

## Don't just fix it, make it better! : using frontline service employees to improve after-sales service

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# **Don't just fix it, make it better!**

Using frontline service employees to improve after-sales service

Gielis van der Heijden

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# Don't just fix it, make it better!

Using frontline service employees to improve after-sales service

PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de  
Technische Universiteit Eindhoven, op gezag van de  
rector magnificus prof.dr.ir. C. J. van Duijn, voor een  
commissie aangewezen door het College voor  
Promoties in het openbaar te verdedigen op  
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door

Gielis van der Heijden

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|              | prof.dr. F. Langerak                      |

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Gielis van der Heijden, Tilburg, 2013



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# Chapter I

## Introduction

This introduction explains the importance of frontline service employees' (FSEs') boundary spanning position for continuously improving a manufacturer's after-sales service. It explores the upcoming research field of using FSEs for after-sales service innovation, which acknowledges that FSEs can be a useful source to develop new and refine existing products and services within firms. Insights from this field are used to formulate the research questions and specify the research aim. The introduction concludes with the dissertation's contributions and an outline of the three studies performed to address the research aim.

### 1.1. Manufacturers and after-sales service

Modern-day manufacturers increasingly attempt to differentiate themselves by augmenting their physical goods with repair and maintenance service, also known as *after-sales service*: the provision of service after a product has been sold to the customer (Cohen, Agrawal and Agrawal 2006; Guajardo, Cohen, Kim and Netessine 2012). Philips Healthcare, for instance, adds after-sales service to their medical equipment (e.g., MRI scans) to make sure hospitals can constantly rely on these products in their daily operations. Similar activities are employed by companies like Canon, Cisco and GE, who provide after-sales services with their printers, security systems, and turbines respectively. For many manufacturers, such as Rolls-Royce and Xerox, the after-sales service business has rapidly grown and now contributes 50% or more of total revenues. A Deloitte study pegs the revenues from after-sales services in the United States at approximately 11% of the gross domestic product (Glueck, Koudal and Vaessen 2011). This means that U.S. business customers spend approximately 1.5 trillion dollars every year on assets they already own (Koudal 2008).

Besides being profitable, after-sales service enables manufacturers to engage in *after-sales service innovation*, i.e., the continuous improvement of product and service offerings after the product has been released to the market. More specifically, while manufacturers try to develop their products in line with market needs as much as possible, product problems are often unavoidable since customer usage patterns are complex and tend to quickly change over time (Windahl and Lakemond 2010). After-sales service is a perfect way to learn about customers' dynamic business needs and constantly improve products and services in accordance to these needs. Customer contact moments, such as service calls or site visits, are essential for this; they can provide crucial information on recurring product problems and additional customer needs, but also provide the opportunity to implement subsequent product or service refinements (Ulaga and Reinartz 2011). Unfortunately, many manufacturers still focus on after-sales service to make extra profits and forget to leverage the full potential of after-sales service innovation.

### 1.2. The pivotal role of frontline service employees

Frontline service employees (FSEs), such as call center employees or field service engineers, may play a crucial role in after-sales service innovation by translating customer needs into improved service and product offerings. While FSEs are traditionally responsible for helping customers with their

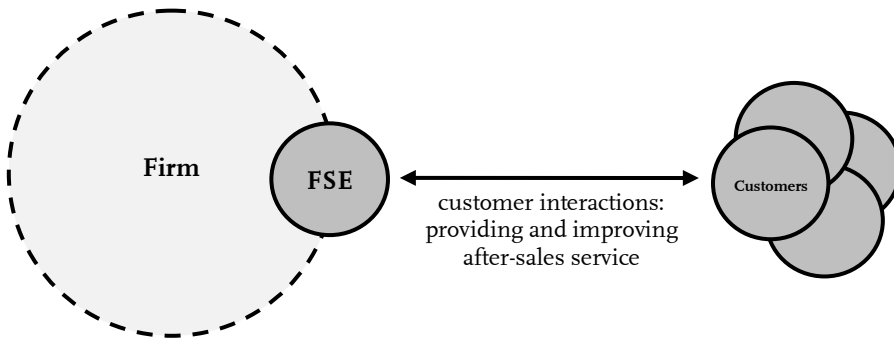
problems, FSEs' potential to exchange information with customers to improve the after-sales service is increasingly recognized. Due to their constant customer contact, FSEs see many customers who all have their own experiences with the firm's service and products. Customer interactions may reveal information on recurring problems, complaints, or even stimulate customers to give explicit suggestions on how products and services could be improved. A contemporary example comes from Southwest Airlines, a company that leads the way in stimulating frontline improvement initiatives (Gadiesh and Gilbert 2001); FSEs receive feedback ranging from very critical ("The boarding process is a joke") to very practical ("Why do you not provide [a] schedule between Tulsa & Boise? [...] This does not take [an] additional aircraft, the aircraft and flights are there, just a matter of a computer entry showing the connection") (Taylor 2008).

Spanning the boundary between the firm and customer, FSEs are in an ideal position to translate customer feedback into product adaptations and service refinements. FSEs are the few within an organization speaking the language of customers, leading them to truly understand their feedback (Melton and Hartline 2013). Frontliners' unique position also enables them to more easily think outside dominant organizational paradigms. Rather than direct colleagues, support staff or managers, customers are the primary actors FSE interact with on a day-to-day basis. By filtering out relevant customer feedback and combining it with their current knowledge and experience, FSEs can develop new solutions that better address customers' needs. They read the value of these new solutions directly from customer reactions to their improved service provision. Hence, apart from *providing* after-sales service, FSEs' boundary spanning position is also well-suited for exchanging information with customers and *improving* after-sales service. Figure 1.1 depicts how the FSE's boundary spanning position can be used for after-sales service innovation.

Yet, while the importance of FSEs' boundary spanning position for after-sales service innovation has been recognized by practitioners, it has hardly been addressed by empirical research. Research on frontline employees is plentiful, but has mainly focused on how FSEs can restore customer justice perceptions and satisfaction after a problem or complaint has occurred (Gremler and Gwinner 2008; Ma and Dubé 2011; Maxham and Netemeyer 2002). Most studies have looked at individual service encounters in consumer settings, such as hotels, restaurants and retail stores, where satisfying individual customers is needed to secure customer return intentions and

positive word of mouth. Research has examined various types of FSE behaviors, such as courtesy and rapport building, that are needed to create pleasant personal interactions (e.g., Liao 2007). In addition, several studies have examined the more general extra-role behaviors (ERBs), which refer to “discretionary” actions in which employees proactively go the extra mile for the customer (Netemeyer et al. 2005). However, it remains unknown how FSEs can *learn* from service situations and improve after-sales service over a wide portfolio of customers. In addition, it remains unknown what is the payoff of such improvement initiatives concerning customer evaluations of the after-sales service.

**Figure 1.1.** How the FSE’s boundary spanning position can be used for after-sales service innovation.



To find out how FSEs can use their boundary spanning position to continuously improve after-sales service and customer evaluations of the service, we will derive insights from an upcoming field of research which may contribute to an understanding of the role of frontline employees in after-sales service innovation. This literature acknowledges that FSEs can be a useful source of ideas for the development of new and refinement of existing products and services within firms. Insights from this literature can be used to formulate the research gaps and further specify our research objective. After that, we will provide an outline of how this dissertation will contribute to current literature.

### **1.3. The upcoming research field of using FSEs for after-sales service innovation**

During the last decade, a small but growing body of research has emerged about frontline employees as a source of product and service improvement. The central tenet is that FSEs are a good source of ideas due to their dynamic work environment, in which they are exposed to a large variety of customer needs and demands. Our literature review focuses on this emerging literature about the role of FSEs in after-sales service innovation. We explain criteria used for the literature review next.

We first carried out a computerized search by using multiple keywords (e.g., “frontline”, “customer contact”, “after-sales”, “innovation”, “learning”, “ideas”, “new service”, “new product”, “improvement”) in four databases, namely Proquest’s ABI/INFORM, Elsevier’s ScienceDirect, Scopus and Google Scholar. To be considered for inclusion a study had to: (1) explicitly mention frontline employees as a source of ideas, improvement or innovation and (2) be published in a highly ranked and peer-reviewed journal. Rather than only focusing on service employees, we included all studies on frontline employees in general. Although these may also include sales employees having different job descriptions and goals, insights from this field may still help to better understand the boundary spanning position of FSEs.

Subsequently, we systematically searched all the articles published between 1987 and 2013 in 18 renowned journals in the marketing, innovation, and management fields, namely Journal of Marketing (JM), Journal of Marketing Research (JMR), Journal of Product Innovation Management (JPIM), Journal of the Academy of Marketing Science (JAMS), Journal of Service Research (JSR), International Journal of Research in Marketing (IJRM), Industrial Marketing Management (IMM), Marketing Science, Journal of Retailing, Harvard Business Review (HBR), Journal of Management (JOM), Journal of Management Studies (JMS), Journal of Organizational Behavior (JOB), Journal of Applied Psychology (JAP), Academy of Management Journal (AMJ), Academy of Management Review (AMR), Management Science, and Organization Science. In total, we identified a total of 28 relevant articles.

Table 1.1 provides an overview of the studies published on using FSEs in after-sales service innovation and places each study in a specific stream. Three different literature streams can be identified: (1) frontline employee creativity, (2) frontline employee communication of insights and suggestions



to the firm, and (3) frontline employee involvement in formal improvement programs. We now discuss these streams in more detail.

The first literature stream focuses on frontline employee creativity, and specifically considers FSEs' ideas for improvement as a way to enhance firm competitiveness. Studies in this stream predominantly examine the individual and organizational drivers of employee creativity. Frontline employees often hold unstructured jobs and face a large diversity of customer requests. Dealing with such diverging requests limits the usefulness of detailed standard operating procedures, and instead requires frontliners to be flexible, creative, and think forward by developing ideas for improvement (e.g., Bettencourt 2004; Raub and Liao 2012). For example, a call center employee may think of new practices that enables him/her to help customers faster, or a field service employee may creatively develop new routines to repair products in a more thorough manner. Results show that personal attributes, such as the employee's self-efficacy, intrinsic motivation and commitment to the organization, are important drivers of creative idea development (e.g., Sousa and Coelho 2011). Some studies also identify organizational antecedents to creativity, such as the relationship quality between the employee and his/her manager (e.g., Bettencourt 2004). Another important finding is that frontline idea development is to a large extent caused by job complexity and task variety; having a complex and varied job can stimulate employees to think "outside the box" and look for improved ways of doing their job (Coelho and Augusto 2010; Coelho et al. 2011). Unfortunately, empirical evidence on the consequences of employee creativity remains scarce.

The second literature stream concentrates on frontline employees' initiatives to communicate their ideas and suggestions to the organization. In line with the first stream, this literature stream considers frontline employees as an important source of ideas, yet specifically focuses on how to motivate frontliners to *share* these ideas with their firm. Some studies focus on so-called "internal influence behaviors" (i.e., taking individual initiative in communications to the firm and coworkers to improve service delivery by the organization) and find job satisfaction and employee commitment to be important antecedents (Bettencourt and Brown 2003; Bettencourt et al. 2001; Lages and Piercy 2012). Another important finding is that idea sharing can also originate from suboptimal work situations, such as conflict (Bettencourt and Brown 2003), customer complaints (Luria et al. 2009) or employee dissatisfaction (Boichuk and Menguc 2013). Ye, Marinova and Singh (2012) are one of the few studies to also examine the consequences of FSE idea

sharing; they find it can trigger a learning process in which firm units learn from each other and update their work procedures accordingly.

Finally, the third literature stream takes a firm perspective and explores how companies can use frontline ideas in formal improvement programs. Firms increasingly recognize the importance of using external knowledge for innovation; frontline employees may play an important role in this because they constantly observe customer reactions to the firm's service and product offerings (Umashankar et al. 2011). As a result, FSEs often know what customers like or dislike, and what can and should be improved about the firm's products and services. Many companies therefore ask FSEs for their input for new product and service development programs. For example, Melton and Hartline (2010; 2013) examine FSE involvement in several stages of the new service development process. They find that frontline ideas are particularly relevant in the full launch stage, probably because FSEs can back-translate customers' new service experiences to the firm. Similarly, Ordanini and Parasuraman (2011) investigate the extent to which frontline workers are actively engaged in service innovation processes (e.g., idea screening and establishing priorities for strategies), and find that employee involvement positively impacts both the number and radicalness of a firm's service innovations. In sum, frontline ideas can serve as useful input for formal innovations implemented by companies.

Table I.1. Overview of the upcoming literature on using FSEs in after-sales service innovation.

| <i>Authors (year)</i>  | <i>Scientific approach</i> | <i>Sample and research context</i>   | <i>Level/unit of analysis</i>            | <i>Key concepts</i>  | <i>Key findings</i>   |
|--|----------------------------|--|--|--|---|
| <b>Literature stream 1: Frontline employee creativity</b>  |                            |  |  |  |   |
| Bettencourt (2004)   | Empirical                  | Sample of 183 frontline employees of a national retail sales organization        | Frontline employee                       | Change-oriented organizational citizenship behaviors (OCBs): Frontline efforts to identify and implement organizationally functional changes with respect to work methods or policies. | Leader-member exchange quality and learning goal orientation are direct positive antecedents of change-oriented OCBs.   |
| Coelho and Augusto (2010)  | Empirical                  | Sample of 460 service employees from the health industry                         | Frontline employee                       | Job characteristics: task autonomy, task variety, Employee creativity.   | Because service employees work in a complex work environment, they often need to be creative. Job characteristics interact with each other to affect creativity.  |
| Kelley, Longfellow and Malehorn (1996)   | Empirical                  | Sample of 122 bank employees and 185 insurance agents                            | Frontline employee                       | Creative discretion, routine discretion, deviant discretion  | Centralization and organizational support are positively related to creative discretion.  |
| Coelho, Augusto and Lages (2011)   | Empirical                  | Sample of 460 service employees from the health industry                         | Frontline employee                       | Employee creativity, role stress, job complexity, work motivation, relationship with supervisor and customers  | Role conflict, relationship with customers, and intrinsic motivation foster frontline creativity.   |
| Morieux (2011)   | Conceptual                 | -  | -  | Organizational complexity, coordination, cooperation, employee initiative  | In today's complicated work environment, organizations should stimulate individuals to be creative and cooperate to develop solutions in the field, rather than inducing more formal procedures.  |
| Raub and Liao (2012)   | Empirical                  | Sample of 900 service employees and their supervisors in 74 hotel establishments | Frontline employee / organizational unit | Initiative climate, self-efficacy, proactive customer service performance, customer satisfaction   | High self-efficacy and initiative climate within the organization enhance frontline employees' proactive customer service performance, referred to as the individual initiative to improvise and develop solutions. On an aggregated level (i.e., establishment level) this leads to customer satisfaction. |
| Sousa and Coelho (2011)  | Empirical                  | Sample of 266 bank employees   | Frontline employee                       | Creativity, work values, organizational commitment, customer orientation   | To remain competitive, firms need their frontline employees to be creative at work by generating novel and appropriate ideas. This study finds that frontline creativity is a function of personal values, organizational commitment and customer orientation.  |
| <b>Literature stream 2: Frontline employee communication of insights and suggestions to the firm</b> |                            |  |  |  |   |
| Bettencourt and Brown (2003)   | Empirical                  | Sample of 220 bank employees and 90 financial service employees                  | Frontline employee                       | Service delivery behaviors, external representation behaviors, and internal influence behaviors (i.e., making constructive suggestions)  | Service delivery, external representation, and internal influence are positively influenced by job satisfaction and commitment. Internal influence is positively influenced by role conflict, other behaviors are not.  |

|   |            |  |  |   |   |
|---|------------|--|--|---|---|
| Bettencourt, Gwinner and Meuter (2001)  | Empirical  | Sample of 236 service employees from diverse companies and 144 library service employees                 | Frontline employee                       | Service delivery behaviors, external representation behaviors, and internal influence behaviors (i.e., making constructive suggestions) | Job attitudes (such as perceived organizational support) account for most of the variance in representation behaviors; personality traits have an important influence on service delivery behavior; and customer knowledge largely explains internal influence behaviors. |
| Bell, Menguc and Widing (2010)  | Empirical  | Sample of 422 retail employees from 113 stores   | Frontline employee / store               | Employee learning, organizational learning, climate for learning, store performance   | Individual learning leads to organizational learning (i.e., sharing of knowledge), which in turn positively influences store performance.   |
| Boichuck and Menguc (2013)  | Empirical  | Sample of 384 retail employees from travel agents  | Frontline employee                       | Job dissatisfaction, voice behaviors, supervisor support, continuance commitment  | By listening to employees' problems and providing help, supervisors can expect employees to voice their ideas.  |
| Burns (2012)  | Empirical  | 281 store managers (Study 1) and 45 MBA students (Study 2)   | Managers                                 | Improvement-oriented voice, challenging voice, supportive voice, supervisor openness  | Managers view employees who engage in more challenging forms of voice as worse performers and endorse their ideas less than those who engage in supportive forms of voice.  |
| Lages and Piercy (2012)   | Empirical  | Sample of 740 frontline catering employees   | Frontline employee                       | Sharing constructive suggestions and ideas, ability to read customer needs, job satisfaction, organizational support                    | The major drivers of frontline ideas are employees' ability to read customer needs followed by affective organizational commitment and job satisfaction.  |
| Luria, Gal and Yagil (2009)   | Empirical  | Sample of 180 service employees from diverse organizations (also critical incidents and interviews used) | Frontline employee                       | Willingness to report service complaints (WRC), organizational citizenship behavior, service climate, empowerment                       | Service providers practice much discretion in their decision to report both informal and formal complaints. WRC is associated with organizational citizenship behavior, service climate, and empowerment.   |
| McCreary (2010)   | Conceptual | -  | -  | Knowledge exchange, coordination  | Input from employees and customers helps healthcare institutions to more sharply define problems and reduce levels of innovation risk.  |
| Nemhard and Tucker (2010)   | Empirical  | Sample of 1440 healthcare employees from 23 intensive care units   | Frontline employee / organizational unit | Deliberate learning activities, workgroup performance, workgroup experience, interdisciplinary collaboration                            | Deliberate learning activities within intensive care units are associated with better workgroup performance.  |
| Ye, Marinova and Singh (2012)   | Empirical  | Sample of 411 healthcare employees from 41 units   | Frontline employee / organizational unit | Knowledge generation, articulation and updating, Customer satisfaction and service efficiency.  | The sharing of new knowledge in the frontlines (knowledge generation and articulation) can lead to the implementation of improved unit practices which positively impact unit performance outcomes.   |
| <b>Literature stream 3: Frontline employee involvement in formal improvement programs</b> |            |  |  |   |   |
| Alam (2006)   | Empirical  | Sample of 52 managers of financial firms (interviews)  | New service development (NSD) project    | Interview themes: Process, benefits, strategies and problems of customer interaction.   | Frontline employees are useful in the process of customer interaction in the fuzzy front-end of NSD.  |
| Atuahene-Gima (1996)  | Empirical  | Sample of 275 marketing managers, new products managers, business development managers and CEOs          | Manufacturing / service firm             | Innovation performance, success factors   | Using a formal procedure to evaluate the results of the launch, training of sales people and frontline personnel, and effective marketing of the new service to them are all ingredients in effective launch process for new services.                                    |

|   |            |  |   |   |  |
|---|------------|--|---|---|--|
| Bohmer (2010)                                   | Conceptual | -  | -   | Day-to-day learning, knowledge, healthcare redesign, best practices   | Hospitals should use frontline employee experiences from the work floor as a way to formulate best practices.  |
| Brentani (2001)                                 | Empirical  | Sample of 115 service managers reporting on 276 NSD projects (diverse companies)                 | New service development (NSD) project   | Four dimensions that influence the success/failure of NSD projects: Product-related, market-related, company-related, and NSD process-related dimensions.               | Frontline employee expertise plays an important role in the success of NSD projects.   |
| Cadwallader, Jarvis, Bittrner and Ostrom (2010) | Empirical  | Sample of 328 sales and service employees from an automobile dealer network                      | Frontline employee (involved in the implementation of a new self-service innovations) | Employee feelings and beliefs regarding innovation, global and contextual motivation, motivation to participate in the implementation of the innovation.                | Employee motivation at different levels has significant direct and indirect effects on frontline employees' strategy implementation behaviors.   |
| Foss, Laursen and Pedersen (2011)               | Empirical  | Sample of managers from 169 firms  | Firm strategy   | Interaction with customers, Delegation of responsibilities, knowledge incentives, innovation performance.   | Firms engaging in more interaction with customers are more likely to enhance their innovative performance (i.e., innovative capacity). It is argued that frontline employees are important "gatekeepers" in this process.  |
| Melton and Hartline (2010)                      | Empirical  | Sample of 160 service executives responsible for service product development (diverse companies) | New service development (NSD) project   | Frontline employee involvement in NSD Stages: Design, development, and full Launch; Launch preparation  | Using frontline employees to generate new service ideas has no significant effect on NSD success factors or project outcomes. Rather, frontline employees are best used in the full launch stage where they can contribute to the quality of new service delivery.                   |
| Melton and Hartline (2013)                      | Empirical  | Sample of 160 service executives responsible for service product development (diverse companies) | New service development (NSD) project   | Frontline employee involvement in NSD Stages: Design, development, and full Launch; Launch effectiveness, service marketability, process efficiency, sales performance. | Frontline employee involvement only relates to service marketability, not the other outcomes. Influence of other factors, such as cross-functional team involvement and the firm's learning orientation, are also examined.  |
| Ordanini and Parasuraman (2011)                 | Empirical  | Sample of 91 hotel managers  | Innovation process  | Customer collaboration, business partner collaboration, employee collaboration, knowledge integration mechanisms, innovation volume and radicalness, firm performance.  | Collaborating with frontline employees enhances both innovation volume and radicalness, which in turn influence firm performance outcomes.   |
| Reay et al. (2013)                              | Empirical  | 6-year comparative case studies of 4 health care organizations                                   | Case studies  | Practice change, diffusion, habitualization, institutionalization.  | The authors set up an activity-focused process model of how new ideas can be transformed into front line practice.   |
| Umashankar, Srinivasan and Hindman (2011)       | Empirical  | Sample of 38 project managers of Fortune 500 high-technology firms                               | Internal customer service innovation (i.e., NSD project)                              | Agent (i.e., frontline employee) co-design and enablement, design acceleration, internal innovation magnitude   | The way firms design (agent codesign and design acceleration) and implement (agent enablement) an internal customer service innovation has direct and joint effects on the magnitude of benefits of the innovation to customer service agents, termed internal innovation magnitude. |

#### 1.4. Major research questions and research aim

In conclusion, researchers and practitioners increasingly realize that FSEs can do much more than solving problems and are an excellent source of ideas for improvement. Therefore, the first literature stream particularly focuses on the main drivers of FSEs' ideas for improvement. In turn, the second literature stream examines how FSEs can be motivated to share these ideas with their organization. Finally, the third literature stream focuses on how organizations can use these frontline ideas for their formal innovation programs. Although these literature streams thus seem to nicely complement each other, there still remain some important questions unanswered. We discuss these questions next.

First, while all literature streams consider it important for FSEs to generate and implement ideas for improvement (e.g., Coelho et al. 2011; Lages and Piercy 2012), they do not explain how such activities can be most effectively combined with FSEs' traditional problem solving duties. More specifically, while implementing ideas for improvement may benefit after-sales service performance regarding both the efficiency (i.e., completing service encounters within set time standards) and quality (i.e., providing a durable solution to customer problems) of the service, generating ideas also takes time and effort since it requires FSEs to obtain additional information from customers (Alam 2006; Melton and Hartline 2010). This may go at the expense of FSEs' normal problem solving duties, which can be detrimental to the FSE's after-sales service performance. Until now, such performance consequences remain unexamined. Yet, it may have important implications for the manufacturer, which faces financial consequences if it cannot meet the after-sales service performance agreements included in customer service contracts (usually in terms of service visit duration and product uptimes after repair). Hence, more insight is needed in how FSEs generate and implement ideas during customer interactions, and how this affects the manufacturer's after-sales service performance. In sum:

**Research question (a):** *How do FSEs generate and implement ideas for improvement and how does this affect after-sales service performance?*

Besides influencing after-sales service performance, FSEs' ideas for improvement may also impact customer perceptions of the service. Yet, no

literature stream pays attention to how FSE idea generation and implementation is perceived by customers during service encounters. While possible performance improvements as a result of idea implementation could benefit customer satisfaction with the service, the additional effort and time needed to generate ideas may not always be valued. This is especially true since customers' input is often needed to develop ideas for improvement. On the one side, customers may appreciate doing business with a firm that strives to improve its products and services through frontline interactions. On the other side, they may perceive it as a waste of their precious time or feel that their resources are being "misused" in favor of the firm rather than themselves (Campbell and Kirmani 2000). It is important to shed light on this issue, since achieving innovation at the cost of dissatisfied customers is unlikely to be a sustainable business model. Therefore, the second research question is:

**Research question (b):** *How do customers evaluate FSE idea generation and implementation during the after-sales service?*

Finally, if FSE ideas indeed pay off for both after-sales service performance and customer satisfaction, it is extremely useful for managers to know which FSEs are best capable of generating and implementing them. Unfortunately, research on this issue remains scant – especially in literature stream 2 and 3 where virtually every study implicitly assumes that due to their position all FSEs have the opportunity to innovate (e.g., Alam 2006; Brentani 2001). Yet, while some FSEs are eager to learn and think "outside the box", others may be more likely to follow the standardized routines as prescribed by the organization. Similarly, although several studies in literature stream 1 (e.g., Coelho and Augusto 2010; Coelho et al. 2011) argue that complex and conflicting work situations stimulate FSE creativity, this may not be true for every employee; while some FSEs see complex situations and setbacks as learning opportunities, others see it as a threat to their performance. In addition, FSEs may strongly differ in their motivation to implement ideas; while FSEs may see the implementation of ideas instrumental for improving their performance, they can also regard it as risky endeavor that will use up resources they could otherwise employ to optimize familiar task components. Shedding light on this issue is particularly important for human resource

managers responsible for the recruitment and selection of service employees. The suitability of people for service functions is commonly gauged by assessing particular knowledge and skills, yet assessing workers' capability to innovate may be equally important in times where employees' need to look beyond standardized routines and constantly anticipate changing customer needs. The third research question therefore is:

*Research question (c): Which FSEs are best capable of generating and implementing ideas for improvement?*

In sum, while previous research has recognized the innovation potential of FSEs, it remains unknown what is the impact of FSE ideas on after-sales service performance and customer evaluations of the service. In addition, it remains unexplored which employees are best capable of being innovative and how this should be used by managers. In line with our three research questions, the research aim of this dissertation is as follows:

*The research aim is to examine the impact of FSEs' ideas for improvement on (a) after-sales service performance and (b) customer evaluations of the service, and (c) which FSEs are best capable of generating and implementing ideas for improvement.*

### 1.5. Contributions to research

This dissertation contains three empirical studies (Chapters 2, 3 and 4) that address the research aim. Each chapter takes its own unique perspective on the matter. More specifically, Chapter 2 takes an **FSE work role perspective** by examining how FSE idea generation and implementation can be most effectively combined with FSEs' traditional problem solving duties to affect FSE service performance. Chapter 3 takes a **customer relationship perspective** by examining the impact of FSE idea generation and implementation on customer evaluations of the service. Finally, Chapter 4 takes a **service management perspective** by examining how managers can select the FSEs best capable of generating and implementing ideas for improvement. We now discuss the unique contributions of each chapter in more detail. In addition,



Table 1.2 shows how each chapter contributes to the research questions as well as the literature streams identified.

**1.5.1. Chapter 2 - Recover and discover: Using frontline service employees to improve recovery performance**

Chapter 2 takes an FSE work role perspective by examining how FSE idea generation and implementation can be most effectively combined with FSEs' traditional problem solving duties. Specifically, it examines (i) the FSE behaviors needed to generate ideas for improvement during service interactions, (ii) under which conditions these behaviors are most likely to lead to ideas, and (iii) the impact of these ideas on FSEs' performance. Building on role theory (Solomon et al. 1985), the study models the FSE's traditional recovery service role (i.e., activities that help to provide the customer with an efficient and thorough solution to their problem) together with an additional innovation role (i.e., activities aimed at gathering customer experiences and the subsequent creation of ideas for improvement). The aim is to examine the impact of FSEs taking up an innovation role on their performance. Our performance outcomes of interest are efficiency performance (i.e. the extent to which an FSE can complete service encounters within set time standards) and quality performance (i.e., the extent to which the FSE provides a durable solution to customer problems). In line with prior literature, we observe a trade-off between these two performance outcomes, as working fast causes FSEs to cut corners and overlook parts of a problem, thereby compromising quality performance. Because ideas for improvement may have an important function in alleviating this negative relationship, we examine the conditions under which idea generation can be optimized. Building on insights from creativity research, we consider contextual variety, such as task diversity, task complexity, and variety in social contacts crucial for FSE idea development (e.g., Coelho and Augusto 2010; Coelho et al. 2011). We include these features in the form of FSEs' service portfolio (i.e., product diversity, customer familiarity, and failure complexity) and examine the conditions under which engaging in an additional innovation role is most beneficial for FSEs their performance.

