgment and decision-making*. Englewood Cliffs, NJ: Prentice Hall.

Yun, D. (2004). Knowledge management in hospitality and tourism. *Annals of Tourism Research, 31*(4), 1064-1065.

Önkal, D., Yates, J. F., Simga-Mugan, C., & Oztin, S. (2003). Professional vs. amateur judgment accuracy: The case of foreign exchange rates. *Organizational Behavior and Human Decision Processes, 91*(2), 169-185.