**1.5.2. Chapter 3 - Using frontline service employees as information interfaces: Does it compromise or enhance customer satisfaction?**

Chapter 3 takes a customer relationship perspective by examining the impact of FSE idea generation and implementation on customer evaluations of the

service. FSEs may act as information interfaces, not only by enhancing their performance through feedback seeking and idea implementation, but also by communicating their ideas to customers in a positive way. Building on boundary spanning theory (Adams 1976), we identify two information interface behaviors (IIBs) feedback seeking and brand promotion behavior. The aim of the study is to examine how these IIBs relate to customer satisfaction, and how FSEs can be motivated to perform them. Importantly, we argue that ideas for improvement are crucial in determining the effectiveness of IIBs for customer satisfaction. Moreover, the impact of IIBs on customer satisfaction may be highly dependent on how well the FSE and customer know each other (i.e., customer familiarity). The study also contributes to research by considering FSEs' organizational identification (OI: employee perceptions of oneness with their organization; Ashforth and Mael 1989) as an important factor influencing the effectiveness of IIBs and ideas; while strong identifying FSEs are more likely to engage in IIBs than their less identifying counterparts, a high OI can also make frontliners conform to organizational paradigms and constrains them to think "outside the box" (Madjar et al. 2011), thereby inhibiting FSE idea development.

### **1.5.3. *Chapter 4 - Turning role stress into performance progress: Improving service delivery through frontline employees' ideas***

Chapter 4 takes a service management perspective by examining how managers can select the FSEs best capable of generating and implementing ideas for improvement. It builds on the productivity-quality trade-off identified in Chapter 2, as we observe that managers increasingly want FSEs to work efficiently but also go the extra mile to provide customers with high quality service. These competing expectations cause FSEs to experience uncertainty and conflict in terms of how to perform their jobs, a phenomenon known as role stress (Hartline and Ferrell 1996). Yet, FSEs may differ in their reactions to role stress; while role stress may harm employee performance, research has also argued that it may also trigger FSEs to think of improved ways to overcome the suboptimal work situation. The aim of the study is to examine which types of FSEs are most likely to react to role stress in a constructive manner by generating and implementing ideas for improvement. Building on self-regulation theory (Kanfer 1990), we identify two relevant predispositions influencing FSE reactions to role stress: a learning and a performance orientation (Dweck and Leggett 1988). A learning orientation is a person's tendency to try to develop competence and gain skills. A performance

orientation is an individual's inclination to demonstrate and validate his or her competence to others. These disposition may not only influence the extent to which FSEs generate ideas as a result of role stress, but may also affect the extent to which FSEs are willing to implement their ideas to improve their performance. For managers, it is crucial to know about such personality differences if they want to correctly match the right service employee with the right type of service job.

**Table 1.2.** Outline of the three studies in this dissertation.

|                                    | <b>Chapter 2</b>  | <b>Chapter 3</b>  | <b>Chapter 4</b>   |
|------------------------------------|---|---|--|
| <b>Research perspective taken:</b> | <i>FSE work role perspective:</i><br>How FSE idea generation and implementation can be most effectively combined with FSEs' traditional problem solving duties.   | <i>Customer relationship perspective:</i> How FSE idea generation and implementation affect customer evaluations of the service.  | <i>Service management perspective:</i> How managers can select the FSEs best capable of generating and implementing ideas for improvement.   |
| <b>Theory used:</b>                | Role theory (Solomon et al. 1985)   | Boundary-spanning theory (Adams 1976)   | Self-regulation theory (Kanfer 1990)   |
| <b>Addresses...</b>                | Research question (a), because the study examines how FSE performance can be optimized through the generation and implementation of ideas for improvement. The study specifically focuses on efficiency and quality performance as the outcomes of interest.  | Research question (b), because the study examines how FSEs can use their ideas to enhance customer satisfaction with the service.<br><br>Partly research question (a), as the study considers service improvement through FSE ideas as one of the mechanisms to achieve customer satisfaction.  | Research question (c), because the study examines which FSEs are best capable of generating and implementing ideas for improvement, and how this can be influenced by managers.<br><br>Research question (a), as the study builds around optimizing efficiency and quality performance as a result of role stress.   |
| <b>Contributes to...</b>           | <i>Literature stream 1:</i><br>This literature stream has rarely considered the consequences of FSEs' creativity. Moreover, while it suggests that certain work conditions, such as task variety and job complexity, trigger FSE creativity directly, research has argued that work conditions often do not impact job outcomes in isolation, but rather interact with employee behavior to cause an effect. We therefore include these features as part of the FSEs' service portfolio, which may greatly affect the effectiveness of seeking customer feedback.<br><br><i>Literature stream 2 and 3:</i><br>While these literature streams consider frontline ideas as useful input for organizational innovation processes, it remains unknown how ideas for improvement impact FSE performance. | <i>Literature stream 1:</i><br>This literature stream has rarely considered the consequences of FSEs' creativity. Moreover, it forgoes the peculiarities of FSEs' boundary spanning position; little is known about how FSEs should shape the interaction with their customers to creatively enhance customer satisfaction with the service.<br><br><i>Literature stream 2 and 3:</i><br>While these literature streams consider frontline ideas as useful input for organizational innovation processes, it remains unknown how FSE ideas for improvement impact customer satisfaction with the service. | <i>Literature stream 1:</i><br>This literature stream argues that complex and conflicting work situation stimulate FSE creativity. We argue that this does not account for every employee; while some FSEs see complex situations and setbacks as learning opportunities, others see it as a threat to their performance.<br><br><i>Literature stream 2 and 3:</i><br>Virtually every study in this stream implicitly assumes that due to their position all FSEs are in the opportunity to innovate. We show that there may be large differences between employees with regard to their capability to innovate. |

## 1.6. Data used for this dissertation

### 1.6.1. *Research context*

Given the complexity of the after-sales service process, it is necessary to first provide a better understanding of the research context. We conducted an extensive data collection within the service division of a global manufacturer of print and document management solutions. The value propositions of the company to the market range from relatively small copiers to highly complex, room-filling print solutions. Its FSEs specialize in delivering onsite repair services. Similar to other service sectors, this industry operates in a dynamic and competitive environment (Windahl and Lakemond 2010); the firm's FSEs must maintain a balance between efficiency and quality by conducting as many service visits per day as possible while working accurately and assuring optimal post-visit product functioning. FSEs physically visit multiple customers per week and have regular face-to-face interactions that provide opportunities to engage in interactions with customers. FSEs are directed by managers, who all have their own set of employees they are responsible for. Each FSE, in turn, has his/her own portfolio of product types (i.e., types that they are certified to repair) they are responsible for. In total, there are more than a hundred different product types, of which the products are located at more than a thousand different customers. In sum, there is a chain of four potential sources of information for this dissertation: managers – FSEs – products – and finally, customers (also see Figure 1.2).

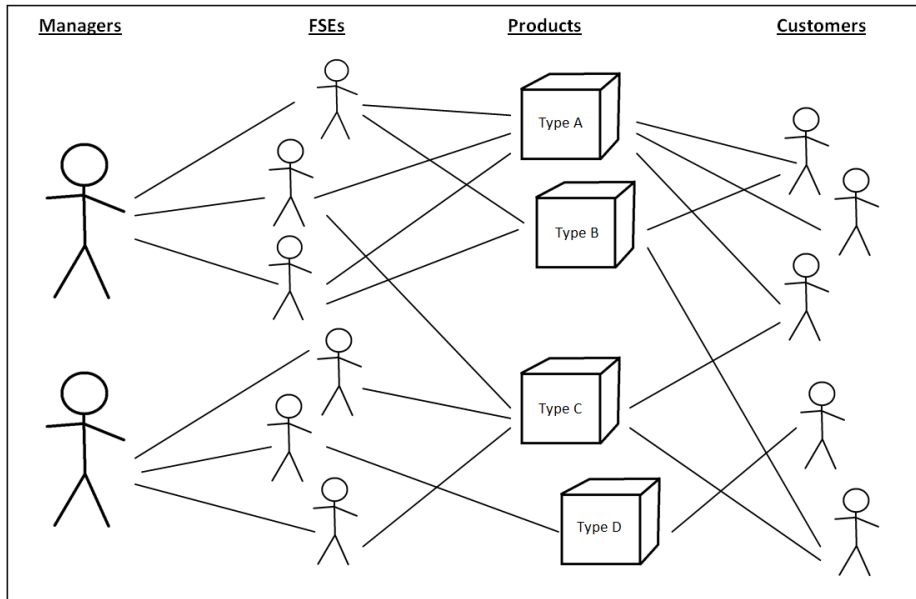
### 1.6.2. *Data collection*

To get insight in the service process where managers guide FSEs, who service different product types at different customers, we decided to collect information on each entity separately. In other words, while it may have been possible to ask FSEs on their service performance, or their potential to satisfy their customer base, a more truthful picture was obtained by collecting and matching different (objective and subjective) data sources. Four extensive data collections took place, which were linked into one database:

1. *FSE survey data.* Before collecting the survey data, we performed a number of semi-structured interviews with FSEs and managers. We joined several FSEs on field trips (i.e., ethnographic part of the data collection) to get a good view of FSEs' work. In these trips, we also

interviewed customers, to understand which elements of service provision they find important. The FSE survey data were personally collected by visiting FSE meetings with their supervisor throughout the country. During these meetings each FSE was handed over a paper-and-pencil survey. Over 20 meetings were visited. From the total of 184 FSEs, we managed to obtain 134 responses, yielding a response rate of 72.8%.

**Figure 1.2.** Research context.



2. *Objective performance data (longitudinal).* The company monitors FSE performance using a complex IT system aggregating product information to the employee-level. During every single service-visit at a customer's location, the company monitors the time an FSE needs to repair the machine (i.e., efficiency performance). They also record the uptime of products after the FSE performed his/her repair (i.e., quality performance), in other words: how long does a repair last? Because of the different types of products (which all have their own complexity), all these measures need to be standardized relative to product specific uptimes and repair times (as percentages). These percentages per service job are then aggregated and added to each FSE's personal

performance file. We collected these objective performance data for all FSEs over a time period of 10 months following the survey. Hence, we have a longitudinal design.

3. *Customer survey data (longitudinal)*. Customer satisfaction responses were collected using an online survey that was built and installed for some years by the firm's customer intelligence department. We managed to obtain a total of 537 customer responses for 133 of our 134 FSEs in a time frame of 10 months. This is an average of 4 responses per FSE when aggregated to employee-level. Again, we have a longitudinal design vis-à-vis the survey.
4. *Manager survey data*. Because we wanted to collect information on the relevance and usefulness of FSEs' ideas for improvement (one of the core constructs in this dissertation) for validation purposes, we asked 14 managers to rate the ideas provided by FSEs. To do so, we visited these managers across the country; they provided information for a total of 133 FSEs. In addition to this data collection effort, we also organized a number of separate top-level management meetings to discuss preliminary results of the research.

There are several reasons why it is important to gain information from every source described above. First, we want to obtain a high-quality, holistic, and – most importantly – realistic view of the frontline innovation mechanisms and payoff. Therefore, we need not only an empirical examination of FSEs' behaviors, ideas, and traits, but also of their performance, customer satisfaction and management evaluations. Obtaining the data in another way would have led to construct and face validity issues. For example, asking FSEs for a judgment of their own performance or customer satisfaction is less valid than assessing it using objective performance data and firm records of customer satisfaction data. Unfortunately, many studies still take the former approach. In addition, by combining different data sources, we were able to check the robustness of other measures (e.g., the validity of ideas for improvement was checked by also assessing manager evaluations of FSEs' ideas). Moreover, assessing data only from FSEs would lead to social desirability and common method bias. Finally, combining cross-sectional with longitudinal data enabled us to model and reliably test causal relationships. We are aware of the disadvantages of

collecting data within one company, of which the most important is the limited generalizability. Although we believe that the process that takes center stage in this dissertation is exemplary for many organizations, we are aware of generalizability concerns and address it in the discussion of our studies.

An overview of the variables used can be found in Appendix I of this dissertation.





# Chapter 2

## Recover and discover: Using frontline service employees to improve recovery performance\*

This study examines how frontline service employees (FSEs) can learn from recovery services and improve their performance accordingly. While research recognizes that FSEs can fulfill an innovation role by sourcing customer knowledge and developing ideas for performance improvement, it remains unclear whether such a role benefits or impairs the FSE's primary recovery service role of providing efficient and thorough solutions to customer problems. This research models both FSE roles and explores under which conditions it is beneficial for FSEs to engage in an additional innovation role. The model is tested using survey and objective data from 134 FSEs. PLS results reveal that the innovation role is detrimental because sourcing knowledge from customers takes time and effort, but also beneficial because knowledge sourcing triggers FSEs to develop ideas for improvement, which positively influence their efficiency and quality performance. Managers can strengthen these positive effects of knowledge sourcing by optimizing an FSE's service portfolio (i.e., the combination of products, customers, and failures an employee is responsible for), which leverages the effects of knowledge sourcing on ideas for improvement.

*\* This research was conducted in collaboration with Jeroen Schepers, Edwin Nijssen and Andrea Ordanini. An adapted version of this chapter is published as: Heijden, G.A.H. van der, Schepers, J.J.L., Nijssen, E.J. and Ordanini, A. (2013). Don't just fix it, make it better! Using frontline service employees to improve recovery performance. *Journal of the Academy of Marketing Science*, 41(5), 515-530. Earlier versions of this study were presented at the 24th Doctoral Colloquium of the EMAC European Marketing Academy Conference, May 24-27 2011, Ljubljana, and the SERVSIG International Service Research Conference, June 7-9 2012, Helsinki.*

### 2.1. Introduction

Modern-day manufacturers, such as Cisco, GE Healthcare, and Canon, realize that successfully managing the after-sales market for complex business-to-business (B2B) goods is crucial for safeguarding customer satisfaction and company profits (Cohen et al. 2006). The maintenance and repair of compound, customized systems requires firm-specific expertise and firmly ties customers to the manufacturer's business, which is increasingly typified as providing total solutions (Windahl and Lakemond 2010). Therefore, offering recovery services (i.e., services to fix products after a breakdown<sup>1</sup>) can be more profitable than selling the product itself.

FSEs are central to the delivery of recovery services. Their problem-solving actions minimize hiccups in the customer's operations and help their firm to live up to predefined performance standards (Ulaga and Reinartz 2011). Failing to deliver contractual promises can lead to (financial) penalties and customer loss. As contracts tend to be won by the firm that guarantees fast service and reliable product repairs, companies traditionally expect FSEs to fulfill a *recovery service role*: activities that help to provide the customer with an efficient and thorough solution to the problem (Bettencourt and Brown 2003; Liao 2007). In line with the recovery service role's focus, recovery performance metrics monitored by many manufacturers include efficiency performance (i.e., the extent to which an FSE can complete service encounters within set time standards) and quality performance (i.e., the extent to which the FSE provides a durable solution to customer problems).

Remarkably, little attention has been given to how frontline employees can improve their recovery performance and help the firm to deliver superior recovery service to stay competitive. Scholars from various fields, including marketing, new product development, and organizational learning, suggest that frontline employees are an important, underrated source of ideas for improvement (Melton and Hartline 2010; Umashankar et al. 2011). Plentiful face-to-face encounters provide FSEs with excellent opportunities to gather firsthand customer reactions, create ideas to revise existing routines, and realize a better recovery performance accordingly. This constitutes a new FSE *innovation role*: activities aimed at gathering customer experiences and the subsequent creation of ideas for improvement, i.e., novel responses that provide improved solutions to FSEs' service demands and tasks (West 2002).

However, engaging in an innovation role can also have a downside for FSEs. Actively accessing and digesting customer knowledge takes time and mental resources which FSEs cannot spend on efficiently solving the

customer's problem. Hence, it remains unknown whether frontline-led improvement initiatives are always valuable for the firm. The aim of this research is to explore to what extent FSEs may fulfill an innovation role in addition to their traditional recovery service role, and under which conditions this innovation role is most likely to result in recovery performance improvements.

Our research offers three important contributions. First, while prior research focuses on how FSEs may restore justice perceptions and customer satisfaction after a failure (Gremler and Gwinner 2008; Ma and Dubé 2011; Maxham and Netemeyer 2002), it has largely overlooked the fact that FSEs can learn from recovery situations. Literature recognizes that obtaining customer feedback in the frontlines allows firms to keep up with ever-changing market demands and can be done by employees behaving proactively (e.g., Challagalla et al. 2009). However, empirical evidence remains scant. This study therefore introduces FSE knowledge sourcing as a key concept in an FSE's innovation role. We define knowledge sourcing as the FSE's proactive behavior of tapping into customers' experiences with the firms' products and services through personal, face-to-face interactions (Gray and Meister 2004; Leiponen 2005). This may lead to retrieving unique information that is unaffected by dominant organizational paradigms, which allows employees to more quickly learn from service jobs and develop ideas for improving their efficiency and quality performance. We therefore extend the recovery literature with an innovation perspective.

Second, building on role theory (Solomon et al. 1985), we investigate whether and how an innovation role can be combined with the FSE's recovery service role. The latter role requires core recovery behavior: solving customer problems in a courteous, responsive, and prompt manner (Bettencourt and Brown 2003; Liao 2007). While taking up the innovation role may help FSEs to realize greater efficiency and quality performance, it is also time consuming because knowledge sourcing may reduce the efficiency of one's core recovery behavior. Existing studies have focused on either recovery behavior or obtaining information from customers, but this research addresses the potential trade-off that exists between these two activities.

Third, the current study identifies the conditions under which FSEs should engage in an innovation role. Because an FSE's innovation role may both impair and benefit recovery performance, managers need to know under which work conditions the beneficial effects prevail. We argue that the value of the innovation role is contingent on characteristics of the FSE's service

portfolio, defined as the combination of products, customers, and failures that an employee is responsible for. Creativity literature considers contextual variety, such as task diversity, task complexity, and variety in social contacts crucial for idea development because it motivates employees to think “outside the box” (George 2007; Shalley et al. 2004). Therefore, we consider product diversity, familiarity with customers, and failure complexity as our service portfolio characteristics of interest. While prior marketing research has recognized the importance of portfolios for firm-level innovation (e.g., Wuyts, Dutta and Stremersch 2004; Yli-Renko and Janakiraman 2008), no study has examined how managers can optimize frontline performance by adapting individual service portfolios.

## **2.2. Theoretical background**

### **2.2.1. FSEs as a source of ideas**

Firms increasingly recognize the importance of external knowledge sourcing for value creation and competitive advantages (Im and Rai 2008; Umashankar et al. 2011). Southwest Airlines, for example, owes its success partly to the strategic principle of empowering the right FSEs to ask for customer feedback and use this feedback for product and service improvement (Gadiesh and Gilbert 2001). While some studies examine employee involvement in New Product and Service Development (NPD/NSD), there is also the recognition that FSEs serve a crucial purpose in improving recovery performance (Robinson and Schroeder 2009; Vandenbosch et al. 2006). FSEs are important knowledge brokers between customers and the firm, because the nature of their job gives them an ideal position from which to access, filter, and translate sticky knowledge possessed by dispersed customers (e.g., Rothaermel and Hess 2007). For FSEs who repair product failures, this position becomes particularly salient, because failures represent deviations from the expected course of action, and addressing deviations offers a fertile ground for ideas for improvement. For instance, new solutions to existing product problems may be creatively generated, or novel service procedures that benefit the overall speed of the recovery process may be acted out.

### **2.2.2. FSE roles**

According to role theory (Solomon et al. 1985), sourcing knowledge from customers and generating ideas accordingly constitute a role: a set of coherent behaviors and its associated outcomes (Goolsby 1992). This study examines the innovation role in relationship to FSEs’ traditional recovery service role,

which comprises core recovery behavior aimed at achieving an efficient and high-quality solution to customers' problems (cf. Bettencourt and Brown 2003; Liao 2007). Prior literature offers two conflicting views about the effectiveness of employees with multiple roles. One stream emphasizes that multiple roles compete for resources and thus tend to be accompanied by adverse performance consequences (Singh 2000). Time and effort spent interacting with customers to gather new knowledge cannot be spent recovering a product failure, which is detrimental for efficiency performance. Another stream instead argues that different roles can be combined successfully if they share a common ground, through role accumulation (Sieber 1974; see also Keaveney and Nelson 1993). This theory argues that each employee can effectively transfer resources between roles to meet each role's performance objectives (Bettencourt and Brown 2003; Goolsby 1992). During recovery services, FSEs can combine courteous problem solving with knowledge sourcing, because both take place at the face-to-face encounter between the FSE and the customer. The additional time spent on knowledge sourcing may be recouped by implementing ideas for improvement, which benefits the FSE's ultimate recovery performance.

### **2.2.3. *The importance of the FSE's service portfolio***

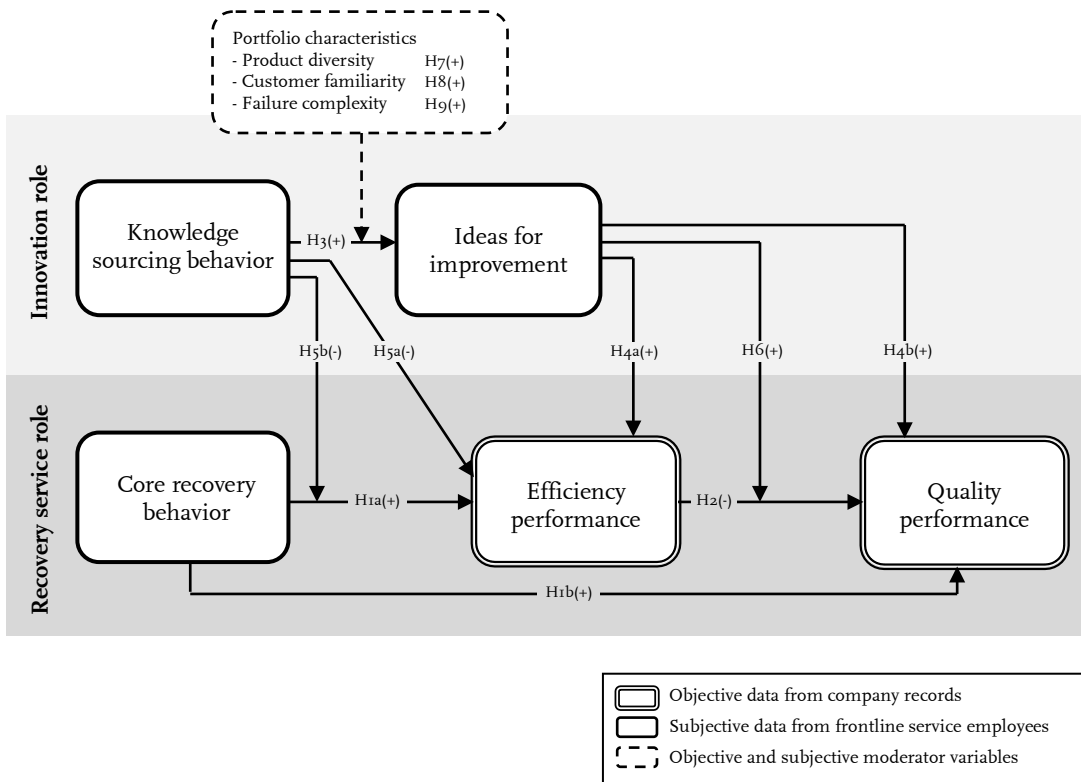
As role theory posits both detrimental and beneficial effects of employees engaging in multiple roles, it is important to know how the beneficial effects can be optimized. Literature in the field of organizational behavior and psychology considers work variety as a crucial element in predicting employee creativity (George 2007; Shalley et al. 2004). Managers may orchestrate the variety in an FSE's work context by adjusting the diversity of product types an employee should service, by matching FSEs to (un)familiar customers, and by allocating employees to more or less complex service jobs. In this way, managers have an important tool to stimulate FSE idea development through knowledge sourcing and thus to optimize the value of FSEs' innovation role. We discuss our conceptual framework next.

## **2.3. Framework and hypotheses**

The conceptual framework in Figure 2.1 depicts the FSE's recovery service and innovation roles, on the basis of their associated behaviors: core recovery and knowledge sourcing behavior, respectively. Efficiency and quality performance represent the outcomes of interest. In line with role theory, we predict that knowledge sourcing behavior negatively influences efficiency performance

and negatively moderates the core recovery behavior–efficiency performance relationship (i.e., detrimental effects) but enhances efficiency and quality performance through ideas for improvement (i.e., beneficial effects). These ideas also moderate the efficiency–quality performance relationship. Finally, we explore the moderating effects of different configurations of the service portfolio on the relationship between knowledge sourcing and ideas for improvement of the FSE. An overview of the construct definitions can be found in Table 2.1.

Figure 2.1. Conceptual model



**Table 2.1.** Key constructs and definitions

| Construct                          | Definition   |
|------------------------------------|--|
| <i>Core recovery behavior</i>      | The frontline service employee's behavior of solving customer problems in a courteous, responsive, and timely manner. Problem solving operates together with courtesy to provide the customer with an efficient and thorough solution to the problem.  |
| <i>Knowledge sourcing behavior</i> | The frontline service employee's proactive behavior of tapping into customer experiences with the firms' products and services through personal, face-to-face interactions. It includes both providing and acquiring information; the first notifies customers on (to be conducted) recovery actions, the second proactively asks customers about their product and service experiences. |
| <i>Ideas for improvement</i>       | The frontline service employee's novel responses that provide improved solutions to FSEs' service demands and tasks. Ideas may include new routines for better solving a product problem or new structures for service visits.   |
| <i>Efficiency performance</i>      | The extent to which a frontline service employee can complete service encounters within set time standards and thus serve more customers. It is reflected in the number of service visits per day and the time between arrival at and departure from the customer's location, provided that the employee has repaired the broken product.  |
| <i>Quality performance</i>         | The extent to which the frontline service employee provides a durable solution to customer problems. It is assessed as the time between the current service job and the product's next breakdown, also referred to as product uptime.  |
| <i>Product diversity</i>           | An element of the frontline service employee's service portfolio (i.e., the combination of products, customers, and failures that an employee is responsible for) that indicates the extent to which the employee is charged with servicing products which are very different from each other in terms of technology.  |
| <i>Customer familiarity</i>        | An element of the frontline service employee's service portfolio that indicates the extent to which an employee knows the contact person of the B2B customers he/she services.   |
| <i>Failure complexity</i>          | An element of the frontline service employee's service portfolio that indicates the extent to which the product failures an employee encounters in his/her service visits are complicated to solve.  |

### 2.3.1. *The FSE's recovery service role*

The primary responsibility of an FSE is to take corrective actions or initiate product repair in response to a customer complaint, while demonstrating politeness, respect, and friendliness (Bettencourt and Brown 2003; Liao 2007). In core recovery behavior, problem solving is thus combined with courtesy to provide the customer with an efficient and thorough solution to the problem. Two theoretical perspectives explain the relationship between



problem solving behavior and efficiency/quality performance. The first stems from literature on focus of attention, which argues that engaging in problem solving behavior keeps the employee focused on achieving his/her operational targets without distractions (Siegall and McDonald 1996). Keeping one's attention to the actual problem benefits the efficiency of task execution and increases the chance of providing error-free and high-quality solutions. The second perspective comes from script theory, which argues that problem solving behavior is generally more role prescribed, therefore frequently repeated, resulting in strongly standardized and well-rehearsed problem solving scripts (Solomon et al. 1985). Sticking to such scripts helps FSEs to find a thorough solution to the problem in a prompt manner (Bettencourt and Brown 2003; Liao 2007).

Courtesy relates to efficiency and quality performance because a courteous approach encourages customers to provide the basic information that the FSE needs to deal with the product failure (Gremler and Gwinner 2008; Meuter et al. 2000). Friendliness and honesty increase levels of intimacy and help to determine the product problem the FSE was called for (Beatty et al. 1996). Courtesy reduces the time required to search for root causes and enhances the chance of correctly diagnosing the problem. In a recovery context, solving a problem in a polite way thus provides a fast, sustainable solution and higher quality performance. In sum:

***H1:** FSE core recovery behavior positively influences the FSE's (a) efficiency performance and (b) quality performance.*

As firms increasingly recognize the need to reduce costs while increasing revenues (Marinova et al. 2008; Rust et al. 2002), a serious tension arises between productivity and quality outcomes, particularly at the frontline (Ye et al. 2012). Delivering consistently high-quality service requires time to make sure all issues are resolved and the customer can fully rely on the product in the future. In addition, a customer may ask the FSE to conduct some additional services during his visit, which would violate the preset norm. In contrast, pressure from service management to speed up recoveries may cause FSEs to cut corners, skip steps, or even overlook parts of a problem. These acts compromise the quality of repairs (Oliva and Sterman 2001; Singh 2000). Accordingly, we hypothesize:

***H2:** The FSE's efficiency performance negatively influences quality performance.*

### 2.3.2. *Beneficial effects of the FSE's innovation role*

Employees may use service encounters as an opportunity to collect customer information and thus increase their knowledge. FSE knowledge sourcing behavior may lead to the identification of valuable information, because FSEs proactively ask customers about their experiences with the product and/or service (Van Vaerenbergh et al. 2012; Ye et al. 2012). In turn, they can inform the customer about service actions on the product or explain how to use it better, thereby stimulating customers to disclose their knowledge of the products and service involved (Dong et al. 2008; Gremler and Gwinner 2008). This information may also contain insights that would not have been shared if the interaction were limited to a rudimentary conversation to determine the product problem the FSE was called for. In contrast to core recovery behavior, where customer interaction centers around friendly greetings and simple questions, knowledge sourcing behavior involves a dialogue in which customers share knowledge that otherwise would have remained unarticulated.

This acquired information may stimulate learning through a mechanism of analogical reasoning, where connections are established between new and existing knowledge (Bagozzi et al. 2011; Ye et al. 2012). Ideas for improvement may arise when new information is integrated with one's current knowledge base. This is in line with creativity research, where researchers argue that the more new information an employee adds to existing knowledge structures through knowledge sourcing, the more likely he/she is to develop ideas for improvement in the area of expertise (Coelho et al. 2011). For instance, an FSE working for a document solutions provider may service a copier that irregularly produces inaccurate images. In a personal conversation, the customer tells the FSE that the room temperature fluctuates over the day. Combining this new information with existing knowledge leads the FSE to adjust a series of software settings, a hitherto unknown service routine. It may prove to be a more robust and efficient solution to the problem than the existing routine of installing spare parts. Other ideas may seem mundane yet may be highly effective. For instance, personal interaction with a customer provides the FSE with a permanent visitor card, saving precious administration time on every service visit.

Improvement ideas may impact both product and service outcomes, because modern products and services are closely intertwined in a value bundle (Tuli et al. 2007; Vargo and Lusch 2004; Ulaga and Reinartz 2011). Specifically, an idea for better solving a product problem (e.g., changing

software settings rather than parts) can increase quality performance, but it also enables a faster diagnosis of similar problems in subsequent service encounters. Moreover, an idea to better structure service visits (e.g., by requesting visitor cards early on) can not only benefit an FSE's efficiency performance but also leave time for more thorough repairs, which benefits one's overall quality performance. While ideas may not always be implemented directly, nor in every service encounter, a greater effort in idea development is likely to manifest itself in performance improvements over time (West and Farr 1990).

In short, consistent with role accumulation theory (Keaveney and Nelson 1993; Sieber 1974), we expect that the FSE's innovation role provides ideas for improvement by sourcing knowledge from customers. These ideas, in turn, benefit the FSE's recovery service role through improved service procedures and product solutions, ultimately enhancing efficiency performance and quality performance. Thus, we hypothesize:

*H3: FSE knowledge sourcing behavior positively influences the extent to which the FSE develops ideas for improvement.*

*H4: The extent to which the FSE develops ideas for improvement positively influences the FSE's (a) efficiency performance and (b) quality performance.*

### **2.3.3. Detrimental effects of the FSE's innovation role**

Despite its beneficial effects, knowledge sourcing may also impair efficiency performance. Each action an FSE adds to the execution of core recovery behavior is likely to lengthen the duration of service encounters (Bagozzi et al. 2011; Jasmand et al. 2012). When an FSE opens up a conversation to share knowledge and get a better understanding of customer experiences, he or she is pulled away from working directly on the product to solve the problem. This takes extra time. Besides directly affecting efficiency performance, knowledge sourcing behavior may also negatively moderate the relationship between core recovery behavior and efficiency performance. Specifically, when FSEs spend mental resources trying to attend to and interpret new customer information, they have fewer resources for efficient task execution (e.g., Jasmand et al. 2012). Reduced mental resources also may narrow an employee's attentional focus on problem solving, such that core recovery behavior becomes less efficient (Keating et al. 1999). In other words, because every activity added to core recovery behavior takes not only time but also energy, core recovery

behavior becomes less effective to optimize efficiency performance. We hypothesize:

*H5a: FSE knowledge sourcing behavior negatively influences the FSE's efficiency performance.*

*H5b: FSE knowledge sourcing negatively moderates the relationship between core recovery behavior and efficiency performance.*

#### **2.3.4. Ideas for improvement as a moderator**

To tackle productivity–quality trade-offs, scholars argue that FSEs must go beyond their scripted routines (Marinova et al. 2008; Ye et al. 2012). New ideas support a leapfrogging strategy, because workers find clever ways to avoid impractical activities in their service routines while still achieving, or even exceeding, quality performance objectives. In other words, developing ideas can simplify recovery tasks, which makes time pressures seem less stringent and performance limiting. Research in psychology also shows that workers who identify job opportunities suffer less strain when job demands increase, whereas those without such ability experience significant strain and stop feeling responsible for high-quality job outcomes (Parker and Sprigg 1999). They stick to old, already optimized routines, which precludes faster recovery without cutting corners and quality loss. We therefore hypothesize:

*H6: The extent to which the FSE develops ideas for improvement positively moderates the relationship between efficiency performance and quality performance.*

#### **2.3.5. Service portfolio characteristics**

Knowledge sourcing activity should have both beneficial and detrimental effects, so managers need to know how to make the positive outweigh the negative. We explore the influence of job design on the relationship between knowledge sourcing behavior and ideas for improvement. Specifically, we consider three characteristics of an FSE's service portfolio: product diversity, customer familiarity, and failure complexity.

Product diversity reflects the extent to which an FSE is charged with servicing a large, diverse range of products. Employees with a diverse product portfolio encounter a variety of products with different parts, setups, and technologies. They are exposed to various customers with dissimilar product experiences. Because variety is a critical component of employee learning, workers with a diverse portfolio should find it easier to expand their

knowledge structures and engage in analogical reasoning (Bagozzi et al. 2011). If all customers report similar experiences, knowledge sourcing cannot expand knowledge structures, and the likelihood of new ideas for improvement is limited. The sequential nature of diverse service visits is especially conducive to the generation of new insights (Ortega 2001). In contrast, specialization (i.e., low product diversity) can increase employees' confidence in their current problem solving capabilities, such that they are unlikely to use social interactions with customers for improvement purposes. We therefore hypothesize:

*H7: The level of product diversity in the FSE's portfolio positively moderates the relationship between knowledge sourcing behavior and ideas for improvement.*

Customer familiarity refers to the extent to which FSEs have considerable acquaintance with the customers they service. In B2B service contexts, some employees have a fixed pool of customers with whom they have built stable and intricate relationships; others do not. While one could argue that unfamiliar customers impose variety in service jobs and therefore benefit the payoff of knowledge sourcing, we expect that customer *familiarity* strengthens the relationship between knowledge sourcing behavior and ideas for improvement. We provide two key arguments. First, longer-lasting relationships are associated with trust, which makes people reveal more detailed and sensitive information in exchanges (Dong et al. 2008; Gremler and Gwinner 2008). Knowledge sourcing from familiar contacts thus is more likely to disclose new information that can be added to a knowledge base and lead to new ideas. Second, if an FSE is familiar with a B2B customer, he or she can locate the right people within the customer organization easily. Information sharing then becomes more likely and more meaningful, because the FSE interacts with somebody with a similar mental structure (Reeves and Weisberg 1994). The new information provided thus fits more easily into existing knowledge structures and facilitates the generation of ideas for improvement (Finke et al. 1995). In contrast, FSEs who serve unfamiliar customers tend to have impersonal contacts that lack a basis of trust. This makes it hard to source insightful information and develop new ideas. We therefore hypothesize:

*H8: The level of customer familiarity in the FSE's portfolio positively moderates the relationship between knowledge sourcing behavior and ideas for improvement.*

Finally, the effects of employee behavior on customer evaluations are contingent on the magnitude of the failure (e.g., Liao 2007; Smith et al. 1999). It remains unclear how failure severity influences the potential for generating new ideas based on knowledge sourcing, however. We posit that complex failures shape the information exchange between the FSE and the customer to facilitate idea generation. That is, during a routine failure situation, a customer accepts an employee's explanation of why the failure occurred and what scripted actions he or she executed (Conlon and Murray 1996). The knowledge sourcing information therefore is routinized and repetitive in nature. In contrast, during a complex service failure, information exchange takes on a more detailed character. The FSE needs in-depth insights from the customer to recover a problem that falls outside existing service scripts. Moreover, customers likely will not settle for a surface-level explanation and demand instead a fine-grained analysis of the events (Conlon and Murray 1996; Liao 2007). Rather than simply stating activities, both parties must cooperate to identify the nature of and recover from the failure. This information exchange therefore contains more new insights than one in a routine failure recovery situation. We posit that FSEs' existing knowledge structures are likely to be extended when dealing with complex failures, which enables the generation of new ideas (Finke et al. 1995). Formally:

*H9: The level of failure complexity in the FSE's portfolio positively moderates the relationship between knowledge sourcing behavior and ideas for improvement.*

## **2.4. Method**

### **2.4.1. Sample and data collection**

As explicated in the introduction of this dissertation, we use a sample of field service engineers working for a major international manufacturer of print and document management solutions for professional environments. These FSEs specialize in delivering onsite repair services and have unique, individual portfolios of products and customers serviced. Customers report a product failure by contacting customer support by telephone or e-mail. In response, the firm offers immediate standardized instructions and solutions, but if the problem persists, a request for service is passed on to the planning department. This department then contacts an available FSE who is geographically close to the customer's facilities and certified to recover the malfunctioning product.

The duration of each service visit is monitored and standardized in accordance with formalized norms that prescribe the targeted duration of a single visit for a specific combination of product type and failure. These standardized scores are then aggregated to a monthly average per employee to yield a Mean Time to Repair score (MTTR), indicating whether each employee has conducted service visits faster or slower than the norm (as a percentage). The firm also records the average number of service visits per day, aggregated to a monthly average and corrected for the number of working days in the respective month. In addition, it measures each machine's uptime between two consecutive failures, standardized relative to product-specific uptime norms, and adds this information to the personal file of the FSE who conducted the service job before the last breakdown. This Mean Time between Failures score (MTBF) represents the FSE's quality performance. Both MTTR and MTBF inform the FSEs' monthly evaluations.

We collected data with paper-and-pencil surveys, personally distributed and collected during monthly meetings of FSEs with their managers at headquarters. The survey included a cover letter describing the purpose of the study. To facilitate truthful responses, we handed out the surveys after the manager left the room, promised confidentiality, and offered the respondents an opportunity to receive a summary of the results. A code was used to match each employee's survey responses with objective performance data from the firm's database. From a total of 184 distributed surveys, we received 134 usable responses, resulting in a response rate of 72.8%. With one exception, all respondents were men, which corresponds with labor force statistics for technical service jobs (U.S. Bureau of Labor Statistics 2010). Their mean age was 46.6 years ( $SD = 11.8$  years), and their tenure averaged 19.6 years ( $SD = 12.1$  years).

#### 2.4.2. *Measures*

We drew on existing literature to operationalize all latent constructs with multi-item scales. The operationalization of knowledge sourcing was developed specifically for this study. We pretested the measures with eight service employees and fine-tuned the items according to their feedback. We asked respondents to reflect on their behavior and ideas over the past six months. An overview of the subjective measures for our core constructs appears in Table 2.2.

**Table 2.2.** Items, constructs and measurement model.

| Constructs   | Factor Loading |
|--|----------------|
| <b>Core recovery behavior</b>  |                |
| <b>Problem solving (<math>\alpha = .70</math>)</b>   |                |
| <i>During my service visits in the last six months...</i>  |                |
| 1. I always made sure that the customer could re-use the product as soon as possible.  | .85            |
| 2. I very efficiently solved the entire product problem that I was called for.   | .83            |
| <b>Courtesy (<math>\alpha = .82</math>)</b>  |                |
| <i>During my service visits in the last six months...</i>  |                |
| 3. I always treated my customers considerately and respectfully, even if I was in a bad mood.  | .89            |
| 4. I constantly made sure that I served the customer in a courteous manner, even if I was really busy.                                 | .80            |
| 5. I was always polite to my customers, even if I was in a bad mood.   | .88            |
| <b>Knowledge sourcing behavior</b>   |                |
| <b>Acquiring information (<math>\alpha = .89</math>)</b>   |                |
| <i>During my service visits in the last six months...</i>  |                |
| 1. I always took the initiative to obtain detailed information on customers' experiences with [company's] solutions.                   | .74            |
| 2. I actively sought feedback from customers to get information about their satisfaction with the product or service.                  | .83            |
| 3. I always took time to actively solicit suggestions from customers about [company's] products and services.                          |                |
| 4. I explicitly asked customers about their ideas for product or service improvement.  | .87            |
| 5. I always obtained diagnostic information on product or service performance from my customers, even if this cost me some extra time. | .81            |
| <b>Providing information (<math>\alpha = .82</math>)</b>   |                |
| <i>During my service visits in the last six months...</i>  |                |
| 1. I always completely informed customers about my way of working with the product.  | .87            |
| 2. I made sure that my customers were informed about my repair activities.   | .88            |
| 3. I always provided the customers with information on the actions I took during my service visit.                                     | .84            |
| <b>Ideas for improvement (<math>\alpha = .87</math>)</b>   |                |
| 1. Over the last six months, how often did you think of new product solutions that can really improve the products that you work with? | .86            |
| 2. Compared with your colleagues, how many ideas for product improvement did you have over the past six months?                        | .90            |
| 3. Over the last six months, how often did you think of new solutions that can really improve the company's service delivery process?  | .77            |
| 4. Compared with your colleagues, how many ideas for service process improvement did you have over the past six months?                | .86            |
| <b>Product diversity (<math>\alpha = .78</math>)</b>   |                |
| 1. Compared with other service engineers, the technology in the products that I service is very diverse.                               | .88            |
| 2. The types of products that I service are very different from each other.  | .92            |
| <b>Customer familiarity (<math>\alpha = .75</math>)</b>  |                |
| <i>In general...</i>   |                |
| 1. I am very familiar with my customer contact persons.  | .83            |
| 2. The contact persons of my customers are usually present when I visit.   | .94            |

Notes: All t-values are significant at  $p < .001$ .

To operationalize *core recovery behavior*, we used a two-dimensional, reflective, second-order construct that captured problem solving and courtesy behaviors. These items were adapted from Bettencourt and Brown (2003) and



Liao (2007) and relied on seven-point Likert scales, with 1 = “strongly disagree” and 7 = “strongly agree” as anchors.

We modeled *knowledge sourcing behavior* as a reflective, second-order construct with two dimensions: acquiring information (five items) and providing information (three items). The items were based on work by Gray and Meister (2004) and Challagalla et al. (2009). We used the same seven-point Likert scale.

*Ideas for improvement* captured the extent to which FSEs had product and/or service ideas over the last six months that could significantly improve the results of their work. Respondents first read a short introduction that defined ideas for improvement and offered some examples (e.g., faster service delivery to particular customers, product adaptations that could increase performance), which we derived from ideas mentioned in the preliminary interviews. Then respondents answered four items, based on scales provided by Kanter (1988) and Scott and Bruce (1994) but revised to be context specific. We used seven-point semantic differential scales to obtain the answers (1 = “never” or “few” to 7 = “always” or “many”). Thereafter, we presented a free format text field and asked FSEs to illustrate the ideas they had reported. For example, one employee decided to take and store snapshots of machine interiors to be able to quickly locate and identify anomalies. To validate our assumption that FSEs would have useful and implementable ideas, we asked five managers to rate the idea descriptions described in the free format text field. In total, 59 ideas were reported by the FSEs. Idea relevance was rated with a mean score of 7.2 on a 10-point scale, and idea usefulness was rated with a mean score of 7.5, which provides ample evidence that ideas for improvement captured implementable insights instead of unrealistic thought experiments.

With regard to the *performance measures*, both efficiency performance and quality performance were obtained from company records. The FSE’s average efficiency performance was represented by two indicators, average problem solving speed (MTTR) and average number of service visits per day. We calculated these statistics over a six-month interval to reduce the impact of outliers, such as performance dips resulting from a unique, extremely persistent problem—this interval size was most effective to smooth out such incidents. The interval started three months before and ended three months after the time of survey data collection. In our context, this was the most appropriate timing, because preliminary interviews with FSEs revealed that it may take up to three months to implement an idea across a large enough part

of the FSE's service portfolio to observe performance effects. As the survey is retrospective over the past six months, we maximize the chance to capture the effects of ideas, whether they were generated six months ago or just a couple of days before our survey.

Because each FSE services different products with different uptime norms, we assessed quality performance as the average of all MTBF scores that resulted from a single FSE's activities over a 10-month period. Again, this interval started three months before the survey. Our choice was informed by discussions with firm managers; as some employees recover products with long uptimes, a 10-month timeframe would be most appropriate to capture valid quality performance measures. Any shorter interval would not allow us to calculate quality performance statistics for those FSEs that only worked on machines with long MTBF norms.

*Service portfolio characteristics* were derived for each individual FSE from the survey and company records. We operationalized product diversity with two survey items that captured the extent to which FSEs perceive the product types they service as truly different. For customer familiarity, we used two survey items that captured the degree to which the employee is familiar with customers and the key contact persons. With regard to failure complexity, we assessed the number of "escalations" relative to the employee's total number of service visits. Company quality guidelines dictate that the service job should be passed back to the organization ("escalated") if a failure falls outside the FSE's field of expertise and is thus likely to severely exceed the MTTR norm. This does not reflect a lack of competence, as each employee is certified to service the products in his/her portfolio. Because some products are more likely to produce complex failures than others, escalated service visits are not included in FSEs' MTTR and MTBF scores.

Finally, we included seven variables to control for the most likely alternative explanations for ideas for improvement, efficiency performance, and quality performance. More specifically, we examined the influence of FSEs' innovation orientation, learning orientation, age, job experience, tenure, job autonomy, and self-efficacy.<sup>2</sup> An overview of the operationalization of control variables and objective variables can be found in Appendix II.

### 2.4.3. *Analyses*

We analyzed our data using SPSS 15 and Smart PLS 2.0 (Chin 1998; Ringle et al. 2005). We applied SPSS to examine the descriptive statistics and compute the reliability of the individual constructs (including the first-order

dimensions of the second-order constructs). All constructs proved reliable; the Cronbach’s alphas equaled or exceeded Nunnally’s (1978) threshold of .7 (see Table 2.2). We used SmartPLS to assess the correlations, average variances extracted, and shared variances of our key latent constructs (Table 2.3). Convergent validity was satisfactory; the average variance extracted for all study constructs exceeded .5. The discriminant validity guidelines also were met for all constructs; Fornell and Larcker’s (1981) procedure showed that for any construct, its average variance extracted exceeded the squared correlations (i.e., shared variance) with any other study construct.

**Table 2.3.** Means, standard deviations, average variances extracted, correlations, and shared variances (N=134)

| Variable                      | M    | SD    | 1                  | 2                 | 3                | 4                 | 5    | 6     | 7     | 8    |
|-------------------------------|------|-------|--------------------|-------------------|------------------|-------------------|------|-------|-------|------|
| 1 Core recovery behavior      | 6.02 | .62   | (.54) <sup>a</sup> | .11 <sup>c</sup>  | .03              | .07               | .01  | .01   | .06   | .00  |
| 2 Knowledge sourcing behavior | 4.19 | .88   | .33 <sup>**</sup>  | (.50)             | .11              | .00               | .01  | .00   | .02   | .00  |
| 3 Ideas for improvement       | 2.94 | 1.26  | .16 <sup>b</sup>   | .33 <sup>**</sup> | (.72)            | .04               | .01  | .00   | .00   | .00  |
| 4 Efficiency performance      | 2.34 | 1.53  | .26 <sup>**</sup>  | -.03              | .21 <sup>*</sup> | (--)              | .03  | .00   | .03   | .02  |
| 5 Quality performance         | .69  | 14.80 | -.10               | -.10              | .09              | -.16              | (--) | .03   | .01   | .01  |
| 6 Product diversity           | 4.52 | 1.61  | .10                | .06               | .04              | .06               | .16  | (.81) | .01   | .00  |
| 7 Customer familiarity        | 5.22 | 1.17  | .25 <sup>**</sup>  | .14               | -.04             | -.18 <sup>*</sup> | .12  | .11   | (.79) | .01  |
| 8 Failure complexity          | 9.50 | 3.77  | -.03               | .01               | -.06             | -.14              | -.10 | .02   | -.12  | (--) |

<sup>a</sup>The average variance extracted of the subjective constructs are shown on the diagonal, between brackets. <sup>b</sup>Correlations are reported in the lower half of the matrix. <sup>c</sup>Shared variances are reported in the upper half of the matrix. \*  $p \leq .05$ . \*\*  $p \leq .01$  (two-tailed).

We obtained the estimates for the parameters of our structural model through partial least squares (PLS) analysis, which simultaneously estimates all relationships, without stringent assumptions about the sample size or distribution of variable scores. To test the statistical significance of the hypothesized relationships, we applied a bootstrapping procedure with 500 samples (Chin 1998). For an accurate estimation of the hypothesized moderation effects, we also added the direct effects of the moderator variables on their dependent variables.

To test the multidimensionality of the second-order constructs, core recovery behavior and knowledge sourcing behavior, we assessed the path weights of the underlying dimensions (Chin 1998). For core recovery

behavior, the weights were large and positive: .91 for courtesy and .78 for problem solving ( $p < .001$ ). Similarly, acquiring information and providing information represented knowledge sourcing behavior (.88 and .76 respectively,  $p < .001$ ). The correlations between the underlying constructs also were significant and moderate (.43 for courtesy and problem solving; .35 for acquiring and providing information,  $p < .01$ ), indicating both convergence and discriminant validity.

## 2.5. Results

In Table 2.4 we report the standardized path coefficients for three PLS models<sup>3</sup>. First, a main effects model (including only direct effects) and a hypothesized model (including the moderating effects) were calculated. Then, a final model was calculated, which included a direct path from knowledge sourcing behavior to quality performance to test for mediation, and the direct effects of the portfolio variables on efficiency and quality performance (under the heading “Additional paths”). The final model explains 22.0% of the variance in ideas for improvement, 29.3% in efficiency performance, and 20.2% in quality performance. These outcomes compare favorably with the values obtained in other frontline employee studies using objective performance outcomes (e.g., Ahearne et al. 2010).

### 2.5.1. Direct effects

The significant positive effect of core recovery behavior on efficiency performance ( $\beta = .24$ ,  $p < .01$ ) supports H1a. However, contrary to our expectations, core recovery behavior was not significantly related to quality performance ( $\beta = -.05$ , n.s.), so we must reject H1b. The effect of efficiency on quality performance was negative and significant ( $\beta = -.19$ ,  $p < .05$ ); the effect of knowledge sourcing behavior on ideas for improvement was positive and significant ( $\beta = .20$ ,  $p < .01$ ). Thus we found support for both H2 and H3. Consistent with H4a and H4b, ideas for improvement showed a significant positive effect on efficiency performance ( $\beta = .17$ ,  $p < .05$ ) and quality performance ( $\beta = .17$ ,  $p < .05$ ). Furthermore, the direct effect knowledge sourcing behavior on efficiency performance was negative and significant ( $\beta = -.18$ ,  $p < .05$ ), supporting H5a.

**Table 2.4.** PLS results of estimated path coefficients in the research model (N = 134).

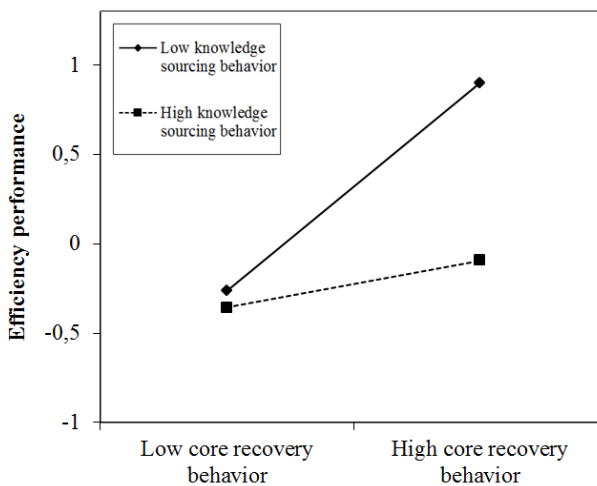
|   | Hypotheses | Standardized path coefficients |                    |             |
|---|------------|--------------------------------|--------------------|-------------|
|   |            | Main Effects Model             | Hypothesized Model | Final Model |
| <i>Direct effects</i>   |            |                                |                    |             |
| Core recovery behavior → efficiency performance                               | H1a        | .25**                          | .23**              | .24**       |
| Core recovery behavior → quality performance                                  | H1b        | -.06                           | -.05               | -.05        |
| Efficiency performance → quality performance                                  | H2         | -.20*                          | -.20*              | -.19*       |
| Knowledge sourcing behavior → ideas for improvement                           | H3         | .27**                          | .20*               | .20*        |
| Ideas for improvement → efficiency performance                                | H4a        | .20**                          | .20**              | .17*        |
| Ideas for improvement → quality performance                                   | H4b        | .17*                           | .15*               | .17*        |
| Knowledge sourcing behavior → efficiency performance                          | H5a        | -.21**                         | -.18*              | -.18*       |
| Product diversity → ideas for improvement                                     |            |                                | .03                | .03         |
| Customer familiarity → ideas for improvement                                  |            |                                | -.10               | -.09        |
| Failure complexity → ideas for improvement                                    |            |                                | -.07               | -.07        |
| <i>Moderating effects</i>   |            |                                |                    |             |
| Knowledge sourcing behavior x core recovery behavior → efficiency performance | H5b        |                                | -.16*              | -.15*       |
| Ideas for improvement x efficiency performance → quality performance          | H6         |                                | .26**              | .22**       |
| Product diversity x knowledge sourcing behavior → ideas for improvement       | H7         |                                | .18**              | .18**       |
| Customer familiarity x knowledge sourcing behavior → ideas for improvement    | H8         |                                | .13*               | .13*        |
| Failure complexity x knowledge sourcing behavior → ideas for improvement      | H9         |                                | .04                | .04         |
| <i>Additional paths</i>   |            |                                |                    |             |
| Knowledge sourcing behavior → quality performance                             |            |                                |                    | -.10        |
| Product diversity → efficiency performance                                    |            |                                |                    | .06         |
| Product diversity → quality performance                                       |            |                                |                    | .12         |
| Customer familiarity → efficiency performance                                 |            |                                |                    | -.22**      |
| Customer familiarity → quality performance                                    |            |                                |                    | .10         |
| Failure complexity → efficiency performance                                   |            |                                |                    | -.13*       |
| Failure complexity → quality performance                                      |            |                                |                    | -.12*       |
| <i>Control variable paths (non-significant effects omitted)</i>               |            |                                |                    |             |
| Age → ideas for improvement   |            | -.35**                         | -.29**             | -.28*       |
| Age → efficiency performance  |            | -.27*                          | -.32*              | -.29*       |
| Organizational tenure → ideas for improvement                                 |            | .28*                           | .27*               | .27*        |
| Autonomy → quality performance  |            | .12*                           | .10                | .07         |
| <i>Variance explained (R<sup>2</sup>)</i>                                     |            |                                |                    |             |
| Ideas for improvement   |            | 16.1%                          | 22.0%              | 22.0%       |
| Efficiency performance  |            | 22.6%                          | 24.6%              | 29.3%       |
| Quality performance   |            | 10.9%                          | 17.1%              | 20.2%       |

\*  $p < .05$ . \*\*  $p < .01$ .

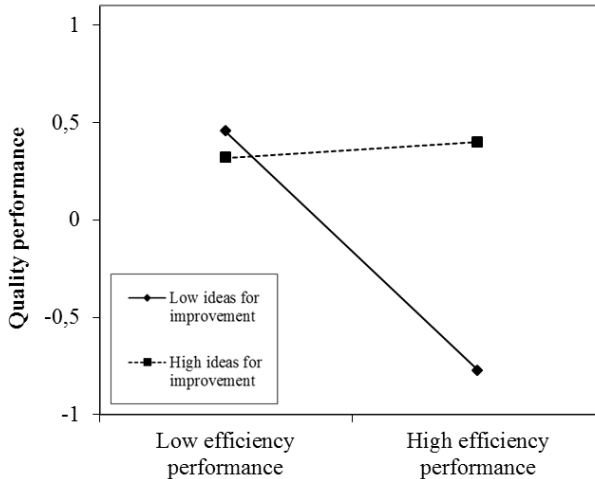
### 2.5.2. Moderating effects

We found a negative moderating effect of knowledge sourcing behavior on the relationship between core recovery behavior and efficiency performance ( $\beta = -.15$ ,  $p < .05$ ), lending support to H5b. In Figure 2.2 we plot the relationship between core recovery behavior and efficiency performance under low (two SD below the mean) and high (two SD above the mean) knowledge sourcing behavior conditions. Knowledge sourcing reduces the positive relationship between core recovery behaviors and efficiency performance; a simple slope test (Aiken and West 1991) revealed that the positive effect of core recovery behavior on efficiency performance is significant only at low levels of knowledge sourcing behavior ( $\beta = .38$ ,  $p < .01$ ). Moreover, ideas for improvement positively moderates the relationship between efficiency and quality performance ( $\beta = .22$ ,  $p < .01$ ). The plot of this effect in Figure 2.3 reveals that a greater extent of idea development alleviates the negative relationship between efficiency and quality performance, as we hypothesized. In contrast, employees low in idea development experienced a detrimental effect of efficiency on their quality performance, in support of H6. Probing of the simple slopes indeed indicates that the negative effect of efficiency on quality performance is significant only at low levels of ideas ( $\beta = -.26$ ,  $p < .05$ ), while this negative effects disappears under high levels of ideas for improvement.

**Figure 2.2.** Moderating effect of knowledge sourcing behavior.

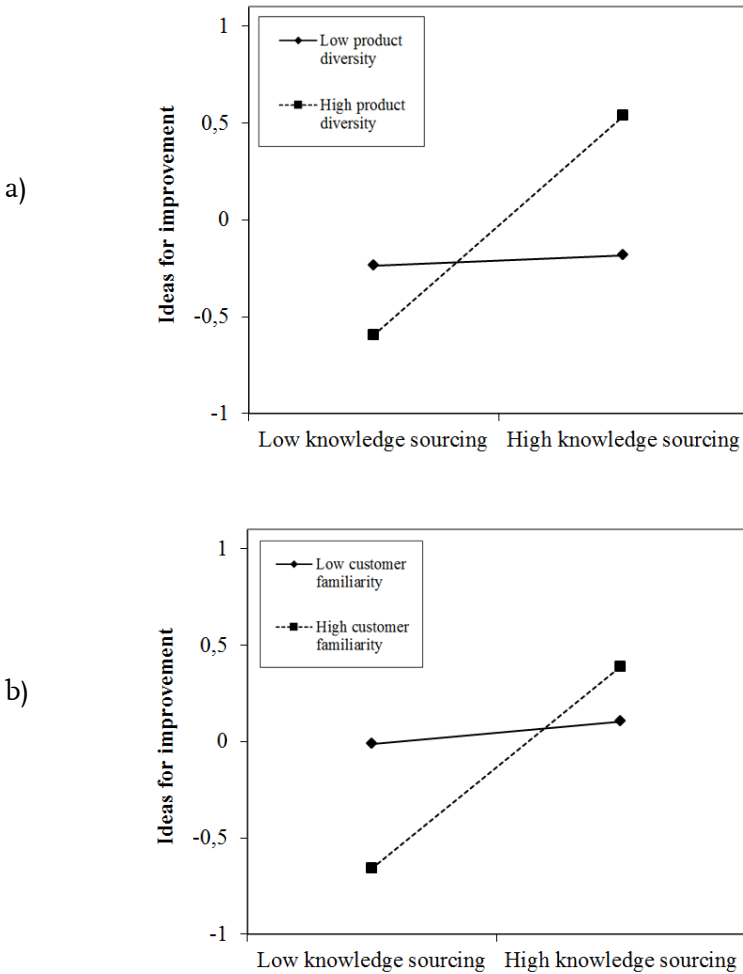


**Figure 2.3.** Moderating effect of ideas for improvement.



With regard to employees' service portfolios, we found that product diversity ( $\beta = .18, p < .05$ ) and customer familiarity ( $\beta = .13, p < .05$ ) both positively moderated the relationship between knowledge sourcing behavior and ideas for improvement, in support of both H7 and H8. Failure complexity did not affect this relationship though ( $\beta = .04, n.s.$ ), so we must reject H9. The plot in Figure 2.4 depicts the interactions between portfolio variables and knowledge sourcing behavior. As Panel A shows, a highly diverse product portfolio strengthened the positive effect of knowledge sourcing behavior on ideas for improvement. Probing of the simple slopes indicated that the positive effect of knowledge sourcing behavior on ideas for improvement is significant only when product diversity is high ( $\beta = .38, p < .05$ ). Panel B further reveals that FSE idea development was highest when both knowledge sourcing and customer familiarity were high. Probing of the simple slopes indicated that the positive effect of knowledge sourcing behavior on ideas for improvement is significant only when customer familiarity is high ( $\beta = .51, p < .001$ ). When customer familiarity was lower, the effect of knowledge sourcing on idea for improvement disappeared. Notably, the absolute level of ideas remained relatively high for low customer familiarity, a finding we return to in the Discussion section.

**Figure 2.4.** Moderating effects of product diversity and customer familiarity.



### 2.5.3. Additional paths

To test whether the impact of knowledge sourcing on FSE performance outcomes was mediated by ideas for improvement, we checked the direct paths from knowledge sourcing behavior to the dependent variables. As Table 2.4 shows, ideas for improvement partially mediated knowledge sourcing and efficiency performance; both the direct and indirect paths were significant. We added a direct path from knowledge sourcing behavior to quality performance;



it was not significant, which indicates multiple mediation through ideas for improvement and efficiency performance.

As the last column of Table 2.4 indicates, we found that some of the portfolio characteristics impact performance outcomes directly. Interestingly, we found a significant negative effect of customer familiarity on efficiency performance ( $\beta = -.22, p < .01$ ). It could be that time is lost in socializing when an employee becomes too connected to the customer. We also found negative direct effects from failure complexity to efficiency performance ( $\beta = -.13, p < .05$ ) and quality performance ( $\beta = -.12, p < .05$ ), even when accounting for the fact that complex failures have less strict norms for time-to-repair. It could be that complex tasks are psychologically disrupting and therefore reduce task performance (Speier et al. 2003). None of the other direct effects of the portfolio variables on recovery performance outcomes were significant.

#### 2.5.4. *Control variables*

The effects of our control variables show that older FSEs had fewer ideas for improvement ( $\beta = -.28, p < .05$ ) and a lower efficiency performance ( $\beta = -.29, p < .05$ ) than their younger counterparts. Workers' organizational tenure positively affected their ideas for improvement ( $\beta = .27, p < .05$ ). This is consistent with previous findings on the degeneration of employee capabilities with age and increasing knowledge about organizational processes with experience (Fu 2009). The effects of the remaining control variables were not significant. We were surprised by the lack of significance for job experience, so we tested whether the control variables had any moderating effects. The relationship between knowledge sourcing and ideas was stronger for employees with more years of experience in their current job ( $\beta = .14, p < .01$ ), an issue we return to in the Managerial Implications section.

#### 2.5.5. *Post-hoc tests*

Although we conceptualized the portfolio characteristics to moderate the knowledge sourcing behavior–ideas for improvement relationship, these characteristics could also affect FSE behavior. For example, an employee servicing very diverse products may have more opportunities to engage in knowledge sourcing behavior. We therefore calculated an alternative model in PLS, including direct paths from product diversity, customer familiarity, and failure complexity to core recovery behavior and knowledge sourcing behavior. Surprisingly, none of these effects were significant. Apparently, portfolio characteristics influence the effectiveness of behaviors for specific outcomes

(e.g., idea development) but do not drive such behaviors directly. It could be that individual motivation (or orientation) drives behavior, not contextual factors. Therefore, we also modeled employees' learning orientation (i.e., a person's tendency to focus on developing competence) and performance orientation (i.e., an individual's tendency to demonstrate and validate competence to others) as direct antecedents of the FSE behaviors. Results indeed reveal that employees with a high learning orientation exhibit stronger tendencies to display knowledge sourcing behavior ( $\beta = .25, p < .01$ ) than core recovery behavior ( $\beta = .19, p < .05$ ). In contrast, employees with a high performance orientation are more inclined to display core recovery behavior ( $\beta = .20, p < .01$ ) than knowledge sourcing behavior ( $\beta = .13, p < .05$ ). We return to this issue in the Managerial Implications section.

Portfolio characteristics could also moderate the relationship between core recovery behavior and recovery performance. The alternative PLS model revealed that product diversity positively moderated the relationship between core recovery behavior and efficiency performance ( $\beta = .24, p < .01$ ). A possible explanation could be that following the service scripts of core recovery behavior becomes boring under low product diversity. An employee may execute all scripts, but this does not optimally translate into service speed because of low motivation. Indeed, task variety activates employees as it provides them with more perspectives on work solutions (Shalley et al. 2004). High product diversity requires employees to act out more diverse service scripts and challenges them to stay alert in script execution. We did not find any other significant moderating effects between core recovery behavior and our objective outcome variables.

## 2.6. Discussion

While prior research considers maintaining or restoring customer satisfaction as the key purpose of recovery services, it has largely overlooked the fact that FSEs can learn from recovery situations and improve their performance accordingly. This study is the first to empirically demonstrate that firms may benefit from assigning FSEs an innovation role in addition to their recovery service role. Aligning the innovation role with the right service portfolio greatly benefits recovery performance and is thus crucial for firm competitiveness. We next discuss the key implications of our work.

### 2.6.1. *Theoretical implications*

*Employee's innovation role.* Many managers consider it their duty to save on personnel costs and urge FSEs to work *efficiently* in their recovery actions (Ye, Marinova, and Singh 2007). As a shift from this paradigm, we find that informing customers and gathering additional information gives FSEs a foundation from which they explore new directions and come up with creative ideas. Acting on these ideas benefits their recovery performance. The potential for improvement through employees' innovation roles is not institutionalized. It offers a different route to product and service enhancement than formal idea management systems aimed at new product and service development (NPD/NSD). While such formal systems may require a lead time of several years before suggestions are transformed and implemented organization-wide, frontline idea development is a continuous and day-to-day process (Robinson and Schroeder 2009; Vandenbosch et al. 2006).

Frontline service employees act as knowledge interfaces and build on the combination of their own and customer insights to improve recovery performance. This may be especially valuable if employees interact with customers who are forward-looking and capable of thinking outside the box. These so-called "lead users" can lead future trends and currently experience needs still unknown to the rest of the market (Von Hippel 1986). FSEs may be able to identify lead users, act as effective filters of their proposals, and move ahead only those which are really actionable by the firm.

*Solving the productivity-quality trade-off.* We demonstrate that FSEs' ideas for improvement alleviate the negative relationship between efficiency and quality performance. This finding empirically addresses the scholarly debate on tackling the productivity-quality trade-off in the frontline, which had hitherto been limited to anecdotal claims (e.g., Marinova et al. 2008; Ye et al. 2012, p. 1). As Figure 2.3 shows, for less creative employees, working faster decreases the quality of their repairs. In contrast, employees who have more ideas for improvement combine a timely finish of recovery activities with a high-quality end result. When efficiency is less important, employees with fewer ideas can produce a higher quality performance; this may be due to the fact that creative employees need some performance pressure to rise to the occasion (Shalley et al. 2004).

*Optimizing the FSE's innovation role.* Finally, the innovation and recovery service roles exhibit an intricate relationship. Although FSEs' ideas for improvement benefit recovery performance, the activity of knowledge sourcing is time consuming and reduces FSEs' focus on their recovery tasks.

Adding knowledge sourcing activities to core recovery behaviors thus can impair service recovery when not implemented carefully. We show that a portfolio characterized by diverse product types enhances opportunities for developing an array of ideas for improvement from knowledge sourcing activities. This finding is consistent with prior research on information diversity, which indicates that experiencing varied information input facilitates creative thinking (e.g., George 2007). In addition, with a portfolio of familiar customers, knowledge sourcing activities uncover in-depth customer insights and can spark more ideas. FSEs who service unfamiliar customers may also generate ideas, but the extent to which they do so is less dependent on their knowledge sourcing behavior. Apparently, in such service environments even little interaction can offer some previously unknown facts to an FSE, whereas too much knowledge sourcing might lead to information overload. The payoff of knowledge sourcing thus is particularly salient for employees who have close relationships with their customers.

Surprisingly, we found no moderating effect of product failure complexity on the knowledge sourcing–ideas relationship. Employees involved in complex recoveries may be so consumed with their repair tasks that they lack the time and energy to draft ideas based on information gathered. Faced with uncertain and difficult situations, employees adopt routine problem-solving procedures and first fulfill their core tasks to avoid risk (Liao et al. 2008).

### **2.6.2. Managerial implications**

Our study offers useful insights and recommendations for service managers. First, we challenge the efficiency focus most manufacturers adopt in their recovery efforts. Our results support an emerging view that recovery service can and should lead to performance improvements. Some firms lead the way; Dell increased its service spending by 35% and stopped recording customer “handling times” to encourage service technicians to engage in more extensive customer interactions (Jarvis 2007). As a result, the percentage of recoveries that needed to be redone decreased from 45% to 18%, and customer satisfaction rates increased by more than 22%. In addition, customers generally appreciate personal attention from FSE, as is typical of knowledge sourcing (Dong et al. 2008).

Second, managers looking to optimize the innovation potential of their FSEs should carefully shape their service portfolios. A service portfolio does not determine an FSE’s behavior per se, but it is a vital tool to optimize

performance outcomes. Our findings are in line with the motivation-opportunity-ability (MOA) framework: while frontline behaviors are driven by individual characteristics, the effectiveness of such behaviors is highly contingent upon contextual characteristics (e.g., Schmitz 2012). Managers seeking to boost frontline innovation should therefore focus on recruiting learning-oriented employees, stimulate them to knowledge source intensively, be careful with rotating customers across the service workforce, and train FSEs to repair and maintain a broader range of products. Alternatively, managers that have employees less capable of knowledge sourcing (e.g., because they are less socially skilled) may opt to constantly assign FSEs customers they do not know well. Even without much knowledge sourcing, such encounters may spark ideas while interactions remain goal-oriented and functional.

Third, managers should carefully consider employee demographics in their recruitment and support decisions. In our sample, younger FSEs and those with a longer organizational tenure generated more ideas for improvement. Furthermore, the relationship between knowledge sourcing and ideas was stronger for employees with more experience in their current job. Therefore, managers should hire young frontline talent and keep them employed in the organization, preferably in the same position. This recommendation is a daunting challenge though, because frontline job mobility is high, in line with the image of employees as overworked and underpaid (Singh 2000). A potential solution could be to install “service seniors” who work closely with FSEs and continue to have customer contacts, but who also have more responsibility and in-office time. This allows managers to secure the idea generating potential of the frontline by providing young, talented FSEs with an attractive career path in the organization.

### **2.6.3. *Limitations and further research***

Our study has several limitations that also offer opportunities for research. First, our empirical study is based on a sample of FSEs from a single firm context and thus has an explorative character. Replicating this study in markets other than a capital goods industry would be an interesting avenue; in other service domains, the interaction between knowledge sourcing and core recovery behavior may look different. In high-touch consumer services such as hotels or restaurants, employees can easily ask customers how they might improve service quality. For banking or financial services, the innovation role

may be much narrower, because technology increasingly mediates the relationship between customers and the organization.

Second, we assess FSE behavior and performance outcomes over time. Considering encounter-specific variables rather than service portfolios may offer a more fine-grained assessment of service innovation processes and allow researchers to investigate the effects on customer satisfaction with the recovery service. Additional research should also confirm whether customers appreciate knowledge sourcing activities in the frontline. For example, customers might perceive that a proactive service provider has devoted time, resources, and effort to assure the reliability of future services (Dong et al. 2008; Van Vaerenbergh et al. 2012). Although this could lead to customer satisfaction and loyalty, B2B customers may be more interested in keeping contractual promises and consider proactivity a loss of time.

Finally, this study captures the main concepts of innovation roles (i.e., knowledge sourcing and ideas for improvement). Further research should investigate the process of knowledge acquisition, storage, and application. Newly acquired knowledge cannot be deployed unless it is integrated with the FSE's existing stock of knowledge (Finke et al. 1995). This updated stock of knowledge then can transform into new ideas that can be directly applied or articulated to others in the firm (Ye et al. 2012). We recommend a longitudinal approach to trace how ideas are used in new product or service development processes or transformed into new strategies that are implemented organization-wide.

## 2.7. Notes

<sup>1</sup> Although the term *service recovery* is typical in literature referring to a service breakdown (e.g., De Matos et al. 2007; Maxham and Netemeyer 2002; Smith, Bolton, Wagner 1999), few studies consider after-sales services for product repair. One notable exception is Brady et al. (2008), who consider failures of cellular phones and televisions. We use the term *recovery service* to denote the act of providing a recovery, including that for products.

<sup>2</sup> We included direct paths from innovation orientation (de Jong et al. 2003) and learning orientation (Sujan et al. 1994) to ideas for improvement. Prior literature argues that innovation- and learning-oriented workers are more inclined to look for improvement, due to their disposition to leverage new and existing knowledge (Scott and Bruce 1994). Age, job experience, and organizational tenure were modeled as controls for ideas for improvement as well as the performance outcomes. Experience and tenure refer to seniority, which may enhance idea development and performance because senior employees have more elaborate knowledge about the firm's procedures and processes and therefore more easily spot inefficiency. Increasing age, instead, is generally associated with a loss of innovativeness and degeneration of employee capabilities (e.g., Fu 2009). This may negatively impact ideas for improvement and FSE performance. Job autonomy and self-efficacy were also modeled as controls for ideas for improvement and the performance outcomes. Prior research has found that increased autonomy provides employees with more opportunities to be creative (George 2007). Moreover, it increases employee adaptability to customer needs, but may also lead to unnecessary variability which slows service delivery (Marinova et al. 2008). Finally, higher levels of self-efficacy may increase employees' confidence that idea development will lead to performance gains (i.e., it may be an antecedent to ideas for improvement). It may also impact performance outcomes directly because self-confident employees are more focused and make fewer mistakes (Bandura and Locke 2003).

<sup>3</sup> While PLS is particularly suited for assessing complex models like ours, we also estimated the main model with covariance-based structural equation modeling to prove the robustness of our model. We used AMOS, which led to identical findings in terms of the (in)significance of parameter estimates and their signs.

# Chapter 3

## Using frontline service employees as information interfaces: Does it compromise or enhance customer satisfaction? \*

In addition to solving customer problems, frontline service employees (FSEs) are increasingly required to exchange information with customers for innovation or brand building purposes. It remains unknown how such behaviors impact customer evaluations of the service encounter though. Building on boundary spanning theory, we introduce feedback seeking and brand promotion behavior as two FSE information interface behaviors (IIBs). PLS analyses on data from three sources (i.e., FSE survey, customer survey and objective company records) reveal that the impact of IIBs on customer satisfaction is highly dependent on FSEs' familiarity with their customers and their work creativity. Specifically, when FSEs develop ideas for improvement they (a) convert acquired feedback into enhanced service performance and subsequent customer satisfaction and (b) make customers more appreciative of their brand promotion activities. We show that managers may stimulate FSEs to perform IIBs by enhancing their organizational identification, but that doing so may not be advisable for every frontliner. The implications of this study are valuable to scholars and practitioners and provide a fruitful ground for further research.

*\* This research was conducted in collaboration with Jeroen Schepers and Edwin Nijssen. The study was presented at the Global Business Conference 2013, October 3-5 2013, Opatija, Croatia.*



### 3.1. Introduction

Firms increasingly recognize that their FSEs represent an important information interface between the firm and its customers. While FSEs are traditionally responsible for solving customers' problems, their role has been extended to that of "corporate brand ambassador" charged with collecting market information for innovation purposes and promoting the company's core values towards customers (Coelho et al. 2011; Morhart et al. 2009). Spanning the boundary between firm and customer, FSEs are in perfect position to do so. First, the plentiful service encounters allow FSEs to gather firsthand customer reactions and improve products and services accordingly (Lages and Piercy 2012; Van der Heijden et al. 2013). Second, FSEs are the face of the organization to customers, which provides ample opportunities to distribute positive information to promote their company and build a stronger brand (Bettencourt et al. 2005).

Despite the proposed benefits of FSEs gathering and distributing information, it remains unknown how such behaviors impact customer evaluations of the service. On the one hand, customers may appreciate business with a firm that strives to improve its products and services (Henard and Dacin 2010). On the other hand, such initiatives may lead customers to think that the firm's products and services are not yet fully developed and that their resources are being "misused" to benefit the firm rather than themselves. It is important to shed light on this issue, since achieving innovation at the cost of dissatisfied customers is unlikely to be a sustainable business model. In addition, research assumes that FSEs promoting their firm always yields positive results, i.e., brand promotion satisfies customers. However, customers may perceive FSEs as too assertive and therefore not genuine, lowering satisfaction with the service encounter (Campbell and Kirmani 2000). Indeed, Wentzel (2009) shows that the outcomes of employee brand promotion behavior are highly dependent on characteristics of the employee-customer relationship. Hence, it is important to know whether FSE initiatives to gather and distribute information benefit or harm customer satisfaction, and under which conditions what effect is most likely to prevail.

The aim of this study is to examine how FSEs can function as an information interface between the firm and its customers, and what is the impact on customer satisfaction. We offer three important contributions to literature. First, we introduce the concept of *information interface behaviors* (IIBs), which we define as frontline employee behaviors that manage the

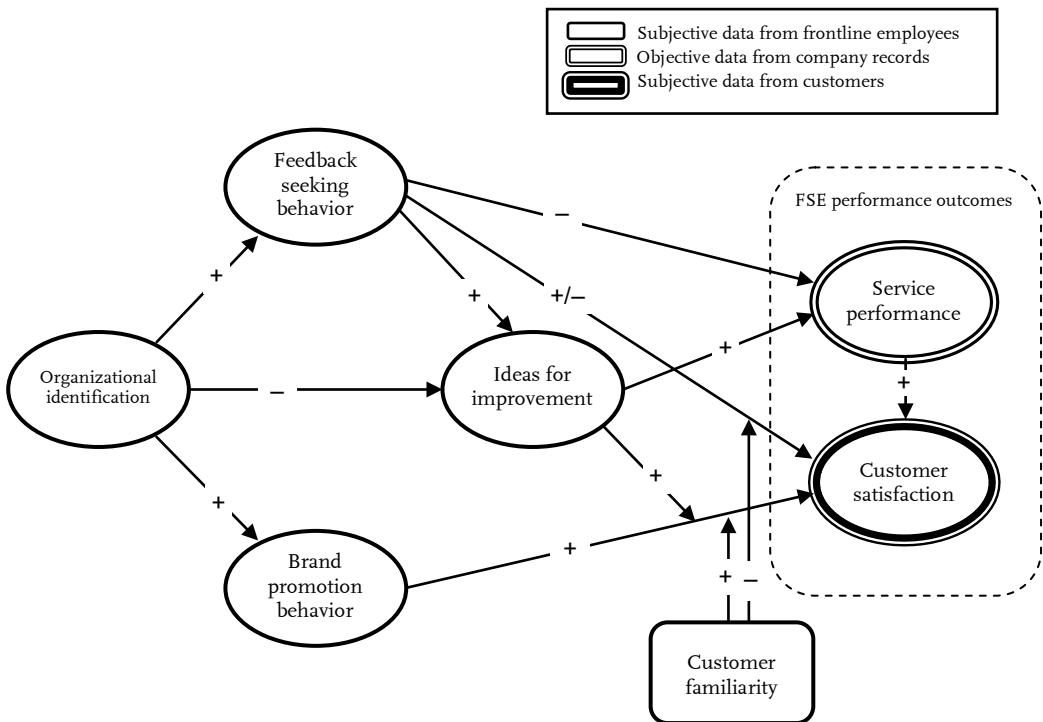
information flow between the firm and its customers (also see Table 3.1). We derive them from boundary spanning theory (Adams 1976), which holds that frontline employees are a key inbound and outbound communication channel for companies. Therefore, we identify FSE *feedback seeking behavior*, which refers to activities to collect customer experiences with and suggestions about the firm's service or product offerings (cf. Ashford et al. 2003). Integrating this information with existing knowledge leads FSEs to develop ideas on how products or services may be improved. In addition, we identify FSE *brand promotion behavior*, which refers to activities that promote the company's image and offerings towards customers (Bettencourt and Brown 2003). We examine both the antecedents and consequences of IIBs, and employ multi-source data to empirically substantiate the hypothesized effects.

**Table 3.1.** Key constructs and definitions.

| Construct                                     | Definition  |
|---|---|
| <i>Information interface behaviors (IIBs)</i> | Frontline service employee behaviors that manage the information flow between the firm and its customers. They include feedback seeking and brand promotion behavior.   |
| <i>Feedback seeking behavior</i>              | Activities to collect customer experiences with and suggestions about the firm's service or product offerings.  |
| <i>Brand promotion behavior</i>               | Activities that promote the company's image and offerings towards customers.  |
| <i>Ideas for improvement</i>                  | The frontline service employee's novel responses that comprise improved solutions to their service demands and tasks. Ideas may be related to improving service processes but also to products involved in the service. |
| <i>Organizational identification</i>          | The frontline service employee's perceived oneness with his or her organization.  |
| <i>Customer familiarity</i>                   | The extent to which the frontline service employee knows the customers he or she services.  |
| <i>Service performance</i>                    | The extent to which the frontline service employee provides a durable solution to customer problems. For this study, service performance is captured by the quality of FSEs' product repair jobs.                       |
| <i>Customer satisfaction</i>                  | The extent to which the service encounter falls short of or exceeds the customer's expectations.  |

Second, we provide evidence that the effectiveness of IIBs to enhance customer satisfaction is highly dependent on employees' creative processes. Specifically, we focus on FSEs' *ideas for improvement*: novel responses that comprise improved solutions to their service demands and tasks (West 2002). Operating at the firm's boundary, FSEs are especially likely to generate ideas for product and service innovation, because they continuously confront new customer insights that are unaffected by dominant organizational paradigms (Melton and Hartline 2010). Ideas for improvement may benefit the effectiveness of both IIBs. To begin with, feedback seeking may harm the extent to which an FSE provides a durable solution to customer problems (i.e., his/her *service performance*) because it takes time and effort. Yet, it may also lead frontline workers to generate and implement ideas that improve service performance. In addition, FSEs who embed ideas for improvement in their brand promotion behavior may receive more appreciation as customers like to be associated with enterprising companies (Chun and Davies 2006). Ideas for improvement therefore have a mediating and a moderating role, as Figure 3.1 depicts.

Figure 3.1. The conceptual framework.



Third, because FSEs act as firm representatives when engaging in IIBs, we examine organizational identification (OI) as a crucial driver of both feedback seeking and brand promotion behaviors. High identifiers perceive a higher degree of “oneness” with their organization (Ashforth and Mael 1989), and are therefore more likely to contribute to the welfare of the organization by gathering and distributing information. Yet, we also highlight the previously unexplored downside of OI, as it can trigger FSEs to conform to organizational paradigms and constrain them to think “outside the box” (cf. Madjar et al. 2011). We show that OI inhibits idea development and restrains employees to take full advantage of their IIBs. We also explore how managers may alleviate this backlash-effect of OI.

### 3.2. Theoretical background

This study investigates IIBs’ influence on customer satisfaction. Because much has been written about frontline employee behaviors, we first provide an overview to substantiate the lack of attention for IIBs and indicate how they differ from other behaviors. Table 3.2 shows four types of frontline behaviors: task-oriented behaviors, interaction-oriented behaviors, organizational citizenship behaviors (OCBs), and information interface behaviors (IIBs). We exclude the more generic extra-role behaviors (ERBs), i.e., acts that go beyond job descriptions and benefit the firm (Netemeyer and Maxham 2007). As firms expand FSEs’ job descriptions, employee behaviors can no longer be considered extra-role when they become a formal part of frontline jobs. In response, scholars identified explicit FSE behaviors with valued outcomes. We focus on these explicit behaviors accordingly and use them to categorize prior research. For each category, Table 3.2 lists the relevant studies.

Task-oriented behaviors refer to the basic employee actions needed to solve customers’ problems or comply with customers’ requests (c.f. Homburg, Müller and Klarmann 2011). Several task-oriented behaviors have been researched, such as customer need identification (e.g., Homburg et al. 2009), prompt complaint handling (e.g., Bitner et al. 1990) and problem solving (e.g., Liao 2007). Such behaviors are considered “hygiene factors” because they are important, yet customers also expect them. Interaction-oriented behaviors refer to employee actions that establish a pleasant personal interaction between the employee and the customer (e.g., Gremler and Gwinner 2008). Examples include courtesy behavior (e.g., Bettencourt et al. 2001), rapport building (e.g., Gremler and Gwinner 2000) and adaptive behavior (e.g., Chebat and Kolias 2000). Interaction-oriented behaviors generally

complement task-oriented behaviors. Organizational citizenship behaviors (OCBs) occur in one's own organization and support the effectiveness of organizational processes (Organ, Podsakoff and MacKenzie 2006). Examples include helping colleagues and civic virtue (i.e., expressing interest and concern about the company). OCBs do not directly benefit the functioning of products, services, or the FSE him/herself, but enhance the work atmosphere among colleagues and overall productivity.

IIBs are performed by frontline employees to gather information from and distribute information to customers. IIBs uniquely combine a key characteristic of task-oriented and interaction-oriented behaviors (i.e., they take place during service encounters) with an important OCB feature (i.e., they benefit the firm). Unlike the other behaviors though, IIBs may enhance the firm's product and service offerings and corporate image. IIBs stem from boundary spanning theory (Adams 1976), which states that frontliners to a large extent determine the inbound and outbound information that passes the organization's boundaries. FSEs have an information processing role in which they access, filter, and translate sticky customer knowledge, and a representation role in which they manage the firm's brand image (Aldrich and Herker 1977; Stock 2006). Both these roles can enhance customer satisfaction, either by translating customer knowledge into improved solutions or by building a stronger brand that customers like to engage with.

Empirical research on IIBs is scant. Customer feedback allows frontliners to learn and help the firm to innovate (e.g., Challagalla et al. 2009), but —as Table 3.2 illustrates— most studies on the topic are conceptual or take a firm-level perspective that abstracts from service process and individual-level details. Alternatively, Lages and Piercy (2012) and Tucker (2007) conceptualize and empirically validate how FSEs may take initiative to improve service systems, but do not provide evidence on operational outcomes or customer evaluations of such behavior. A few studies have recognized the importance of brand promotion behavior (or “representation behavior”) and focused on its antecedents (e.g., Bettencourt et al. 2001; Morhart et al. 2009), but evidence on its outcomes remains limited. In addition, we do not know whether IIBs are effective in every customer – employee relationship. Because prior research shows that the value of information exchange is highly dependent on the time and emotional resources that have been invested in a relationship (Granovetter 1973), we consider the role of customer familiarity in IIBs' functioning. Customer familiarity represents the extent to which an

employee knows the customers he/she services. We discuss our conceptual framework next.

**Table 3.2.** An overview of frontline behaviors

| Type of behavior              | Task-oriented behaviors  | Interaction-oriented behaviors  | Organizational citizenship behaviors  | Information interface behaviors  |
|-------------------------------|--|---|---|--|
| Description                   | Employee behaviors aimed at solving the customer's problem or complying with the customer's request.   | Employee behaviors aimed at establishing a pleasant personal interaction between the employee and the customer.   | Employee behaviors that support the effective functioning of organizational processes.  | Employee behaviors that manage the information flow between the firm and its customers.  |
| Specific behaviors researched | <p><b>Prompt complaint handling</b> (e.g., Bitner, Booms, and Tetreault 1990; Liao 2007; Parasuraman, Zeithaml, and Berry 1985);</p> <p><b>Problem solving</b> (e.g., Bitner et al. 1990; Liao 2007);</p> <p><b>Need identification</b> (sometimes referred to as functional customer-oriented behaviors; e.g., Homburg, Wieseke, and Bornemann 2009; Homburg, Müller and Klarmann; 2011a, 2011b);</p> <p><b>Information provision</b> (e.g., Rafaeli, Ziklik and Doucet 2008; Van Vaerenbergh, Larivière, and Vermeir 2012);</p> <p><b>Working hard</b> (e.g., Rapp, Ahearne, Mathieu and Schillewaert 2006).</p> | <p><b>Courtesy</b> (Bettencourt and Brown 2003; Bettencourt, Gwinner and Meuter 2001; Liao 2007);</p> <p><b>Rapport-building</b> (sometimes referred to as functional customer-oriented behaviors; Gremler and Gwinner 2000, 2008; Homburg, Müller and Klarmann 2011; Stock and Hoyer 2005);</p> <p><b>Deep and surface acting</b> (Groth, Hennig-Thurau, and Walsh 2009; Hennig-Thurau, Groth, Paul, and Gremler 2006);</p> <p><b>Apologizing</b> (Liao 2007; Smith, Bolton and Wagner 1999);</p> <p><b>Adaptive behavior</b> (Chebat and Kollias 2000; Gwinner, Bitner, Brown and Kumar 2005);</p> <p><b>Service sweethearting</b> (Brady, Voorhees and Brusco 2012).</p> <p><b>Working smart</b> (e.g., Rapp, Ahearne, Mathieu and Schillewaert 2006).</p> | <p><b>Helping</b> (often presented as a higher-order construct including altruism, courtesy, peacekeeping, and cheerleading; Bell and Menguc 2002; Netemeyer et al. 1997; Organ 1988, 1990; Podsakoff Ahearne and MacKenzie 1997; Podsakoff MacKenzie and Bommer 1996);</p> <p><b>Sportsmanship</b> (Bell and Menguc 2002; Organ 1988, 1990; Podsakoff Ahearne and MacKenzie 1997; Podsakoff MacKenzie and Bommer 1996);</p> <p><b>Civic virtue</b> (Bell and Menguc 2002; Netemeyer et al. 1997; Organ 1988, 1990; Podsakoff Ahearne and MacKenzie 1997; Podsakoff MacKenzie and Bommer 1996).</p> | <p><b>Feedback seeking</b> (e.g., Challagalla, Venkatesh and Kohli 2009);</p> <p><b>Brand promotion</b> (Bettencourt and Brown 2003; Bettencourt et al. 2005; Morhart et al. 2009).</p>  |
| Examples                      | A service engineer who installs a spare part after receiving a customer complaint about equipment not working properly. A call center employee answering customer questions about how to use software.   | A service engineer who remembers customers' names and engages in emphatic listening whenever there is a complaint. A call center employee adjusting his/her behavior by explaining technical issues to a layman in an easy manner.  | A service engineer employee who helps his/her coworkers in case of personnel capacity problems. A call center employee who regularly cheers up his colleagues after long days of work with many customer complaints.  | A service engineer who asks customers about any other problems or issues, except for the one he/she was called for. A call center employee informing customers about their firm introducing a call center certificate to improve call handling time. |

### 3.3. Framework and Hypotheses

The conceptual framework in Figure 3.1 shows feedback seeking and brand promotion behavior and their hypothesized direct effects on customer satisfaction. FSEs' familiarity with their customers is expected to moderate these relationships. Feedback seeking also indirectly affects customer satisfaction through ideas for improvement and consequent service performance enhancement. While ideas for improvement mediates between feedback seeking and customer satisfaction, it moderates the effect of brand promotion behavior on customer satisfaction. Finally, we expect that OI drives IIBs, but limits the generation of ideas for improvement. We develop our hypotheses next.

#### 3.3.1. How IIBs relate to customer satisfaction

*Feedback seeking behavior.* Feedback seeking FSEs tap into customer resources to improve their firm's products and services. Literature outlines two contradictory effects of this behavior on customer satisfaction levels. It may be that feedback seeking positively influences customer satisfaction; as customers participate in improvement initiatives, they feel that they can directly contribute to product and service quality. Perceptions of increased control over (future) outcomes satisfy customers (Dong, Evans and Zou 2008). In addition, customers appreciate business with a firm that strives to improve its products and services (Henard and Dacin 2010). Such firms are perceived as both creative and progressive with regard to product and service introductions and instill enthusiasm and excitement for future innovations. Customers asked by FSEs to reflect on product and service experiences thus may evaluate such encounters more positively.

It could also be that feedback seeking negatively influences customer satisfaction. Eisingerich, Auh, and Merlo (2013) recently argued that although participating customers patronize the firm, it is doubtful whether this effect holds when the firm (rather than the customer) takes the initiative to exchange information. Customers form strong, negative relationships with brands that hinder them from achieving their goals. Firms' request to participate in time-consuming activities such as improvement initiatives do not contribute to short-term customer goal achievement and may annoy or even offended customers. They may think that the firm releases products and services on the market too soon and uses precious customer resources to finalize development (Fang, Palmatier and Evans 2008).

We hypothesize that the familiarity of the FSE with his/her customer differentiates between the positive or the negative effect of feedback seeking behavior on customer satisfaction. Customers who interact with an employee for the first time have less clear expectations of the service encounter and may be positively surprised that an FSE puts trust in their capabilities to participate in improvement initiatives (Falk et al. 2010). Also, feedback seeking may at first be regarded as a cue for the complexity of the service job, creating more appreciation for the FSE's effort and competence in the service encounter (Thompson and Ince 2013). In contrast, as customers gather experience with an FSE, service behaviors that were formerly recognized as new, interesting, and challenging, lose their potential to satisfy customers (Rust and Oliver 2000). In addition, as they get to know an employee better and have exchanged information before, customers may feel that they have less valuable insights to share in the service encounter. They may consequently get annoyed if an FSE consistently pursues feedback seeking. Customers in long-term service relationships may also feel that a service provider is more likely to act opportunistically and take advantage of scarce customer resources (Grayson and Ambler 1999). In sum, we hypothesize:

**H1:** *Customer familiarity moderates the relationship between FSE feedback seeking behavior and customer satisfaction, such that the relationship is positive when customer familiarity is low, and negative when customer familiarity is high.*

*Brand promotion behavior.* We predict that FSE brand promotion behavior relates positively to customer satisfaction, because favorable statements about a firm may frame the service encounter in a more positive way, thereby increasing the customers' enjoyment of personal interaction (Hennig-Thurau et al. 2006). Interaction experiences are an important part of service encounter satisfaction formation (Wieseke et al. 2012). Underlying the positive framing may be a process of emotional contagion, wherein customers "catch" the emotion of the FSE (Howard and Gengler 2001). Emotional contagion is caused by positive (non)verbal cues embedded in brand promotion behavior (e.g., positive words, enthusiasm, body language; Wieseke et al. 2009). Customers interpret these cues as positive attributes of the service provider and frame the firm in their mind accordingly (Keller 1993). In fact, customers tend to rely on affective associations as an important cue regarding the firm's ability to provide high-quality products and services (Hennig-Thurau et al. 2006). We therefore hypothesize:



*H2: FSE brand promotion behavior is positively related to customer satisfaction with the service encounter.*

We hypothesize that the familiarity of the FSE with his/her customer strengthens the positive effect of brand promotion behavior on customer satisfaction. As customers get to know a frontliner better, they develop a stronger tie. A tie is characterized by the amount of time and the emotional intensity that both parties have invested in the relationship (Granovetter 1973). Messages from stronger ties are perceived to carry more value, generate more awareness, and therefore have a stronger impact on evaluations and decisions of the receiver (De Bruyn and Lilien 2008). In a service context, a customer may need some time with a frontline employee to fully believe his brand promotion messages and update satisfaction perceptions accordingly. Frontliners' brand promotion initiatives on first-time contact may be regarded by a customer as too assertive; especially in earlier stages of relationships, customers tend to regard persuasion efforts of frontline employees with suspicion (Campbell and Kirmani 2000; Pallai and Sharma 2003). Such acts may therefore be perceived as not genuine, which would attenuate the effect of brand promotion behavior on satisfaction with the service encounter. We therefore hypothesize:

*H3: Customer familiarity moderates the relationship between FSE brand promotion behavior and customer satisfaction with the service encounter, such that the relationship is stronger when customer familiarity increases.*

### **3.3.2. The role of ideas for improvement**

*Ideas for improvement as a mediator.* Besides the direct effect of feedback seeking behavior on customer satisfaction, we also expect an indirect effect to occur through FSE ideas for improvement and subsequent service performance enhancement. Feedback seeking involves asking about product users' experiences and suggestions which trigger customers to share knowledge that otherwise would have remained unarticulated. By accessing, filtering, and translating such sticky customer knowledge, FSEs access potentially valuable information. Customers can provide the FSE experience-based facts but also useful recommendations on how the provider's processes or products might be improved (Chan, Yim and Lam 2010). Feedback seeking

thus extends beyond a basic conversation to identify the customer's problem (i.e., problem solving behavior).

Information from feedback seeking stimulates idea generation in two ways. First, using analogical reasoning individuals integrate information in their current knowledge base and establish creative connections between new and existing knowledge (Ye et al. 2012). The more new information an employee adds to existing knowledge structures, the more likely he/she is to develop ideas for improvement (Coelho et al. 2011). Second, information from customer feedback may challenge current modes of conduct. The human need for cognitive closure (i.e., the desire to eliminate ambiguity) then motivates FSEs to develop ideas to adapt routines so that they more closely match the new information received (Webster and Kruglanski 1994).

When generated ideas for improvement are positively evaluated by the FSE, they are stored in memory as action schemas that are activated when receiving a specific external trigger (Gollwitzer, 1999; Orbell, Hodgkins, and Sheeran, 1997). For instance, an FSE working for a document solutions provider may service a copier that irregularly produces inaccurate images. In a personal conversation, the customer tells that the room temperature fluctuates during the day. Combining this new information with existing knowledge leads the FSE to adjust a series of software settings; a hitherto unknown service routine. It may prove to be a more robust and efficient solution to the problem than the existing routine of installing spare parts. Once rolled out across a large customer base, it may substantially improve the FSE's overall service performance (Gong et al., 2009; West and Farr, 1990). While ideas may not always be implemented directly, nor in every service encounter, a greater effort in idea development is likely to manifest itself in performance improvement over time (West and Farr 1990). In sum, we expect ideas for improvement to mediate the influence of feedback seeking behavior on service performance. Formally:

*H4a: FSE feedback seeking behavior positively influences the extent to which the FSE develops ideas for improvement.*

*H4b: The extent to which the FSE develops ideas for improvement positively influences the FSE's service performance.*

Notwithstanding the positive impact of feedback seeking, a direct negative effect of feedback seeking behavior on service performance should also be accounted for. Soliciting information beyond a simple inquiry of

symptoms will keep the FSE from activities directly relating to solving the problem. Trying to attend to and interpret new customer information takes up mental resources and leaves fewer resources for regular task execution, triggering the use of simplified cognitive strategies, such as narrowing one's perceptual attention (Chan, Yim and Lam 2010; Jasmand et al. 2012a). Employees then ignore task-related information and cues to perform effectively. We therefore hypothesize:

*H5: FSE feedback seeking behavior negatively influences the FSE's service performance.*

Following well-established insights in service quality literature (cf. Kamakura et al. 2002), we expect that a better service performance results in higher customer satisfaction. FSEs who provide a durable solution to customer problems are more likely to positively disconfirm customers' expectations and hence create customer satisfaction (Rust and Oliver 2000). Therefore, we hypothesize:

*H6: FSE service performance positively influences customer satisfaction with the service encounter.*

*Ideas for improvement as a moderator.* We expect FSE ideas for improvement to strengthen the relationship between FSE brand promotion behavior and customer satisfaction. FSEs may decide to communicate their ideas while promoting their organization, because they are cognitively primed to assess the value of their ideas with others (cf. Forgas and George 2001; Williams and Spiro 1985). In addition, having more ideas increases the likelihood that at least some of them are expressed to others. In combining brand promotion behavior with ideas for improvement, for instance by informing customers about intentions to update product features, FSEs profile their firm as innovative. Analogous to feedback seeking behavior, this positive reputation effect may be met with customer enthusiasm (Henard and Dacin 2010). In sum, ideas for improvement frame brand promotion as more innovation-oriented, which makes customers more satisfied. Therefore, we hypothesize:

*H7: FSE ideas for improvement positively moderate the relationship between brand promotion behavior and customer satisfaction.*

### 3.3.3. *Organizational identification*

*The effect of OI on IIBs.* Employees who identify with their organization experience the firm's successes and failures as their own (Ashforth and Mael 1989; Van Knippenberg 2000). They have a strong motivation to contribute to the welfare of the firm and see that they can do so through feedback seeking. By asking customers about their feedback and suggestions for improvement, FSEs increase their knowledge about customers, which facilitates their firm delivering superior service to stay ahead of competition (Challagalla et al. 2009). In contrast, low identifiers are not intrinsically motivated to enhance the organization's long-term success, and as a result seek less feedback (Wieseke et al. 2009). They may be inclined to help the customer, but will focus on efficient task execution rather than engaging in additional feedback seeking activities.

We expect OI to be a strong driver of brand promotion behavior too. Employees who identify with their organization are proud and want to ensure that their affiliation is communicated to relevant audiences in the most positive light. Such communication helps employees to socially validate their firm identification and positively distinguishes their own organization (the "ingroup") from competitors (the "outgroup") (Ashforth and Mael 1989). In addition, brand promotion is an important persuasion mechanism to convince customers that their choice for the FSE's organization is the right one (Netemeyer et al. 2012). Specifically, customer complaints and product problems may put the organization in bad light. FSEs who identify with their organization try to prevent this through vocal advocacy, as this stimulates customers to make charitable attributions on the firm's intentions during failures (Bhattacharya and Sen 2003). In sum, we hypothesize:

*H8: OI positively influences the FSE's a) feedback seeking behavior and b) brand promotion behavior.*

*The effect of OI on ideas for improvement.* Finally, we predict that OI has a direct negative effect on FSE ideas for improvement. High identifiers more strictly conform to established organizational rules and processes than low identifiers (Van Knippenberg 2000). As developing ideas for improvement requires employees to think outside the box rather than sticking to formally accepted routines (West and Farr 1990), a high OI may limit the FSE's idea development. Moreover, high identifiers are less inclined to develop ideas

because of self-protection. They have a need to be accepted by their ingroup (i.e., their organization), which makes them hesitant to come up with new routines; discussion and rejection of new thoughts should be prevented. In sum, for FSEs who highly identify with their organization, conformity maintains their social identity with the group, but restricts idea development (Madjar et al. 2011). Therefore, we predict that:

*H9: OI negatively influences the extent to which FSEs develop ideas for improvement.*

### 3.4. Method

#### 3.4.1. Sample and data collection

For this study, we collected data from the same company as in chapter 2. FSEs are specialized in delivering on-site repair and maintenance services, for which they physically visit multiple customers per week and have regular face-to-face interactions that provide opportunities to engage in feedback seeking and brand promotion behavior. The data for this research were collected from three separate sources: (a) paper-and-pencil survey data from FSEs; (b) FSE service performance data from company records; and (c) customer satisfaction data from online surveys. The FSE surveys were personally distributed and collected during monthly meetings of FSEs with their managers at headquarters. Of the 184 FSEs involved, we received 133 usable responses, resulting in a response rate of 72.3%.<sup>1</sup>

#### 3.4.2. Measures

We drew on existing literature to operationalize most latent constructs and used multi-item scales. All items were measured using a seven-point Likert scale (1="strongly disagree" and 7="strongly agree") unless indicated otherwise. An overview of the measures of our study's constructs, as well as their reliabilities, appears in Table 3.3.

*Information interface behaviors (IIBs).* The five items of feedback seeking behavior were based on work by Gray and Meister (2004) and Challagalla et al. (2009). To operationalize brand promotion behavior, we used Bettencourt and Brown's multi-item scale (2003).

*Customer familiarity.* We used two survey items that captured the degree to which the FSE is familiar with customers and the key contact persons. The scale was specifically developed for this study.

**Table 3.3.** Constructs, items and measurement model.

| Constructs   | Factor Loading |
|--|----------------|
| <b>Feedback seeking behavior (<math>\alpha = .89</math>)</b> <i>During my service visits in the last six months,</i>                   |                |
| 1. I always took time to actively solicit suggestions from customers about [company's] products and services.                          | .85            |
| 2. I actively sought feedback from customers to get information about their satisfaction with the product or service.                  | .90            |
| 3. I always took initiative to obtain detailed information on customers' experiences with [company's] solutions.                       | .85            |
| 4. I explicitly asked customers about their ideas for product or service improvement.  | .81            |
| 5. I always obtained diagnostic information on product or service performance from my customers, even if this cost me some extra time. | .79            |
| <b>Brand promotion behavior (<math>\alpha = .79</math>)</b> <i>During my service visits in the last six months,</i>                    |                |
| 1. I often told customers that [company] is a great place to work.   | .89            |
| 2. I have generated favorable goodwill for [company].  | .94            |
| 3. I have been criticizing [company] a lot to customers (R).   | .65            |
| <b>Customer familiarity (<math>\alpha = .75</math>)</b> <i>In general,</i>   |                |
| 1. I am very familiar with my customer contact persons.  | .82            |
| 2. The contact persons of my customers are usually present when I visit.   | .95            |
| <b>Ideas for improvement (<math>\alpha = .87</math>)</b>   |                |
| 1. Compared to your colleagues, how many ideas for service process improvement did you have over the past six months?                  | .87            |
| 2. Over the last six months, how often did you think of new solutions that can really improve the company's service delivery process?  | .83            |
| 3. Compared to your colleagues, how many ideas for product improvement did you have over the past six months?                          | .89            |
| 4. Over the last six months, how often did you think of new product solutions that can really improve the products that you work with? | .79            |
| <b>Organizational Identification (<math>\alpha = .84</math>)</b>   |                |
| 1. When someone criticizes [company], it feels like a personal insult.   | .82            |
| 2. [Company's] successes are my successes.   | .78            |
| 3. When someone praises [company], it feels like a personal compliment.  | .91            |
| 4. If a story in the media criticized [company], I would feel embarrassed.   | .81            |
| <b>Customer satisfaction with the service encounter (<math>r_{\text{wgrff}} = .85</math>)</b> (Customer-rated):                        |                |
| 1. I am satisfied with how the problem was solved.   | .91            |
| 2. The problem was solved according to the agreed service standards.   | .80            |

Notes: all t-values are significant at  $p < .01$ ; The items that were reverse scored for analysis are indicated by (R)

*Ideas for improvement.* We asked respondents to reflect on the ideas for improvement that they had during the past six months. Preliminary interviews and prior research (e.g., Liao 2007) indicate that respondents have difficulties remembering their past activities when using time frames longer than six months. Moreover, a six months frame optimizes the chance that FSEs reported relevant ideas compared to shorter time spans where we might have missed out on such reportings. Because services are increasingly part of a value bundle including both product and service components (i.e., service supports high-tech products) respondents were asked to report on both ideas for improving the service and the product (cf. Tuli et al., 2007; Vargo and

Lusch, 2004). We used seven-point semantic differential scales to obtain the answers (1="never" or "few" to 7="always" or "many"). Again, management ratings of the ideas made sure that ideas for improvement captured truly implementable insights instead of unrealistic thought experiments.

*Organizational identification (OI).* We measured OI with the four-item scale developed by Mael and Ashforth (1992).

*Service performance.* The measure of service performance was based on longitudinal archival data obtained from company records. It included each FSE's average uptime of products served during the past ten-month period. This time frame was based on firm experience; it guaranteed capturing valid service performance measures (i.e., including those measures that pertained to work on machines with large uptime norms) and reduced the impact of outliers, such as performance dips resulting from a unique, extremely persistent problem. Because some products break down more easily than others, and to ensure that our measure reflects after-sales service quality rather than inherent product (design) quality, an employee's uptime was corrected for product types served using a product-specific norm (as a percentage). Because each FSE services different products, which all have different norms, the scores were averaged to an aggregate uptime score. For greater robustness, we ruled out the potential effects of "lemons," or products that constantly break down or are hard to fix. No single product produced uptime scores that consistently violated product-specific norms.

*Customer satisfaction.* The company routinely surveyed randomly selected customers about their satisfaction with the last service visit of the FSE. They rated their satisfaction using two items and a four-point Likert scale (1="strongly disagree" and 4="strongly agree"). On average there were 4 responses per FSE. These customer responses were aggregated by FSE to obtain one satisfaction score.

*Control variables.* We included five variables to control for the most likely alternative explanations for IIBs, ideas for improvement, service performance, and customer satisfaction. Consistent with other frontline employee studies, we controlled for FSEs' age, job experience, and for the most salient individual traits: service orientation (SO) and performance orientation (PO) (e.g., Bettencourt and Brown 2001; Ye et al. 2007). SO refers to an individuals' sincere desire to satisfy customer needs; PO represents an individual's tendency to demonstrate and validate his or her competence to others. We also included an objective measure for FSEs' average number of service visits per day to control for FSEs' productivity.

### 3.4.3. Analyses

We analyzed our data using SPSS 15 and SmartPLS 2.0 (Chin 1998; Ringle et al. 2005). All constructs proved reliable; the Cronbach's alphas equaled or exceeded Nunnally's (1978) threshold of .7 (see Table 3.3). We used SmartPLS to assess the correlations and average variances extracted (AVEs) of our key latent constructs (Table 3.4). The AVE of all indicator variables exceeded .5 and the square root of the AVEs was larger than the intercorrelation with any other study construct, yielding evidence for convergent and discriminant validity respectively (Chin, 1998; Fornell and Larcker, 1981). Moreover, we aggregated a total of 537 customer responses to employee-level. To justify data aggregation, we calculated the rwg(j) statistic (James et al. 1993); we found a high degree of consistency in the customer ratings per single FSE (rwg(j) = .85).

We obtained the estimates for the parameters of our structural model through partial least squares (PLS). For an accurate estimation of the hypothesized moderation effects, we added the direct paths of the moderator variables on their dependent variables. We also assessed additional direct paths from OI and IIBs to the dependent variables to validate the robustness of our model and test for potential direct effects.

**Table 3.4.** Correlations and average variances extracted.

| Variable                        | 1                  | 2                 | 3                 | 4                | 5     | 6    | 7     |
|---------------------------------|--------------------|-------------------|-------------------|------------------|-------|------|-------|
| 1 Feedback seeking behavior     | (.69) <sup>a</sup> |                   |                   |                  |       |      |       |
| 2 Brand promotion behavior      | .17                | (.71)             |                   |                  |       |      |       |
| 3 Customer satisfaction         | .04                | -.07              | (.73)             |                  |       |      |       |
| 4 Customer familiarity          | .12                | .09               | .08               | (.79)            |       |      |       |
| 5 Ideas for improvement         | .32 <sup>**</sup>  | .08               | -.04              | -.04             | (.72) |      |       |
| 6 Service performance           | -.10               | -.11              | .24 <sup>**</sup> | .11              | .08   | (--) |       |
| 7 Organizational identification | .24 <sup>**</sup>  | .50 <sup>**</sup> | .16               | .23 <sup>*</sup> | .01   | -.02 | (.69) |

<sup>a</sup>The average variance extracted of the subjective constructs are shown on the diagonal, between brackets. \*  $p \leq .05$ . \*\*  $p \leq .01$  (two-tailed).

### 3.5. Results

Table 3.5 shows the standardized path coefficients for two PLS models. We initially calculated a *non-mediated model* without ideas for improvement and service performance, and then developed the *hypothesized model*, which includes these two constructs as mediators. The hypothesized model explains



20.1% of the variance in service performance and 21.9% in customer satisfaction. The explained variances of these outcome variables, which were measured through other data sources, compare favorably with those reported in other frontline employee studies using multiple data sources (e.g., Ahearne et al. 2010).

**Table 3.5.** Standardized Path Coefficients in the Research Model.

|  |    | Standardized Path Coefficients |                    |
|--|----|--------------------------------|--------------------|
|  |    | Non-mediated Model             | Hypothesized Model |
| <i>Hypothesized paths</i>  |    |                                |                    |
| Feedback seeking behavior → Customer satisfaction                        |    | .04                            | .04                |
| Feedback seeking behavior × Customer familiarity → Customer satisfaction | H1 | -.17**                         | -.15**             |
| Brand promotion behavior → Customer satisfaction                         |    | -.17*                          | -.16*              |
| Brand promotion behavior × Customer familiarity → Customer satisfaction  | H3 | .14*                           | .16*               |
| Feedback seeking behavior → Ideas for improvement                        |    | ---                            | .28**              |
| Ideas for improvement → Service performance                              |    | ---                            | .25**              |
| Feedback seeking behavior → Service performance                          |    | ---                            | -.17**             |
| Service performance → Customer satisfaction                              |    | ---                            | .18**              |
| Brand promotion behavior × Ideas for improvement → Customer satisfaction |    | ---                            | .12*               |
| OI → Feedback seeking behavior   |    | .20**                          | .20**              |
| OI → Brand promotion behavior  |    | .47**                          | .48**              |
| OI → Ideas for improvement   |    | ---                            | -.16*              |
| <i>Control variable paths (non-significant effects omitted)</i>          |    |                                |                    |
| Age → Brand promotion behavior   |    | .41**                          | .40**              |
| Age → Customer satisfaction  |    | .30**                          | .28**              |
| Job experience → Customer satisfaction                                   |    | .32**                          | .20*               |
| Job experience → Service performance                                     |    | ---                            | .20**              |
| Service orientation → Brand promotion behavior                           |    | .16*                           | .14*               |
| Productivity → Customer satisfaction                                     |    | -.17*                          | -.08               |
| Productivity → Service performance                                       |    | ---                            | -.41**             |
| <i>Variance explained (R<sup>2</sup>)</i>                                |    |                                |                    |
| Feedback seeking behavior  |    | 11.2%                          | 11.2%              |
| Brand promotion behavior   |    | 42.9%                          | 42.9%              |
| Ideas for improvement  |    | ---                            | 17.9%              |
| Service performance  |    | ---                            | 20.1%              |
| Customer satisfaction  |    | 17.4%                          | 21.9%              |

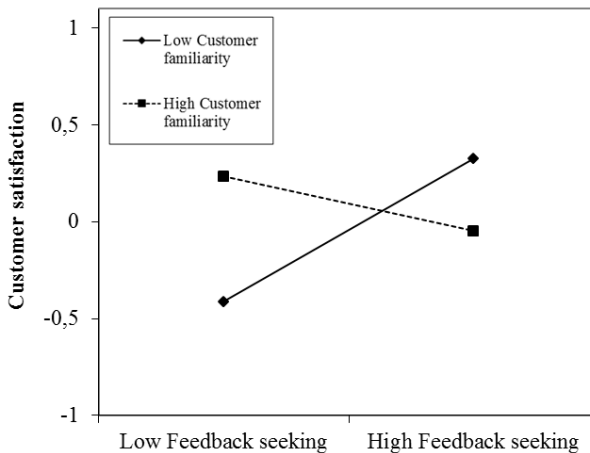
\* $p < .05$ ; \*\* $p < .01$ .

**3.5.1. Hypothesized effects**

We find that feedback seeking behavior is not significantly related to customer satisfaction ( $\beta = .04$ , *n.s.*), but the moderating effect of customer familiarity is negative and significant ( $\beta = -.15$ ,  $p < .01$ ). To help interpret the moderation results, Figure 3.2 plots the relationship between feedback seeking behavior

and customer satisfaction for low (two SD below the mean) and high (two SD above the mean) values of customer familiarity. In support of H1, the plot confirms that feedback seeking positively influences customer satisfaction when customer familiarity is low, but negatively influences customer satisfaction when customer familiarity is high. This is confirmed by simple slope tests (Aiken and West 1991), showing significant yet opposite effects under low and high levels of customer familiarity ( $\beta = .32, p < .01$  and  $\beta = -.18, p < .05$  respectively). Contrary to our expectations, brand promotion behavior shows a significant negative effect on customer satisfaction ( $\beta = -.16, p < .05$ ). H2 is thus rejected. However, customer familiarity positively moderates this effect ( $\beta = .16, p < .01$ ), such that the negative effect of brand promotion on customer satisfaction is alleviated. Probing of the simple slopes indicated that the negative effect of brand promotion behavior on customer satisfaction is insignificant under high levels of customer familiarity, while significant under low levels of customer familiarity ( $\beta = -.21, p < .05$ ). We therefore support H3.

**Figure 3.2.** Moderating effect of customer familiarity



We find a strong positive effect of FSE feedback seeking behavior on ideas for improvement ( $\beta = .28, p < .01$ ) and of ideas for improvement on FSEs' service performance ( $\beta = .25, p < .01$ ). This supports H4a and H4b. We also find a significant negative effect of feedback seeking behavior on service performance ( $\beta = -.17, p < .01$ ), in support of H5. Consistent with H6, service performance positively influences customer satisfaction ( $\beta = .18, p < .01$ ). In addition, ideas for improvement positively moderates the relationship between

brand promotion behavior and customer satisfaction ( $\beta = .12, p < .05$ ). H7 is thus also supported.

Finally, OI has a significant positive and direct effect on feedback seeking ( $\beta = .20, p < .01$ ) and on brand promotion behavior ( $\beta = .48, p < .01$ ), supporting H8a and H8b. Moreover, OI negatively relates to ideas for improvement ( $\beta = -.16, p < .05$ ) in support of H9.

### 3.5.2. *Control variables and additional paths*

Regarding our control variables and additional paths, brand promotion behavior shows positive relationships with age ( $\beta = .40, p < .01$ ) and service orientation ( $\beta = .14, p < .05$ ), indicating that older people and service-oriented individuals are more likely to be a vocal advocate of their organization to customers. Customer satisfaction is positively associated with age ( $\beta = .28, p < .01$ ) and job experience ( $\beta = .20, p < .01$ ). Job experience also relates positively to service performance ( $\beta = .20, p < .01$ ). This suggests that older and more experienced workers provide better service solutions that instantly satisfy customers. We also find a negative relationship between FSE productivity and service performance ( $\beta = -.41, p < .01$ ); speeding up one's problem solving activities may cause FSEs to cut corners, skip steps, or even overlook parts of a problem. Apart from a direct effect of OI on customer satisfaction ( $\beta = .24, p < .01$ ), no other additional paths were significant.

## 3.6. Discussion

FSEs' operational function of solving customer problems is increasingly enriched with activities of customer information processing and firm promotion. For example, firms like GE and IBM train their FSEs as corporate brand advocates who anticipate developments in customers' business and thus help to maintain and expand these firms' competitive position (Beaujean, Davidson and Madge 2006). Yet, an important question that arises is: do such additional activities in the frontline really pay off, and if so, under which circumstances do they benefit firms most? Our results indicate that companies may benefit more from FSEs as "information processors" than as "firm promoters". We next discuss the key implications of our work.

### 3.6.1. *Theoretical implications*

*FSEs as information processors.* We show that obtaining customer feedback in the frontline may impact customer satisfaction in two ways. First, feedback seeking enhances the FSE's service performance through ideas for

improvement. Such enhanced performance satisfies customers because they derive greater utility from the service (Kamakura et al. 2002). Second, feedback seeking can enhance customer satisfaction directly if it is performed in the early stages of the employee – customer relationship; under such circumstances, customers appreciate that an FSE puts trust in their capabilities to participate in improvement initiatives.

In contrast, we find that repetitive feedback seeking with familiar customers is counterproductive for achieving customer satisfaction. This contradicts innovation literature stating that repeated interactions enhance mutual understanding and cooperation between both parties (e.g. Wuyts, Dutta and Stremersch, 2004). Yet, an important difference is that such literature assumes that customers voluntarily enroll in innovation projects, while this study focuses on unsolicited customer involvement. Under these circumstances, customers may perceive that feedback seeking structurally gets in the way of receiving quality service. We speculate that in long-lived employee-customer relationships, it may be more useful to ask for feedback occasionally, for instance when new products or services are released to the market. Alternatively, FSEs may strive to obtain information in “batches” over time; asking feedback in consecutive service encounters, but not in following encounters allows FSEs to obtain and process the necessary information without aggravating the customer.

*FSEs as firm promoters.* While prior literature has assumed that FSEs engaging in corporate brand promotion is always beneficial for a firm (e.g., Bettencourt et al. 2005; Morhart et al. 2009), our study can only partially support this contention. Remarkably, we find that FSE brand promotion activities negatively affect customer satisfaction with the service encounter. Only familiar customers appreciate frontline vocal advocacy, presumably because they tend to place more value on information provided by the FSE (De Bruyn and Lilien 2008). For new customer contacts though, brand promotion is likely to harm customer satisfaction.

A potential explanation for the negative brand promotion effect could be that customers perceive brand promotion as a commercial activity. Customers may negatively stereotype FSEs as business persons looking for (cross-)selling opportunities, which undermines customer satisfaction with service encounters (Jasmand et al. 2012a; 2012b). An alternative explanation may be that vocal advocacy does not solve customers’ problems, and is therefore regarded as delaying a proper solution to the problem. Importantly, this would imply that a customer may be dissatisfied with a particular service

encounter, but not necessarily lacks loyalty to the firm. To check this premise, we performed a post-hoc test to examine the impact of brand promotion on customers' loyalty intentions. Because our manufacturer serves business customers, and we were unable to capture customer loyalty through customer purchasing managers' assessments, we asked FSEs' managers to rate the loyalty intentions of customers in the customer portfolio of each FSE (two items<sup>2</sup>). These managers can provide reliable ratings due to their regular face-to-face contact with customer purchasing managers (approximately twice a year). To make sure that managers truly rated customer loyalty intentions rather than employee performance, we controlled in our analyses for the managers' most recent overall evaluation of the FSEs and for customer satisfaction with the most recent service visit. We found a strong positive effect of FSE brand promotion behavior on loyalty intentions ( $\beta = .36, p < .01$ ), which is further strengthened by ideas for improvement ( $\beta_{\text{interaction}} = .13, p < .05$ ). We therefore conclude that, although FSE brand promotion does not contribute to customer satisfaction, it does contribute to loyalty intentions, presumably by establishing emotional connections between the firm and its customers (cf. Gustafsson et al. 2005).

*The importance of ideas for improvement.* FSEs' ideas for improvement strongly determine IIB effectiveness, either by converting acquired customer information into enhanced service performance (mediating mechanism) or by sparking positive customer perceptions as a result of brand promotion behavior (moderating mechanism). Indeed, FSE creativity has been considered of paramount importance for frontliners to deal with today's rapidly changing customer needs and expectations (Coelho et al. 2011; Lages and Piercy 2012). Our study confirms this premise by showing that idea implementation helps to better address customer needs by offering improved solutions, while idea communication can help to live up to customer expectations by showing what else the company has to offer in the future.

Combining idea generation with brand promotion informs customers about how the manufacturer intends to improve its service over time, irrespective of the purpose of a service encounter. This process differs from concepts like retrospective or prospective explanations as reactions to customer complaints (e.g., Davidow 2003; Mattila 2006). A retrospective explanation informs customers about what caused a product or service failure; a prospective explanation informs customers about what the organization will do to avoid a problem from recurring. In contrast to just (de)briefing the customer, confronting customers with ideas curbs the negative effects of

brand promotion on satisfaction and enhances its positive effects on customer loyalty intentions. Although conceptual research recognizes that such proactive promotion of the firm's innovation capabilities could enhance customer evaluations of the service and the firm (Challagalla et al. 2009), we are the first to provide empirical evidence.

Remarkably, employees who fail to develop ideas perform worse when they actively obtain feedback in their daily service operations. This resembles the *improvement paradox* previously outlined in management literature, which describes organizations that struggle to balance improvement and task execution (e.g., Nembhard and Tucker 2011). We show that similar mechanisms operate at the employee level; proactively seeking feedback from customers takes time and energy, but pays off once FSEs integrate the new information with their existing knowledge and develop improved solutions accordingly.

*The impact of organizational identification.* We find that IIBs partially mediate and largely explain the relationship between frontliners' OI and customer satisfaction. This extends prior research which has mainly considered the direct effect of frontline OI on customer evaluations (e.g., Bhattacharya and Sen 2003; Homburg et al. 2009; Netemeyer et al. 2012). By investigating information interfacing as a mediating mechanism, we show that OI is a double-edged sword: it motivates FSEs to seek customer feedback and promote their firm, but it also limits them in thinking out of the box and developing ideas for improvement. To see how this negative effect between OI and ideas could be mitigated, we performed a post-hoc test to see whether any of our control variables moderated this relationship. FSEs' service orientation (SO) was found to positively moderate the relationship between OI and ideas ( $\beta = .16, p < .05$ ). Service oriented employees are innately helpful and caring toward the customer, which opens these workers up for other perspectives on daily work matters (e.g., Rafaeli et al. 2008). They may therefore suffer less from routinely adapting dominant organizational paradigms and routines. Employees high in both OI and SO are thus most effective in acting as an information interface, because they consider the organization's and the customers' needs at the same time.

### 3.6.2. *Managerial implications*

Our study offers useful insights and recommendations for service managers to optimize the frontline information interface. Manufacturers increasingly recognize that product quality is largely dependent on after-sales service. For

example, healthcare manufacturers add helpdesk and on-site troubleshooting services to MRI or CT scanners to make sure doctors base their decisions on reliable scans. FSE feedback seeking is important in this context, since constant improvement is needed to stay competitive (Joshi 2009). In addition, manufacturers increasingly recognize the importance of corporate branding to differentiate their offer from competitors (Homburg et al. 2010).

First, we encourage managers to stimulate creativity in the frontline. Many firms experiment with ad-hoc formal idea management systems for new product and service development, but find that only a small percentage of the ideas coined is useful, or that its competitive character undermines the team spirit (cf. Van Dijk and Van Den Ende 2002). In addition, many firms have experimented with customer involvement in product development, but found that only those customers motivated to contribute will share their insights. Such initiatives also cost significant time and money to set up, they are limited to specific stages of the development process, and their ad-hoc character makes it difficult for a firm to learn over time (e.g., Füller et al., 2008). We show that the continuous stream of customer experiences that FSEs face provides these workers a foundation from which they explore new directions and come up with ideas. Idea generation and implementation involves a constant and day-to-day process that improves products and people (Robinson and Schroeder 2009). We therefore advise managers to train and stimulate FSEs to engage in customer conversations and creatively integrate newly acquired information with existing knowledge structures.

Second, firms using service to differentiate themselves from competition should look beyond streamlining service operations and creating friendly service encounters. Customer perceptions of firm innovativeness and its enterprising character are key predictors of customer satisfaction, too (Chun and Davies 2006). We show that FSEs are in a perfect position to bring across such values, but that careful management of frontline improvement and promotion activities is necessary. Managers should be aware that feedback seeking over multiple service encounters is not appreciated by customers and that brand promotion initiatives on first-time customer contacts are not recommended. We advise supervisors to instruct FSEs to seek feedback with first-time customers, and venture more into vocal advocacy once their relationship to a specific customer is built.

Finally, information interfacing frontliners can enhance one-time customer satisfaction, but may also be key for securing long-term customer loyalty. Particularly brand promotion activities may be useful for building an

emotional connection with customers. Managers may especially stimulate FSEs to engage in brand promotion in steady customer relationships in an otherwise turbulent competitive environment. For customers being approached by competitors on a regular basis, frontline brand promotion activities may prevent customers from switching, while enjoying service interactions.

### **3.6.3. *Limitations and further research***

Our study has several limitations that also offer opportunities for further research. First, while we open up a new avenue of research by exploring IIBs, more is yet to be discovered about this new form of frontline behavior. To begin with, we have focused on customer familiarity as a key indicator of the employee-customer relationship, but alternative variables could be considered. For example, FSEs serving “key customers” may develop more ideas for improvement from feedback seeking because customers have more in-depth product knowledge of the firm’s products and/or services. To further explore which encounters are best suited for IIBs, taking a customer perspective would be valuable. This allows for examining the effects of customers confronted with feedback seeking or brand promotion activities by different FSEs from the same firm. Research may also study the factors that encourage feedback provision without making customers feel pushed or forced to offer their input. Alternatively, research may look into the effects of customers offering ideas that are not picked up by a service provider. Such customers may feel ignored, which may dramatically affect customer satisfaction.

Second, while we have mainly been interested in ideas that FSEs can implement themselves, research may investigate to what extent their ideas can be used in other parts of the firm. Some studies have highlighted the importance of involving frontliners across NPD and NSD stages for firms to successfully launch new products and services (e.g., Melton and Hartline 2010). Future research may build on this recent work and show how FSEs’ ideas can be transformed into new organizational practices that may benefit an entire frontline service division.



**3.7. Notes**

<sup>1</sup> Compared to chapters 2 and 4, we excluded one respondent from our sample, because there was no satisfaction data available for this respondent.

<sup>2</sup> We used two items to assess customers' loyalty intentions ( $\alpha = .90$ ): "Looking at the customer portfolio of [name employee], to what extent would customers (1) Want to prolong their relationship with [company]?, and (2) Want to recommend [company] to other people?"

# Chapter 4

## Turning role stress into performance progress: Improving service delivery through frontline employees' ideas\*

Frontline service employees' (FSEs') role stress can drain resources and harm customer service, or it can stimulate employees to excel. Evidence of this positive effect is anecdotal rather than structural though. This study reconciles inconsistent findings in prior research by detailing the positive outcomes of role stress and considering ideas for improvement as a crucial mediator between role stress and FSE performance, derived from recent insights from innovation literature. A survey and objective performance data from 134 FSEs reveal that role stress has dysfunctional direct effects but also triggers FSEs to develop new ideas to improve their efficiency and quality performance. Learning-oriented (in contrast to performance-oriented) FSEs are most likely to improve their performance as a result of role stress; they adopt a long-term view and believe they can learn and gain control over situations. These results have notable implications for managers, as well as for further research.

*\* This research was conducted in collaboration with Jeroen Schepers and Edwin Nijssen. An earlier version of this study was presented at the AMA Winter Marketing Educators' Conference 2013, February 15-17 2013, Las Vegas, and the 42<sup>th</sup> EMAC European Marketing Academy Conference, June 4-7 2011, Istanbul.*

#### 4.1. Introduction

FSEs, such as call center agents and field service engineers, face a demanding work environment, in which their managers want them to work cost efficiently but also go the extra mile to provide customers with high quality service. These competing expectations cause FSEs to experience uncertainty and conflict in terms of how to perform their jobs, a phenomenon known as role stress (Hartline and Ferrell 1996). Expanding research attention to role stress has focused especially on its relationship with employee performance (e.g., Chan and Wan 2012; Netemeyer, Maxham and Pullig 2005; Nygaard and Dahlstrom 2002; Singh 2000). Yet despite the multitude of empirical studies, the effect of role stress on employee performance remains a hotly debated topic.

One perspective suggests that role stress harms performance, because dealing with uncertainty and conflict drains the cognitive resources that FSEs need to execute their work tasks (e.g., Singh 2000). Such direct dysfunctional effects have been confirmed in several meta-analyses (Gilboa et al. 2008; Tubre and Collins 2000; Zablah et al. 2012). An alternative perspective posits that role stress enhances employee performance, by stimulating them to excel. Selye (1976) calls this effect “eustress,” in contrast with the negative effects of “distress.” Support for this positive effect has been mostly anecdotal though (e.g., Chan and Wan 2012; Singh, Goolsby and Rhoads 1994), and prior studies might have overlooked some critical mediating processes. For example, Marinova, Ye and Singh (2008, p. 31) argue that FSEs who face conflicting expectations “effectively reconcile ... conflict through creative problem solving,” and Coelho, Augusto, and Lages (2011) suggest the only way for employees to tackle unavoidable demand conflict is to move beyond scripted routines. Employees who can develop new solutions to existing problems thus might be able to react constructively to stress. These explanations of the positive relationship between role stress and performance seem plausible, but they remain largely speculative and lack empirical confirmation.

Therefore, this study seeks to reconcile inconsistent perspectives in prior role stress research by isolating the positive and negative influences of role stress according to the coping mechanisms each FSE uses (Nygaard and Dahlstrom 2002). That is, role stress may harm FSEs’ service performance or force them to think about a constructive solution (Bettencourt and Brown

2003; West 2002). We posit that not every FSE is equally able to respond constructively. With this approach, we derive three main contributions.

First, we detail the positive outcomes of role stress and add to research into innovation in the frontline (e.g., Verbeke, Dietz and Verwaal 2011; Ye, Marinova and Singh 2012). Employees at the firm boundary can be especially valuable for product and service innovation, because they continuously confront new customer insights, which are unaffected by dominant organizational paradigms (Melton and Hartline 2010). When they also face stressful work conditions, employees likely leverage this knowledge source more actively (Coelho, Augusto, and Lages 2011; Ye, Marinova and Singh 2012). We therefore introduce the concept of *ideas for improvement*, which we define as novel responses that comprise improved solutions to FSEs' service demands and tasks (West 2002). For instance, a managerial demand to cut the time spent per customer by 5% may seem overwhelming and cause an FSE to cut corners, but also force this employee to think of better procedures or improved logistic processes to move the customer interaction along more quickly. Ideas for improvement thus may mediate the link between role stress and FSE performance and help to partial out the negative direct effects of role stress on performance.

Second, we extend literature on efficiency–quality trade-offs and posit that managers' emphases on both efficiency and quality objectives can be stressful for FSEs but also increase their opportunities for performance improvement through idea generation and implementation. Previous research has examined the outcomes of a manager's emphasis on obtaining efficiency or quality objectives in isolation (e.g., Rust, Moorman, and Dickson 2002) but rarely considered the effects of a dual strategic emphasis. We employ objective measures for the associated outcomes of interest: Efficiency performance indicates the extent to which an employee can complete service encounters within set time standards and thus serve more customers. Quality performance is the extent to which the employee provides a durable solution to customer problems. Unlike previous research that uses subjective performance indicators (Singh 2000; Ye, Marinova and Singh 2007), we rely on these more objective measures from operations research, which many service managers already use.

Third, we respond to calls for research into the effects of individual differences on stress perceptions and outcomes (Nygaard and Dahlstrom 2002; Podsakoff, LePine and LePine 2007). We build on self-regulation theory, which suggests that the allocation of effort to deal with a stressful

situation depends largely on individual predispositions (Kanfer 1990). We identify two relevant predispositions: a *learning* and a *performance* orientation (Dweck and Leggett 1988). A learning orientation is a person's tendency to try to develop competence and gain skills. A performance orientation suggests the person seeks to demonstrate and validate his or her competence to others. These orientations are important moderators of the relationship among role stress, ideas for improvement, and FSE performance. Therefore, managers can improve firm performance by acknowledging the innovation potential of role stress and recruit frontline employees who are better able to turn role stress into better customer service.

#### **4.2. Research background and framework**

##### **4.2.1. Self-regulation and coping with stress**

Role stress outcomes depend on self-regulatory mechanisms (Goolsby 1992; Kanfer 1990). Self-regulation encompasses "processes that enable an individual to guide his or her goal-directed activities over time and across changing circumstances, including the modulation of thought, affect, and behavior" (Porath and Bateman 2006, p. 185). Self-regulation theory posits that situational factors, such as managers' strategic emphasis on obtaining efficiency and/or quality objectives, trigger primary and secondary appraisal processes. The former entails whether the situation appears stressful or not. If it does, the latter process concerns the employee's behavioral and cognitive efforts to cope with the stress (Lazarus and Folkman 1984).

Primary appraisal is a relatively automatic, rapid process, but secondary appraisal is much more elaborate, such that the person conducts an assessment of his or her coping potential, self-accountability, and outcome expectancies (Lazarus and Folkman 1984). Accordingly, it depends heavily on employees' dispositions and specifically their goal orientations (Dweck and Leggett 1988; Goolsby 1992). Goal orientation is a stable personality characteristic that creates a cognitive framework which determines how people allocate their self-regulatory resources during stressful situations (Janssen and Van Yperen 2004). Whereas learning-oriented people focus on competence and skill development, performance-oriented workers prefer to demonstrate their abilities to others.

Therefore, FSEs' goal orientations should influence their reactions to role stress. Thinking up new ways to resolve stressful situations (i.e., idea generation) demands self-regulatory resources, such as time for reflection and creative searches for solutions. Performance-oriented employees may be

unwilling to make such an investment, because doing so makes their performance outcomes less certain. Likewise, converting the ideas for improvement into action (i.e., idea implementation) takes additional effort, with a heightened risk of failure (Sujan, Weitz, and Kumar 1994). Performance-oriented workers avoid idea implementation, because direct contributions to their own output are not readily observable to others, such as managers. In contrast, learning-oriented FSEs likely regard idea implementation as a way to improve their skills and performance.

Because each person has limited self-regulatory resources, exposure to role stress without an opportunity to reduce that pressure creates a depletion (Hobfoll 2002). The constant requirement to interpret divergent demands is cognitively and emotionally challenging and likely to reduce performance. Only if workers allocate their resources to efforts that permanently resolve the situation, performance can be maintained or even improved (Lazarus and Folkman 1984; Podsakoff, LePine, and LePine 2007). Developing and implementing ideas for improvement thus are parts of a critical strategy if FSEs hope to deal constructively with role stress.

#### **4.2.2. Conceptual framework**

Our conceptual framework in Figure 4.1 builds on the preceding self-regulatory mechanisms. We depict the primary appraisal process on the left-hand side, using an FSE's interpretation of a manager's strategic emphasis on objectives of efficiency, quality, or both, which may cause role stress. The secondary appraisal process determines whether role stress has a direct negative influence on efficiency and quality performance, or if a positive relationship emerges through ideas for improvement. Furthermore, FSEs' learning and performance orientations act as moderators and determine the extent to which employees are likely to engage in idea generation and implementation.

### **4.3. Hypotheses**

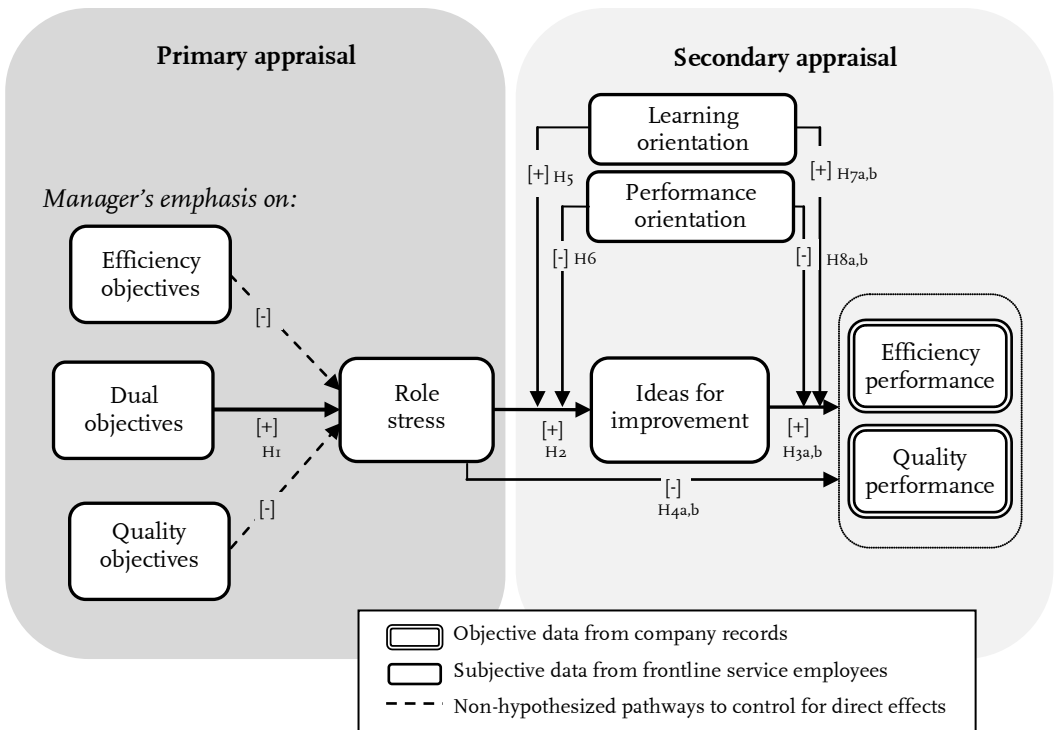
#### **4.3.1. Primary appraisal: Antecedents of FSE role stress**

The work environment of an FSE is largely shaped by his or her perceptions of managerial strategies and actions (Marinova, Ye, and Singh 2008). Managers usually enforce the strategic priorities of a firm by setting task requirements and implementing evaluation mechanisms that reflect the firm's strategic priorities. Although managerial demands that FSEs work efficiently or provide high quality service tend to be well-defined (e.g., average time spent per

customer and first-time right percentage, respectively), integrating both objectives in daily work is the responsibility of each frontline employee (Jasmand, Blazevic, and de Ruyter 2012). To do so, the FSE must balance individual attention to each customer against the efficient use of resources with minimal deviation from service scripts (Ye, Marinova, and Singh 2012). Managing this trade-off is psychologically taxing and stressful, and employees lose mental resources in the process of juggling objectives while also performing a service role (Hobfoll 2002). We therefore predict that FSEs whose managers prioritize efficiency and quality objectives simultaneously (i.e., a dual strategic emphasis) experience more stress in their work. Formally:

*H<sub>1</sub>: The more a manager emphasizes both quality and efficiency objectives, the greater the FSE’s role stress.*

**Figure 4.1.** Conceptual model.



#### **4.3.2. Secondary appraisal: The indirect positive effect of role stress**

Frontline routines are captured in service scripts, which summarize a relatively standardized set of behaviors expected in service encounters, shaped by company training, monitoring schemes, reward systems, and individual experiences (Coelho, Augusto, and Lages 2011; Solomon et al. 1985). These scripts reflect the dominant paradigm for how to satisfy service delivery demands. Over time, the effectiveness of some scripts may decrease, especially if they grow incompatible with emerging service demands, which also may contribute to feelings of role stress. For example, a service script could address a customer's demand for personalized attention but violate a manager's requirement to maximize the number of customers served per day. The resulting role stress may lead workers to rethink their current practices and perhaps engage in creative problem-solving strategies (Shalley, Zhou, and Oldham 2004).

The nature of FSE jobs is conducive to such creative strategies, because frontline staff take an ideal position from which to collect feedback about customers' experiences with the products and services offered by their company (Lages and Piercy 2012). Field engineers might visit and service up to five different, geographically dispersed customers each day (Brown, Basu, and Worth 2010); call center employees come in contact with two or three times as many customers. In this sense, FSEs are crucial "gatekeepers" who access, filter, and interpret sticky knowledge possessed by dispersed customers (Rothaermel and Hess 2007). On-the-job learning and idea generation increase, because first-hand customer feedback constantly expands their existing knowledge stock (Umashankar, Srinivasan, and Hindman 2011; Ye, Marinova, and Singh 2012).

Ideas for improvement can help employees diagnose future problems better and faster. Positively evaluated ideas get stored in memory as action schemas that can be activated by a specific external trigger, such as role stress (Gollwitzer 1999; Orbell, Hodgkins, and Sheeran 1997). For example, a field service employee who repairs and maintains copiers may write an amendment to a machine's user manual to hand out to customers who have trouble operating a specific machine function. Such ideas may seem mundane, but they also can be highly effective, because a one-time investment saves overall time in solving a customer's problem (i.e., helps to work efficiently) and prevents reoccurrence of the problem (i.e., helps to provide quality service). Rolled out across a large customer base, they also improve the FSE's and the firm's overall performance. While ideas may not always be



implemented directly, nor in every service encounter, a greater effort in idea development is likely to manifest in performance improvements over time (Gong et al. 2009; West 2002). On the basis of this argumentation, we expect ideas for improvement to mediate the influence of role stress on FSE service performance, such that:

*H<sub>2</sub>: Role stress positively influences the extent to which the FSE develops ideas for improvement.*

*H<sub>3</sub>: The extent to which the FSE develops ideas for improvement positively influences the FSE's (a) efficiency performance and (b) quality performance.*

#### **4.3.3. Secondary appraisal: The direct negative effect of role stress**

Notwithstanding these potential positive outcomes, we also must account for a direct harmful effect of job stress on performance. Cognitive resource theory (Fiedler and Garcia 1987; Hobfoll 2002) states that employees have a limited pool of mental resources, so spending some of them to deal with stress leaves fewer resources for task execution. Reduced mental resources also may trigger the use of simplified cognitive strategies, such as narrowing perceptual attention (Netemeyer, Maxham, and Pullig 2005), such that employees ignore task-related information and cues to perform effectively. Therefore, we posit:

*H<sub>4</sub>: Role stress negatively influences the FSE's (a) efficiency and (b) quality performance.*

#### **4.3.4. Moderation of the role stress–ideas relationship**

People with a learning orientation and those with a performance orientation experience a different locus of control, which refers to the extent to which they believe they can control the situation that led to the level of role stress they experience (VandeWalle, Cron, and Slocum 2001). Highly learning-oriented employees are more inclined to develop ideas when they experience role stress, because they believe work experiences derive primarily from their own actions (Porath and Bateman 2006). Role stress challenges them to learn from imperfections and take action to improve themselves and their work (Dweck and Leggett 1988; Janssen and Van Yperen 2004).

In contrast, performance-oriented employees have an external locus of control, such that they attribute job outcomes and stress to the external environment and believe that there is little they can do to control it (Elliot and McGregor 2001; VandeWalle, Cron, and Slocum 2001). Therefore, they regard

stress as a threat and respond by focusing on their existing task strategies to solve the problem and convey an impression of competence (Janssen and Van Yperen 2004). They regard customers as operand resources, rather than operant resources that provide knowledge or ideas (Vargo and Lusch 2004). Thus performance-oriented employees are less likely to be open to new information or gain new insights. Instead, they focus on executing their core service tasks, which reduces the likelihood that they react to role stress by developing new ideas (Elliot and McGregor 2001). We hypothesize:

*H<sub>5</sub>: The more an FSE is learning-oriented, the stronger the influence of role stress on the extent to which the FSE develops ideas for improvement.*

*H<sub>6</sub>: The more an FSE is performance-oriented, the weaker the influence of role stress on the extent to which the FSE develops ideas for improvement.*

#### **4.3.5. Moderation of the ideas–performance relationships**

Compared with those with a low learning orientation, highly learning-oriented workers are more inclined to put new ideas into practice, because they consider this strategy instrumental for improving their performance. They believe that a fundamental solution is better than a superficial one and are willing to accept the effort and time needed for its implementation (LePine, Podsakoff, and LePine 2005). Despite the risk involved, learning-oriented employees want to understand the problem deeply before addressing it; they also take a long-term perspective on its payoffs. They are convinced that testing and improving their ideas will result in better service for the customer base as a whole (Gong, Huang, and Fahr 2009; Janssen and Van Yperen 2004).

In contrast, performance-oriented employees focus on the “here and now” and are hesitant to implement new ideas. They regard the implementation of alternative work processes as a risky endeavor that will use up resources they could otherwise employ to optimize familiar task components (Janssen and Van Yperen 2004). They also tend to see the implementation of ideas as less instrumental, because they worry about undesired outcomes and personal image repercussions (Dweck and Leggett 1988; Sujana, Wietz, and Kumar 1994). Alternatively, these performance-oriented FSEs might implement ideas on a case-by-case basis, rather than striving for a broad application throughout the customer base, because some service encounters are more visible than others. Being innovative in these visible encounters gives FSEs a positive image but does not improve their

overall performance. Therefore, we consider performance-oriented FSEs less effective in using ideas to improve their performance and hypothesize:

*H<sub>7</sub>: The more an FSE is learning-oriented, the stronger the influence of the FSE's ideas for improvement on (a) efficiency performance and (b) quality performance.*

*H<sub>8</sub>: The more an FSE is performance-oriented, the weaker the influence of the FSE's ideas for improvement on (a) efficiency performance and (b) quality performance.*

#### 4.4. Method

##### 4.4.1. Data collection

For this study, we collected data from the same company as used in chapter 2 and 3. Similar to other service sectors, the document management industry operates in a dynamic and competitive environment (Windahl and Lakemond 2010), so the firm's FSEs must maintain a balance between efficiency and quality by conducting as many service visits per day as possible while working accurately and assuring optimal post-visit product functioning. Our sample consisted of 134 FSEs (response rate of 72.8%).

##### 4.4.2. Measures

We drew on existing literature to operationalize all latent constructs with multi-item scales. All items were measured using seven-point Likert scales (1 = "strongly disagree" and 7 = "strongly agree"), unless indicated otherwise. An overview of the measures of our study's constructs, as well as their reliabilities, appears in Table 4.1.

*Managers' strategic emphasis.* We anticipate that a manager's strategic emphasis on obtaining efficiency and quality objectives gets reflected in managerial practices, as reported by the FSEs. Employee perceptions are useful for studying the performance impacts of managers' orientations, because employees' own interpretations substantially shape their attitudes and behaviors (see DiMascio 2010; Marinova, Ye, and Singh 2008). We used eight items from management practices reported by Rust, Moorman, and Dickson (2002); four items tapped the manager's emphasis on efficiency objectives, and four items assessed his or her emphasis on quality. Because the emphasis on efficiency objectives included both cost-efficiency and productivity dimensions, we operationalized a second-order construct. Consistent with the dominant approach in literature, we captured the manager's emphasis on both efficiency and quality objectives (i.e., dual objectives) by including a product term (Anderson, Fornell, and Rust 1997; Marinova et al. 2008).

*Role stress.* We operationalized role stress as a second-order construct, with role conflict and role ambiguity as the first-order dimensions. These two dimensions represent the two most commonly studied elements of role stress. The scales, adapted from Rizzo, House, and Lirtzman (1970), included three items each. Some studies consider the effects of conflict and ambiguity separately, but a second-order role stress factor can effectively subsume these two dimensions (González-Romá and Lloret 1998). Due to its parsimony, this higher-order operationalization is prevalent in literature (e.g., Netemeyer, Johnston and Burton 1990; Örtqvist and Wincent 2010; Singh, Goolsby and Rhoads 1994). We follow this approach but also test for its validity.

*Ideas for improvement.* Because services increasingly are part of a value bundle, including both product and service components (Tuli, Kohli, and Bharadwaj 2007; Ulaga and Reinartz 2011; Vargo and Lusch 2004), and our focal company operates in markets facing rapid servitization, we asked respondents to report on both service and product ideas. We used seven-point semantic differential scales to obtain these answers (1 = “never” or “few” to 7 = “always” or “many”). Again, we made sure that ideas for improvement captured truly implementable insights instead of unrealistic thought experiments.

*Goal orientations.* Learning orientation and performance orientation were assessed with scales that capture the employee’s personal work goals. Learning orientation used four items, and the performance orientation measure used three items, from Sujan, Weitz, and Kumar (1994).

*Performance measures.* The measures for FSE efficiency and quality came from longitudinal archival data provided by the company. Efficiency performance consisted of two indicators: average service visit duration (MTTR, corrected for product-specific norms) and average number of service visits per day (corrected for the number of working days in the respective month). We calculated these statistics over a 10-month interval to reduce the impact of outliers, such as performance dips resulting from a unique or persistent problem; this interval size was effective for smoothing out such incidents. We assessed quality performance as the average of all MTBF scores that resulted from a single FSE’s activities over the same 10-month period, following the survey. To ensure MTBF truly reflects after-sales service quality, rather than inherent product quality, we also investigated whether one FSE’s MTBF score differed from another FSE’s score for the same product. We obtained FSEs’ average performance records for three products over a one-year period and found large variance in the MTBF scores of FSEs, for each of

our three products. The serious variation suggests that our measure is a good indicator for FSE quality performance. For greater robustness, we also ruled out the potential effects of “lemons,” or products that constantly break down or are hard to fix. No single product produced MTTR or MTBF scores that consistently violated product-specific norms.

**Table 4.1.** Constructs, Items, and Measurement Model.

| Constructs   | Factor Loading |
|--|----------------|
| <b>Manager's emphasis on quality objectives (<math>\alpha = .82</math>)</b> <i>In general, my manager ...</i>                          |                |
| 1. always places high priority on delivering high quality customer service.  | .76            |
| 2. stimulates me to look at customer problems from different angles.   | .84            |
| 3. always emphasizes the importance of customer needs when he talks to me.   | .81            |
| 4. stimulates me to seek alternative perspectives when solving customer problems.  | .81            |
| <b>Manager's emphasis on efficiency objectives</b> <i>In general, my manager ...</i>   |                |
| <b>Cost-efficiency (<math>\alpha = .81</math>)</b>   |                |
| 1. expects me to achieve cost-efficiency.  | .91            |
| 2. urges me to cut costs where possible.   | .93            |
| <b>Productivity (<math>\alpha = .85</math>)</b>  |                |
| 3. places high priority on doing as many service visits as possible in one day.  | .93            |
| 4. always emphasizes fast service delivery.  | .94            |
| <b>Role stress</b>   |                |
| <b>Role ambiguity (<math>\alpha = .86</math>)</b>  |                |
| 1. I have clear, planned goals and objectives in my job. (R)   | .85            |
| 2. I know what my responsibilities are in my job. (R)  | .89            |
| 3. I know exactly what is expected of me in my job. (R)  | .92            |
| <b>Role conflict (<math>\alpha = .79</math>)</b>   |                |
| 1. In my job, I regularly receive incompatible requests from two or more people.   | .87            |
| 2. I often do things that are apt to be accepted by one group of people but not by another.  | .90            |
| 3. I have to break a rule or policy in order to carry out some assignments.  | .74            |
| <b>Ideas for improvement (<math>\alpha = .87</math>)</b>   |                |
| 1. Over the last six months, how often did you think of new product solutions that can really improve the products that you work with? | .82            |
| 2. Compared to your colleagues, how many ideas for product improvement did you have over the past six months?                          | .88            |
| 3. Over the last six months, how often did you think of new solutions that can really improve the company's service delivery process?  | .82            |
| 4. Compared to your colleagues, how many ideas for service process improvement did you have over the past six months?                  | .88            |
| <b>Learning orientation (<math>\alpha = .86</math>)</b>  |                |
| 1. It is important for me to learn from each service visit that I do.  | .88            |
| 2. If I want to be a good employee, it is important to continuously improve my skills.   | .93            |
| 3. I find it important to always learn something new about my customers.   | .78            |
| 4. It is worth spending time to learn new approaches to serve my customers.  | .73            |
| <b>Performance orientation (<math>\alpha = .81</math>)</b>   |                |
| 1. I always try to communicate my accomplishments to my supervisor.  | .86            |
| 2. I very much want my coworkers to consider me to be good in my work.   | .88            |
| 3. It is very important to me that my supervisor thinks of me as a good employee.  | .81            |

Notes: All t-values are significant at  $p < .01$ ; items that were reverse scored for analysis are indicated by (R).

*Control variables.* We included six variables to control for the most likely alternative explanations for role stress, ideas for improvement, efficiency

performance, and quality performance. More specifically, we examined the direct influence of FSEs' learning and performance orientations, the FSE's communication frequency with managers, customer feedback seeking, age, and job experience.<sup>1</sup>

#### 4.4.3. Analyses

We applied SPSS to examine the descriptive statistics and compute the reliability of the individual constructs (including the first-order dimensions of the second-order constructs). All constructs proved reliable; the Cronbach's alphas equaled or exceeded Nunnally's (1978) threshold of .7. We used SmartPLS (Ringle, Wende, and Will 2005) to assess the correlations and average variances extracted of our key latent constructs (see Table 4.2). Convergent and discriminant validity guidelines were met for all constructs. We obtained the estimates for the parameters of our structural model through partial least squares (PLS) analysis. For an accurate estimation of the hypothesized moderation effects, we also added the direct effects of the moderator variables on their dependent variables.

**Table 4.2.** Means, Standard Deviations, Correlations, and Average Variances Extracted.

| Variable                                      | M    | SD    | 1                  | 2      | 3      | 4     | 5     | 6     | 7      | 8   |
|---|------|-------|--------------------|--------|--------|-------|-------|-------|--------|-----|
| 1 Manager's emphasis on efficiency objectives | 4.37 | 1.00  | (.60) <sup>a</sup> |        |        |       |       |       |        |     |
| 2 Manager's emphasis on quality objectives    | 4.69 | 1.01  | .18*               | (.65)  |        |       |       |       |        |     |
| 3 Role stress                                 | 3.35 | 1.01  | .02                | -.32** | (.50)  |       |       |       |        |     |
| 4 Ideas for improvement                       | 2.94 | 1.26  | .04                | .10    | .10    | (.72) |       |       |        |     |
| 5 Learning orientation                        | 5.65 | .80   | .13                | .34**  | -.31** | .16*  | (.69) |       |        |     |
| 6 Performance orientation                     | 4.96 | 1.14  | .25**              | .36**  | -.20*  | .24*  | .43** | (.73) |        |     |
| 7 Efficiency performance                      | 2.48 | 1.19  | -.11               | .15    | -.14   | .20*  | .04   | .23** | (-)    |     |
| 8 Quality performance                         | .69  | 14.80 | .03                | -.15   | .05    | .09   | -.01  | -.19* | -.22** | (-) |

<sup>a</sup>The average variance extracted of the subjective constructs are shown on the diagonal, between brackets. \*  $p \leq .05$ . \*\*  $p \leq .01$  (two-tailed).

To test the multidimensionality of our second-order constructs, we assessed the path weights of the underlying dimensions (Chin 1998). For role stress, the weights were large and positive: .83 for role ambiguity and .77 for

role conflict ( $p < .001$ ). Similarly, cost efficiency and productivity represented a manager's emphasis on efficiency objectives (.81 and .87, respectively,  $p < .001$ ). We checked the correlations between the underlying constructs, which indicated convergence and discriminant validity: .40 for cost efficiency and productivity, and .27 for role ambiguity and role conflict ( $p < .01$ ) (Fornell and Larcker 1981). The latter finding corresponds with prior research arguing that the correlation between ambiguity and conflict can deflate because the three items that constitute ambiguity reflect the *absence* of ambiguity, whereas the three conflict items reflect the *presence* of conflict (McGee, Ferguson, and Seers 1989). To affirm their convergence, we calculated two alternative models with the second-order role stress construct replaced by either role ambiguity or role conflict constructs. The outcomes from our original analysis remained significant and unchanged in sign, indicating a consistent pattern across operationalizations.

Finally, we tested for the possibility of a nested data structure. Although FSEs worked autonomously, they reported to one of 14 managers. By calculating the intraclass correlation coefficient (ICC) for the manager's strategic emphasis on efficiency and/or quality objectives, we can determine the percentage of total variance that can be attributed to differences across groups. The ICC was .03 for managers' emphasis on efficiency objectives and .01 for managers' emphasis on quality objectives. These values are very low (Chen et al. 2007), so concerns about the nested nature of the data are unwarranted. We therefore continue our analysis on the individual level.

#### 4.5. Results

In Table 4.3 we report the standardized path coefficients for three PLS models. We initially calculated a main effects model (including only direct effects) and a hypothesized model (including the moderating effects), and then developed the final model, which includes additional paths to test for mediation (see the "Additional Paths" section). The goodness-of-fit (GoF) measure was .40 for the main model, .44 for the hypothesized model, and .47 for the final model (cf. Tenenhaus et al. 2005). The comparison of these GoF values with the suggested cut-off value of .36 for large effect sizes (Wetzels, Odekerken-Schroeder, and van Opperl 2009) indicates that the conceptual models fit the data well. The final model explains 25.4% of the variance in role stress, 36.4% in ideas for improvement, 28.5% in efficiency performance, and 24.7% in quality performance. These outcomes compare favorably with the values

obtained in other frontline employee studies using objective performance outcomes (e.g., Ahearne et al. 2010).

#### 4.5.1. *Direct effects*

We found a significant, strong, positive effect of a manager's dual strategic emphasis on FSE role stress ( $\beta = .25, p < .01$ ), in support of H<sub>1</sub>. Although not hypothesized, we also found that a single strategic emphasis on quality objectives reduces role stress ( $\beta = -.23, p < .01$ ), whereas a single focus on efficiency objectives did not relate significantly to role stress ( $\beta = .11, n.s.$ ). Role stress related positively and significantly to ideas for improvement ( $\beta = .23, p < .01$ ), which in turn enhanced the FSE's efficiency ( $\beta = .16, p < .05$ ) and quality ( $\beta = .26, p < .01$ ) performance, in line with H<sub>2</sub> and H<sub>3</sub>. Consistent with H<sub>4</sub>, role stress exerted a significant negative effect on both efficiency performance ( $\beta = -.14, p < .05$ ) and quality performance ( $\beta = -.15, p < .05$ ).<sup>2</sup>

#### 4.5.2. *Moderating effects*

As anticipated, learning orientation positively moderated the relationship between role stress and ideas for improvement ( $\beta = .24, p < .01$ ), in support of H<sub>5</sub>. Learning orientation also positively moderated the relationships between ideas for improvement and FSEs' efficiency performance ( $\beta = .17, p < .05$ ) and quality performance ( $\beta = .15, p < .05$ ), so we found support for H<sub>7a</sub> and H<sub>7b</sub>. However, performance orientation positively moderated the relationship between role stress and ideas for improvement ( $\beta = .16, p < .05$ ), contrary to our expectations in H<sub>6</sub>. Performance orientation negatively moderated the relationship between ideas for improvement and efficiency performance ( $\beta = -.16, p < .05$ ) but did not influence the ideas–quality performance relationship ( $\beta = -.01, n.s.$ ), in support of H<sub>8a</sub> but not H<sub>8b</sub>.

To further our interpretation of the moderation results, we plot the relationship between role stress and ideas for improvement for low (two SD below the mean) and high (two SD above the mean) values of learning and performance orientation in Figure 4.2. Panel (a) confirms that learning-oriented FSEs are more likely to develop ideas for improvement in response to role stress than are their less learning-oriented counterparts. Probing of the simple slopes (Aiken and West 1991) indicated that the positive effect of role stress on ideas for improvement is significant only when FSEs are highly learning-oriented ( $\beta = .32, p < .05$ ). Panel (b) shows that high performance-oriented FSEs develop more ideas for improvement when their work



conditions are stressful than do employees with a low performance orientation. Probing of the simple slopes indicated that the positive effect of role stress on ideas for improvement is significant under a high performance orientation ( $\beta = .18, p < .05$ ), while the effect disappears under a low performance orientation. We return to this result subsequently.

**Table 4.3.** PLS Results of Estimated Path Coefficients (N = 134).

|  | Hypotheses | Standardized Path Coefficients |                    |             |
|--|------------|--------------------------------|--------------------|-------------|
|  |            | Main Effects Model             | Hypothesized Model | Final Model |
| <i>Direct effects</i>  |            |                                |                    |             |
| Manager's emphasis on dual objectives → role stress                      | H1         | .25**                          | .25**              | .25**       |
| Manager's emphasis on efficiency objectives → role stress                | –          | .12                            | .12                | .11         |
| Manager's emphasis on quality objectives → role stress                   | –          | – .23**                        | – .23**            | – .23**     |
| Role stress → ideas for improvement                                      | H2         | .23**                          | .26**              | .23**       |
| Ideas for improvement → efficiency performance                           | H3a        | .22**                          | .18*               | .16*        |
| Ideas for improvement → quality performance                              | H3b        | .28**                          | .24**              | .26**       |
| Role stress → efficiency performance                                     | H4a        | – .14*                         | – .16*             | – .14*      |
| Role stress → quality performance  | H4b        | – .10                          | – .12*             | – .15*      |
| <i>Moderating effects</i>  |            |                                |                    |             |
| Learning orientation x role stress → ideas for improvement               | H5         |                                | .26**              | .24**       |
| Performance orientation x role stress → ideas for improvement            | H6         |                                | .19**              | .16*        |
| Learning orientation x ideas for improvement → efficiency performance    | H7a        |                                | .16*               | .17*        |
| Learning orientation x ideas for improvement → quality performance       | H7b        |                                | .18*               | .15*        |
| Performance orientation x ideas for improvement → efficiency performance | H8a        |                                | – .17*             | – .16*      |
| Performance orientation x ideas for improvement → quality performance    | H8b        |                                | – .01              | – .01       |
| <i>Additional paths</i>  |            |                                |                    |             |
| Manager's emphasis on dual objectives → ideas for improvement            |            |                                |                    | .22**       |
| Manager's emphasis on dual objectives → efficiency performance           |            |                                |                    | – .08       |
| Manager's emphasis on dual objectives → quality performance              |            |                                |                    | .12         |
| Manager's emphasis on efficiency objectives → ideas for improvement      |            |                                |                    | – .03       |
| Manager's emphasis on efficiency objectives → efficiency performance     |            |                                |                    | – .09       |
| Manager's emphasis on efficiency objectives → quality performance        |            |                                |                    | .08         |
| Manager's emphasis on quality objectives → ideas for improvement         |            |                                |                    | .02         |
| Manager's emphasis on quality objectives → efficiency performance        |            |                                |                    | .01         |
| Manager's emphasis on quality objectives → quality performance           |            |                                |                    | – .07       |

| <i>Control variable paths (non-significant effects omitted)</i> |                    |                    |                    |
|---|--------------------|--------------------|--------------------|
| Age → efficiency performance                                    | -.29 <sup>**</sup> | -.28 <sup>**</sup> | -.29 <sup>**</sup> |
| Age → Ideas for improvement                                     | .12 <sup>*</sup>   | .12 <sup>*</sup>   | .13 <sup>*</sup>   |
| Job experience → quality performance                            | .19 <sup>*</sup>   | .16 <sup>*</sup>   | .14 <sup>*</sup>   |
| Communication frequency manager → ideas for improvement         | .16 <sup>*</sup>   | .17 <sup>*</sup>   | .17 <sup>*</sup>   |
| Communication frequency manager → quality performance           | -.19 <sup>*</sup>  | -.19 <sup>*</sup>  | -.19 <sup>*</sup>  |
| Customer feedback seeking → ideas for improvement               | .30 <sup>**</sup>  | .29 <sup>**</sup>  | .31 <sup>**</sup>  |
| Customer feedback seeking → efficiency performance              | -.21 <sup>*</sup>  | -.21 <sup>*</sup>  | -.18 <sup>*</sup>  |
| Customer feedback seeking → quality performance                 | -.13 <sup>*</sup>  | -.15 <sup>*</sup>  | -.19 <sup>*</sup>  |
| Learning orientation → role stress                              | -.23 <sup>*</sup>  | -.23 <sup>*</sup>  | -.23 <sup>*</sup>  |
| Performance orientation → efficiency performance                | .16 <sup>*</sup>   | .16 <sup>*</sup>   | .16 <sup>*</sup>   |
| Efficiency performance → quality performance                    | -.29 <sup>**</sup> | -.29 <sup>**</sup> | -.27 <sup>**</sup> |
| <i>Variance explained (R<sup>2</sup>)</i>                       |                    |                    |                    |
| Role stress   | 25.4%              | 25.4%              | 25.4%              |
| Ideas for improvement   | 20.9%              | 31.9%              | 36.4%              |
| Efficiency performance  | 22.2%              | 26.9%              | 28.5%              |
| Quality performance   | 19.8%              | 22.9%              | 24.7%              |

\*  $p < .05$ . \*\*  $p < .01$ .

#### 4.5.3. Additional paths

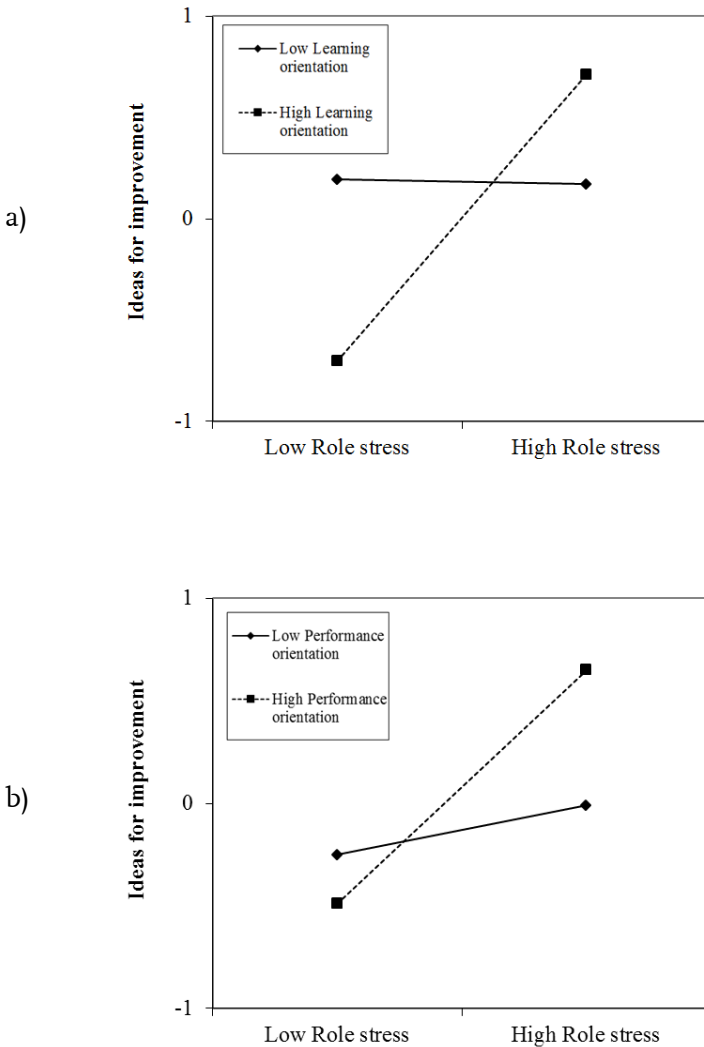
To test whether role stress and ideas for improvement mediated managerial emphasis and performance, we checked the significance of additional direct paths. Except for a significant path from a dual emphasis to ideas for improvement, no direct paths were significant (see Table 4.3). Moreover, all indirect (mediated) effects remained stable and significant when accounting for direct paths. Therefore, a manager's dual strategic emphasis on efficiency and quality objectives positively affects FSE performance, through role stress and ideas for improvement.

#### 4.5.4. Control variables

The results for our control variables showed that age negatively influenced efficiency performance ( $\beta = -.29$ ,  $p < .01$ ), such that younger people appear to work faster and more cost-efficiently than older workers. In addition, job experience related positively to quality performance ( $\beta = .14$ ,  $p < .05$ ), perhaps because experienced employees are more knowledgeable and aware of possible solutions. Communication frequency with managers ( $\beta = .17$ ,  $p < .05$ ) and customer feedback seeking ( $\beta = .31$ ,  $p < .01$ ) related positively to ideas for improvement too. Information transferred this way might serve as input for new solutions. We found a negative effect of customer feedback seeking on efficiency ( $\beta = -.18$ ,  $p < .05$ ) and quality ( $\beta = -.19$ ,  $p < .05$ ) performance, probably because it consumes resources and does not pay off unless the FSE

actively develops ideas. The relationship between learning orientation and role stress was negative ( $\beta = -.23, p < .01$ ); learning-oriented FSEs exhibited a lower tendency to experience role stress. Finally, in line with prior research, we found a negative relationship between efficiency performance and quality performance.

**Figure 4.2.** Moderating effects of learning and performance orientation.



## 4.6. Discussion

In frontline jobs, role stress is a double-edged sword that can render dysfunctional effects but also stimulate FSEs to develop ideas to improve their service performance. This study offers the first empirical evidence that role stress has both a bright and a dark side, to explain how they relate and jointly affect efficiency and quality performance. Rather than relying on subjective performance ratings, we used the objective indicators generally used in operations management.

### 4.6.1. Theoretical implications

*The bright side of role stress.* Frontline service employees are most likely to improve their performance when they face high role stress and have a high learning orientation. Learning-oriented workers consider role stress a challenge that motivates them to think up new ways to overcome “imperfections” in their work (Janssen and Van Yperen 2004). They not only develop ideas for improvement but also successfully convert them into improved performance.

When encountering role stress at work, performance-oriented employees exert effort in idea generation, but they seem unable to reap the performance benefits of this effort. Perhaps the quality of their ideas tends to be lower than that of ideas produced by highly learning-oriented FSEs. We checked this conjecture by examining the manager ratings of the ideas reported (as outlined in the Method section) for any structural differences in idea relevance between learning- and performance-oriented FSEs. We found no significant differences though. Performance-oriented FSEs have the *capability* to think up new ideas, but they appear to lack the *willingness* to integrate them into their work. Even if performance-oriented employees generate ideas, similar to learning-oriented workers, they may fear the potential for failure associated with idea implementation (Elliot and McGregor 2001; Tjosvold 1985). They probably devote their attention and time to rehearsing existing efficiency routines, rather than implementing new ones, particularly if the outcomes are directly observable by others (e.g., service times, number of customers served; Janssen and Van Yperen 2004). Accordingly, our results show that a performance orientation has a direct positive effect on efficiency performance.

*The dark side of role stress.* We found direct negative effects of role stress on efficiency performance ( $\beta = -.14, p < .05$ ) and quality performance ( $\beta = -.15,$

$p < .05$ ); employees need mental resources to attend to stress, leaving fewer resources available to help them perform their tasks. Although these effect sizes are similar, some service employees may prioritize either efficiency or quality performance when confronted with role stress. DiMascio (2010) shows that frontline employees have different “service models”; some employees define good customer service as fulfilling unique customer needs with quality solutions, but others see it as delivering the service as efficiently as possible. We performed a post-hoc test to examine whether the direct negative effect of role stress on performance outcomes differed for learning- and performance-oriented respondents. Specifically, we modeled learning and performance orientations as moderators in the role stress–performance relationships. The negative effect of role stress on efficiency performance was stronger for learning-oriented FSEs ( $\beta_{\text{moderator}} = -.26, p < .01$ ) but remained the same for performance-oriented people ( $\beta_{\text{moderator}} = .01, n.s.$ ). Moreover, the moderating effects for quality performance were not significant. Thus, when confronted with role stress, learning-oriented people in particular tend to preserve their resources so that they can deliver quality service, but they compromise on efficiency.

*A manager’s emphasis on dual objectives.* While prior research has focused on the direct effects of managers’ strategic emphasis on frontline performance outcomes, we demonstrate that such effects depend on employees’ appraisals. A manager’s emphasis on dual objectives induces FSE role stress (primary appraisal), which in turn affects FSE performance directly and through their ideas for improvement (secondary appraisal). Two additional findings are noteworthy too. First, a manager’s emphasis on efficiency does not significantly reduce role stress. Monitoring quantifiable output (e.g., problem-solving times, number of customers served, employee costs per customer) can be slightly stressful by itself, because it pushes employees’ capacity limits (Singh 2000). In contrast, an emphasis on quality objectives implies that managers attend to less observable and measurable outputs. Even when quality performance can be measured objectively (e.g., MTBF scores), a focus on obtaining these objectives may be long-term in nature, which appears to yield a latent, rather than a direct, stress assessment.

Second, managers’ emphasis on dual objectives directly affected FSEs’ ideas for improvement ( $\beta = .22, p < .01$ ), irrespective of the stress levels. This finding is consistent with recent studies on contextual factors in employee creative behavior (e.g., Coelho, Augusto, and Lages 2011; Ye, Marinova, and Singh 2012). Incorporating opposing viewpoints with one’s personal

perspective provides the cognitive stimulation that is necessary for creative thinking and initiating new solutions (Tjosvold 1985). Therefore, a manager's emphasis on dual objectives presents expectations that are in conflict and thus merit a deep and attentive thought on behalf of the frontline employee.

#### **4.6.2. Managerial implications**

Some firms have begun to recognize the innovation potential of role stress at the frontline. Global financial service provider UBS has installed a company-wide ombudsman to support employees in their efforts to develop innovative solutions to the intellectual conflicts they encounter (Regenass 2010). Dell increased its service spending by 35% to train frontline staff to cope with stressful trade-offs in their job demands in ways that would improve customer service (Jarvis 2007). Whereas these efforts to realize performance improvements have been mainly trial-and-error, we provide hands-on advice for how managers can design and support FSEs to maximize performance.

First, in recruiting FSEs, human resource managers should assess their individual skills, knowledge, and abilities but also their learning orientation, perhaps using personality surveys, role-playing games, or company-specific cases. Learning-oriented candidates will deal constructively with conflicting expectations and uncertainty. They focus on the benefits gained from such stressful situations and likely use heterogeneous requests as a source of information for developing their latest ideas.

Second, with regard to frontline job design, we note that some service jobs focus on the optimization of one performance dimension (e.g., call centers focus on call handling time), while others require a more balanced approach to both efficiency and quality (e.g., automobile repair services). Managers should allocate routine service jobs to performance-oriented employees, who tend to be more focused on efficiency. In contrast, they should send learning-oriented employees to service portfolios that comprise a large variation of customers and require creativity to fulfill both efficiency and quality requests. Although these learning-oriented employees, when stressed, will tend to compromise on efficiency, this loss can be recouped by implementing better routines. Especially for learning-oriented employees, it is crucial to create a psychologically safe environment for them to generate ideas and act them out freely, without fear of negative consequences (Elliot and McGregor 2001).

Third, we urge managers to invest systematically in seeking to benefit from the innovation potential of their frontline service staff. Firms should

develop programs to facilitate knowledge exchange, such as seminars and team meetings during which FSEs can share their field experience and investigate one another's routines. Managers even could collect best practices and store them in an information system that can be accessed by all FSEs. Such bottom-up learning allows for more active knowledge diffusion, and it is less costly and potentially more efficient than top-down training initiatives. Furthermore, it may benefit the firm at large, such as by suggesting improvements to existing products and services.

#### **4.6.3. *Limitations and further research***

Our study has several limitations that offer opportunities for research. First, our empirical study is based on a sample of FSEs from a single firm in the document solutions market. Replicating this study in other markets, such as the passenger transport industry or retail settings, would be an interesting avenue for further research. Such markets generally involve highly demanding customers, with low switching costs, unlike the document solutions market, where customers depend on firm-specific expertise (Keh and Pang 2010). The levels of role stress and potential for generating ideas may differ across markets, though we believe our objective performance measures should translate well to other industries. For example, MTTR and number of service visits per day are similar to measures employed by call centers (e.g., call handling time, number of calls handled) or car dealerships (e.g., time spent per repair). The quality measure MTBF also appears in many industries, from medical solutions (e.g., number of X-ray scans between failures), to information technology systems (e.g., uptime of a file server), to warehouse and baggage automation (e.g., number of belt cycles before breakdown).

Second, our sample consists mostly of men. Prior research indicates that men and women have different ways of coping with stress (Babin and Boles 1998): Women are generally more risk averse than men, as well as more patient and understanding in situations of discontent (Falk et al. 2007). They may be less likely to generate ideas that deviate from accepted service scripts in response to role stress. Additional research should incorporate a more gender-balanced sample or even explicitly investigate the role of gender in the self-regulation process in the frontline.

Third, because we measured role stress and performance longitudinally, and from different sources (i.e., subjective and objective measures), we were unable to substantiate whether improved performance

lowered the FSEs' role stress. Further studies should extend our model by examining the ideas–performance–stress cycle over time.



#### 4.7. Notes

<sup>1</sup> We included age and job experience as control variables. Younger people are generally more eager to develop new ideas and solutions, resistant to stress, and able to work more efficiently than older people (Fu 2009; Morris and Venkatesh 2000). Job experience may lead to more ideas, because a larger knowledge base benefits the generation of new solutions. We also included communication frequency between FSEs and their managers, as well as the extent of customer feedback seeking, because these aspects may reduce role stress if they improve task clarity. These variables also can partially determine whether FSEs generate ideas for improvement, because communication involves information sharing, which in turn benefits idea development (Gray and Meister 2004). We included our moderator variables, learning and performance orientation, as controls too. Prior literature argues that learning-oriented workers are more inclined to frame setbacks in a positive way, which may alleviate role stress experiences in general (Janssen and Van Yperen 2004). In addition, learning and performance orientations can directly affect employee performance (Kohli, Shervani, and Challagalla 1998). Finally, we controlled for the direct effect of efficiency performance on quality performance, because prior research argues that fast service delivery may compromise service quality (Singh 2000).

<sup>2</sup> We assessed whether role stress displayed an inverted U-shaped relationship with job outcomes. Previous work has hypothesized such relationships, but empirical evidence remains scarce (e.g., Singh 1998). Entering a quadratic role stress term into our model did not lead to any significant effects though, nor did a quadratic role ambiguity term or a quadratic role conflict term.

<sup>3</sup> We acknowledge that people who score high on both learning and performance orientation are of interest. To test whether the combination of both orientations had any effects, over and above each orientations in isolation, we included the interaction term of learning and performance orientations as a moderator of the relationships among role stress, ideas, and performance outcomes. The results revealed no significant effects. To limit model complexity, and to improve the study's contribution-to-length ratio, we refrained from including these effects in this article.

# Chapter 5

## General conclusion and future research

This final chapter provides the main conclusions that arise from the three empirical studies described in the previous chapters of this dissertation. In addition, an integrated perspective across the studies is provided by discussing three different themes: (i) FSE role extension, (ii) managing trade-offs in the frontline, and (iii) learning from customers. Finally, possible future research directions are considered.

### 5.1. Synopsis

While the importance of FSEs' boundary spanning position for after-sales service innovation has been recognized by practitioners, little empirical research has been conducted on the matter. This dissertation builds on insights from recent literature which has begun to recognize the importance of frontline employees for after-sales service innovation, and examines how FSEs can learn from multiple service encounters to improve the manufacturer's after-sales service. Based on a systematic review of literature, Chapter 1 indicates that FSEs are considered as a valuable source of ideas for improvement due to their constant contact with customers. However, we also find that little is known about (a) the after-sales service performance consequences of FSEs generating and implementing ideas for improvement, (b) how this is perceived by customers and thus affects customer evaluations of the after-sales service, and (c) which FSEs are most capable of generating and implementing ideas for improvement. Therefore, the aim of this dissertation was *to examine the impact of FSEs' ideas for improvement on (a) after-sales service performance and (b) customer evaluations of the service, and (c) which FSEs are best capable of generating and implementing ideas for improvement.*

In the remainder of this section, we will first report the main conclusions of the chapters with respect to these objectives. After that, we offer an integrated perspective and identify three key themes that underlie this dissertation. Finally, this dissertation concludes with providing suggestions for further research.

### 5.2. Main conclusions of the chapters

This section provides an overview of the main conclusions of every chapter. Table 5.1 outlines every chapter's aim as well as its key results.

#### 5.2.1. Chapter 2

Chapter 2 took an FSE work role perspective and built on role theory (Solomon et al.1985) to model FSEs' traditional recovery service role (i.e., activities that help provide the customer with an efficient and thorough solution to their problem) together with an additional innovation role (i.e., activities aimed at sourcing customer knowledge and the subsequent creation of ideas for improvement). The aim of the study was to examine how FSEs can effectively combine the innovation role with their recovery service role. In conclusion, an innovation role is beneficial because ideas for improvement

enhance FSEs' efficiency and quality performance, but also is detrimental because knowledge sourcing takes time. The beneficial effects of FSEs' innovation role can be optimized by allocating the right service portfolios. Another intriguing finding is that efficiency performance negatively impacts quality performance. FSEs' ideas for improvement alleviate this negative relationship, such that employees who have more ideas are able to combine a timely finish of their problem solving activities with a high-quality end result.

### 5.2.2. *Chapter 3*

Chapter 3 took a customer relationship perspective and built on boundary spanning theory (Adams 1976) to examine how FSEs may function as information interfaces to influence customer evaluations of the after-sales service. Specifically, the study identified two information interface behaviors (IIBs), feedback seeking and brand promotion, that manage the information flow between the firm and its customers. The aim was to examine how IIBs relate to customer satisfaction, and how FSEs can be motivated to perform them. An important conclusion was that the impact of IIBs on customer satisfaction is highly dependent on FSEs' familiarity with customers. Moreover, the effectiveness of IIBs is strongly influenced by FSEs' ideas for improvement, which are needed to convert acquired feedback into enhanced performance, but also to secure a positive effect of FSE brand promotion behavior on customer satisfaction. Finally, it was found that FSEs' organizational identification (OI) is a double-edged sword, as it motivates FSEs to display IIBs, but also limits the development of ideas for improvement. Managers may counteract this by selecting and recruiting service-oriented employees, who are able to consider both the organization's and customers' needs at the same time.

### 5.2.3. *Chapter 4*

Chapter 4 took a service management perspective and used self-regulation theory (Kanfer 1990; Lazarus and Folkman 1984) to examine FSE appraisal processes of managers' increasing emphasis on dual objectives (i.e., the simultaneous emphasis on both efficiency and quality objectives). FSEs are likely to experience role stress as a result of these competing objectives, but may strongly differ in their coping reactions. The aim of the study was to examine which types of FSEs are most likely to react to role stress in a constructive manner by developing and implementing ideas for improvement. We find that FSE role stress can harm FSEs' efficiency and quality

performance, but also can trigger FSEs to develop and implement ideas for improvement which enhance their performance. Importantly, the extent to which FSEs develop and implement ideas for improvement as a result of role stress is largely dependent on their learning and performance orientations; learning-oriented individuals see stress as a challenge, which motivates them to develop ideas and convert these ideas into improved performance. In contrast, performance-oriented individuals develop ideas, but are not willing to implement them due to the potential risk of failure. Finally, the study confirmed that managers' emphasis on dual objectives is an important predictor of FSE role stress, implying that managers should carefully consider which FSEs to direct towards both efficiency and quality objectives.

**Table 5.1.** The key results of the three studies in this dissertation.

|                              | Chapter 2   | Chapter 3   | Chapter 4   |
|------------------------------|---|---|---|
| <b>Research perspective:</b> | <i>FSE work role perspective:</i><br>How FSE idea generation and implementation can be most effectively combined with FSEs' traditional problem solving duties.   | <i>Customer relationship perspective:</i> How FSE idea generation and implementation affect customer evaluations of the service.  | <i>Service management perspective:</i><br>How managers can select the FSEs best capable of generating and implementing ideas for improvement.   |
| <b>Key results:</b>          | <ul style="list-style-type: none"> <li>• Within the FSEs' recovery service role, core recovery behavior positively influences efficiency performance, which in turn negatively influences quality performance;</li> <li>• Within the FSE's innovation role, knowledge sourcing behavior positively influences FSE ideas for improvement;</li> <li>• The FSE's innovation role benefits the recovery service role because ideas for improvement (a) positively influence efficiency and quality performance, and (b) alleviate the negative relationship between efficiency and quality performance.</li> <li>• The FSE's innovation role detracts the recovery service role because knowledge sourcing behavior (a) negatively impacts efficiency performance and (b) negatively moderates the relationship between core recovery behavior and efficiency performance.</li> <li>• The beneficial effects of FSEs' innovation role can be optimized by allocating the right service portfolios. Specifically, both customer familiarity and product diversity positively moderate the relationship between knowledge sourcing behavior and ideas for improvement.</li> </ul> | <ul style="list-style-type: none"> <li>• Customer familiarity moderates the relationship between FSE feedback seeking behavior and customer satisfaction, such that the relationship is positive when customer familiarity is low, and negative when customer familiarity is high;</li> <li>• FSE brand promotion behavior is negatively related to customer satisfaction, unless customer familiarity is high;</li> <li>• FSE feedback seeking behavior positively influences ideas for improvement, which in turn positively influences service performance;</li> <li>• FSE feedback seeking also directly and negatively influences service performance;</li> <li>• Service performance positively influences customer satisfaction;</li> <li>• Ideas for improvement positively moderate the relationship between brand promotion behavior and customer satisfaction;</li> <li>• An FSE's organizational identification positively influences IIBs, but negatively influences ideas for improvement.</li> </ul> | <ul style="list-style-type: none"> <li>• The more a manager emphasizes both quality and efficiency objectives, the greater the FSE's role stress.</li> <li>• FSE role stress positively influences the extent to which the FSE develops ideas for improvement. In turn, the implementation of ideas positively influences the FSE's efficiency and quality performance;</li> <li>• FSE role stress also directly and negatively influences the FSE's efficiency and quality performance.</li> <li>• The more an FSE is learning-oriented, the stronger the influence of role stress on ideas for improvement, and the stronger the influence of ideas for improvement on both efficiency and quality performance;</li> <li>• The more an FSE is performance-oriented, the stronger the influence of role stress on ideas for improvement, but the weaker the influence of ideas for improvement on efficiency performance.</li> </ul> |

### 5.3. An integrated perspective

Each of the three studies performed in this dissertation has its own unique contributions and implications. Yet, the studies also share a number of commonalities. Specifically, three key themes can be identified throughout the dissertation, being (i) FSE role extension, (ii) managing trade-offs in the frontline, and (iii) learning from customers. These themes are discussed next.

#### 5.3.1. FSE role extension

FSEs' operational function of solving customer problems is increasingly enriched with activities aimed at improving the service process, products, or customer experiences. Besides following standardized service routines, FSEs are required to anticipate unexpected customer requests, think forward, and put effort in distinguishing one's organization from competitors (Raub and Liao 2012). For example, a recent survey among 470 U.S. call centers revealed that only 15% of the participating companies relied heavily on scripted texts (Batt 2005). The others indicated that there is a growing need for service employees to "think out of the box" and do something extra to provide each customer with the best solution possible. A striking example is Dell, which has introduced special programs to encourage its service technicians to engage in more extensive customer interactions. As a result, service jobs that need to be redone have decreased from 45% to 18% and customer satisfaction with the firm has increased with more than 22% (Jarvis 2007). Similarly, Southwest Airlines has been heavily investing in brand championing programs, where frontliners are trained to complement their normal tasks with behaviors that positively convey the organization's mission, values, and brand image to customers (Miles and Mangold 2005). For years now, Southwest Airlines beats its competitors on customer satisfaction with having only 0.19 complaints per 100,000 customers.

Despite the positive outcomes reported in practitioner literature, it is remarkable to see that academics have hardly examined the FSE behaviors associated with the role extensions mentioned above. Research did conceptualize the more general *extra role behaviors (ERBs)* (e.g., Netemeyer and Maxham 2007), but for managers it is unclear what these behaviors exactly constitute. Moreover, ERBs are discretionary efforts performed on a voluntary basis, which makes it hard for managers to exert any influence on them. To benefit from FSE role extensions on a more structural basis, managers need to know which exact behaviors to stimulate, but also know about the conditions under which their payoff can be optimized. Only then,

more companies would be able to benefit from FSE role extension just like Dell and Southwest Airlines.

We find that FSE role extension towards innovation can be extremely useful for improving FSE performance. Yet, its effectiveness is highly dependent on FSE traits and work conditions; particularly FSEs who are open to new experiences and willing to learn on the job are good candidates for role extension. They see less trouble in taking on additional tasks and do not mind taking hurdles to benefit from performance gains at a later stage. Moreover, it is important that FSEs like to interact with customers and have a natural interest to satisfy customer needs. While this may seem self-evident in a service context, the suitability of individuals for manufacturing service jobs is commonly judged by assessing their technical rather than social skills (cf. Ulaga & Reinartz 2011). Yet, to develop improved solutions, FSEs should first be able to fully understand the customers' point of view, and then integrate it with their own knowledge. Such capabilities also appear to be important for FSE role extension towards brand championing; an employee first needs to be familiar with customer needs and wants before he/she can effectively position the company's brand in the customer's mind. Finally, not every frontline job is equally suitable for role extension. Especially frontline jobs involving technological diversity and repeated visits to the same customers should be complemented with innovation activities.

In sum, managers have an important task in deciding which frontline jobs to open up for role extension and which not. In the next theme, we will discuss why this is so important.

### **5.3.2. *Managing trade-offs in the frontline***

Although FSE role extension may be beneficial, it also creates a trade-off with the FSEs' operational activities. Especially innovation-related activities take time and effort which cannot be spent on providing efficient and high-quality solutions to customers' problems. A contemporary example of how FSE improvement initiatives impact task execution is DuPont, which initiated a program wherein field technicians were asked to improve the uptime of the machines they worked with (Valerdi and Fernandes 2011); while the program ended with an increase of 15% in machines' mean time between failure (MTBF), the company first had to incur a *decrease* in MTBF and rise of costs in the first months of the program. Technicians first needed to gain deeper understanding of the problems and challenges they face before they can use this new information to build solutions. For the same reason, Dell's special



program to stimulate more extensive customer interactions initially required an increase of 35% in service spending and a stop on recording call handling times before its payoff was realized a year later (Jarvis 2007). Hence, it seems that companies generally need to accept that FSE improvement initiatives require compromising on task execution first before they can be turned into performance gains at a later stage.

While the trade-off between frontline innovation and task execution has been recognized by prior research (e.g., Cadwallader et al. 2010; Nembhard and Tucker 2010), empirical studies on the phenomenon remain scarce till now. Most research attention has been devoted to another trade-off that FSEs regularly have to deal with: the *productivity-quality trade-off* (Marinova et al. 2008). Due to strong competition, FSEs are increasingly required to balance efficient with high-quality problem solving. The competing objectives are often secured in operational targets, and integrating them in daily work is the responsibility of the frontline employee him/herself (Jasmand et al. 2012). Not surprisingly, more and more research has confirmed that service employees are typically overworked and highly stressed (Hartline and Ferrell 1996; Singh 2000; Zablah et al. 2012). The estimated costs attributed to frontline stress in the U.S. have sky-rocketed; from over \$150 billion dollars in 1996 it has doubled to \$300 billion dollars in 2007 (Cynkar 2007; Wallace et al. 2009). Included in these figures are costs associated with employee turnover, absenteeism, reduced productivity, and increases in medical and legal bills. A logical question that follows from such figures is: how useful is it to further extend FSE roles if employees are already working at the limits of their capacity?

Paradoxically, we find that it can be very useful to further extend FSE roles with innovation-related activities, *in particular* for dealing with the productivity-quality trade-off. Although obtaining customer information takes time and energy, it pays off once FSEs integrate the new information with their existing knowledge and develop improved product and service solutions accordingly. These solutions play an important role in solving the productivity-quality trade-off. Specifically, we find that FSE ideas support a leapfrogging strategy; workers find clever ways to avoid impractical activities which enable them to combine high-quality service with a timely finish of their service visits. Hence, this research is the first to demonstrate that FSE role extension creates a trade-off itself (i.e., the innovation-execution trade-off), but once solved, can be extremely valuable for solving the well-known productivity-quality trade-off.

### 5.3.3. *Learning from customers*

Firms increasingly recognize the importance of collaborating with external partners for product and service innovation, and thus, competitive advantages (Chesbrough 2003; Im and Rai 2008). Especially in technology-intensive markets, increased complexity and advances in new technologies require new insights and expertise that firms do not have themselves (Sivadas and Dwyer 2000). As a result, companies form strategic alliances to gain access to other organizations' knowledge bases and resources. Particularly relationships with customers have been argued to yield fruitful information for innovation (Fang 2008; Yli-Renko and Janakiraman 2008). Pharmaceutical Company Pfizer, for example, claims to owe its innovative success largely to its partnerships with customers, which provide the company with useful information on how their pharmaceutical products can be improved (Humphreys 2002). Yet, literature also acknowledges that learning from customers is not self-evident, and its effectiveness is highly dependent on the firm's collaboration portfolio: the combination of customers and products/technologies involved in the firm's partnerships (Wuyts et al. 2004). First, information can only be effectively exchanged if a firm knows its customers and has built a stable and trustful relationship with them. In other words, a company needs to be familiar with its portfolio of customers (Yli-Renko and Janakiraman 2008). Second, the information itself that is exchanged should lead to relevant new insights to make it useful; especially the diversity of products and technologies involved in collaboration projects has been demonstrated to be important, because a diverse set of technologies facilitates the inflow of more new knowledge (Wuyts et al. 2004).

While firm-level portfolio management has received increasing attention in the last decade, research has overlooked that similar innovation benefits can be obtained from customer portfolios at an employee-level. For example, field engineers are often allocated customer portfolios based on customers' geographical location or types of service contracts. Such portfolios may differ in the variety of customers interactions; while some FSEs may visit the same set of customers more than five times a year, others see more different customers and visit each only once, maybe twice a year. Like firm-level portfolios, this may impact the effectiveness of information exchange during customer interactions. In addition, every FSE usually has his/her own domain of specialization regarding the products involved; for example, field service engineers may work with products that are technologically very

different, but also with a very narrow range of products that are much alike. The former likely leads to more new insights as FSEs are exposed to various customers with dissimilar product experiences.

This dissertation is the first to substantiate that the design of individual portfolios indeed has a great impact on the payoff of FSEs' innovation potential. We find that FSEs who work with a wide variety of technologies are more likely to develop improved routines as a result of customer interaction. Moreover, employees who have a fixed pool of customers with whom they have built stable relationships are more likely to benefit from customer interaction for the development of new solutions. However, while interaction with familiar customers benefits product and service improvement, it also carries a major risk; repeatedly asking the same customers for feedback creates annoyance because customers feel it structurally gets in the way of receiving quality service. Frontliners should therefore be careful with obtaining information from customers they repeatedly encounter. In sum, we extend NPD and NSD literature on customer involvement (e.g., Chan 2010; Dong et al. 2008) by showing that learning from customers is useful, but should not be exploited too much because it goes at the expense of customer evaluations.

#### **5.4. Further research avenues**

Directions for additional research were provided at the end of Chapters 2, 3 and 4. In this final section we indicate some general directions for future research.

##### **5.4.1. Outsourcing of services**

While many manufacturers still keep their after-sales service activities “in-house”, researchers and practitioners note that the outsourcing of service activities is becoming more prevalent (Wynstra, Axelsson and Van der Valk, 2006). A forecast performed in the U.S. predicts that 3,400,000 service jobs with U.S. \$ 151 billion in annual wages will be outsourced by 2015 (Hilsenrath, 2004). Especially in times of economic turbulence, manufacturers that do not consider service their core business tend to move it to a third party. Other companies realize they can run their service processes much cheaper by outsourcing it to companies located in low-wage countries, a phenomenon often seen in call-centers.

Yet, while service outsourcing may save costs, it also poses several challenges regarding FSEs as an innovation interface. First, outsourced

employees are often strictly bound to organizational norms and rules to make sure they are representative to customers even though they officially work for a third party. For example, call center agents in India answering calls for customers from U.S. firms are often closely instructed and monitored to exactly behave in accordance with U.S. standards (e.g., Poster 2007). While such standardization is important for companies to minimize cultural gaps, it likely restricts FSEs from thinking outside the box; rather than putting effort in optimizing service processes, such workers probably need to put their effort in adapting to the norms and rules of the organization they are representing to customers.

Second, a commonly mentioned problem with the outsourcing of frontline jobs is the so-called “who do I work for?” dilemma (Ahearne and Kothandaraman 2009), as outsourced employees essentially work for two organizations. This may have serious consequences on FSEs’ feedback seeking and brand promotion behaviors, which are largely driven by the ‘perceived fit’ between the FSE and his/her organization. For outsourced service jobs, this perceived fit may be lower, leading to a lower effort to obtain additional customer information. Alternatively, it could be that outsourced employees identify with both organizations, i.e., have multiple identifications (Wieseke et al. 2012). An interesting avenue for future research would be to examine the impact of having multiple identifications on FSE innovation efforts, and ultimately, employee performance. While having multiple identifications may lead to insecurity and stress, it may also trigger FSEs to consider problems from different perspectives due to the different backgrounds of the companies they work for. In sum, research has yet to substantiate whether service outsourcing is good or bad for FSEs’ innovation potential.

#### **5.4.2. *The role of FSEs in social media***

Recent years have witnessed a strong rise of new media channels such as Facebook, YouTube, Google and Twitter. While this new media poses strategic challenges for companies (e.g., switching to digital media for advertising and handling public criticism), it also creates extensive opportunities because firms can more easily reach (and be reached by) its customers. First, customers have changed from “passive receivers” to “active participants” in marketing and media information; customers write reviews, report flaws, and even share their ideas on how products or services can be improved. Such real-time information is highly valuable for firms, as they can use it to adapt

and innovate their product and service offerings. Second, firms can use social media channels to become more visible and enhance their public image. Firms may use digital communities for providing additional product information, but also for commercial campaigns to promote goods, services, or the firm itself (Hennig-Thurau et al. 2010).

Speaking both the language of the firm and the customer, FSEs may have a crucial role in further developing and exploiting these new media opportunities. Firms could mobilize FSEs to search social media for customer suggestions, tweets, and reviews, and translate these into product or service improvements. FSEs may even join digital communities to identify so-called “lead users” and engage in conversations to gain further feedback. It would be interesting to examine how such activities can be combined with the FSE’s traditional problem solving role, and how their payoff for performance can be optimized. Active participation in social media for only one hour a week may already be sufficient for FSEs to develop useful ideas for performance improvement, because FSEs may speak to as many customers as they normally speak to within a week. Research might also look into the FSE characteristics needed to effectively combine social media information with their own experiences from the field, as a critical challenge would be to separate relevant from non-relevant information.

Besides obtaining information, FSEs may also use social media to *provide* information, either for educative or promotional purposes. FSEs may, for example, share “easy-to-read” tutorials with their key customers, or even provide YouTube posts on how customers can easily fix problems themselves. Employees may also promote their firm or products by posting public messages on Twitter (e.g., “Just helped a customer out with her computer; turned out she needed an updated version of [...]. Everything fixed in time and all happy now”). It might be interesting to examine such use of social media on customer satisfaction with companies or products. Research could also examine how firms can reduce and control the potential risks, such as FSEs spreading information which is negative or false, or accidentally sharing valuable information with competitors.

#### **5.4.3. FSE participation in NPD and NSD**

Firms increasingly involve their FSEs in NPD and NSD processes to better identify customer requirements, increase project efficiency, and facilitate innovation implementation (e.g. Melton and Hartline 2010; Umashankar et al. 2011). Yet, empirical investigations of frontline employees as catalysts for

NPD and NSD are few and results have been somewhat equivocal. While Ordanini and Parasuraman (2011) find a positive relationship between frontline employee participation and the number and radicalness of a firm's service innovations, Melton and Hartline (2010) find that FSE participation does not help in the design and development of new services. May these differences be due to the research setting, the samples used, or potential differences in FSE traits? For example, while Ordanini and Parasuraman (2011) use a hotel setting for their research, Melton & Hartline (2010) use a sample that is partly but largely represented by the financial sector (e.g., banks and insurance companies). Hotels concern a high-touch consumer service setting, where employees can easily ask customers how they might improve service quality. In contrast, frontline innovation possibilities may be fewer in financial settings, where customer contact is less intensive and technology increasingly mediates the relationship between customers and the organization. Future research may further explore and substantiate which service settings are more suitable for frontline participation in NPD or NSD programs.

In addition, the results presented in this dissertation indicate that far from every FSE is suitable to be involved in innovation activities. FSEs need to be creative, open-minded, and able to consider multiple perspectives. Moreover, some jobs are more conducive to FSE creativity than others, depending on the customers and products the FSE works with. Although we focused on FSEs implementing incremental innovations in the field, these factors could also strongly influence the effectiveness of FSE participation in NPD and NSD programs. As such programs tend to involve more radical changes than doing product and service adaptations in the field, FSEs may also need other traits than only being learning-oriented; FSEs need to be aware of the NPD/NSD stages and have the ability to communicate with customers but also managers and R&D people. Moreover, FSEs must be conscious of customer needs, but at the same time be aware of what developments would be realistic from a technological (maybe even financial) perspective. An intriguing avenue for future research therefore would be the investigation of the optimizing factors of FSE participation in NPD or NSD projects, and the relation of these factors to NPD/NSD success (e.g., sales) or project efficiency.

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# Appendix I

The table on the next page provides an overview of the data obtained over the different sources. As can be seen, each study uses a unique set of variables. Study 1 mainly builds upon dataset 1 and 2; it includes core recovery behavior, knowledge sourcing behavior, and the portfolio variables (dataset 1), as well as efficiency and quality performance as the key variables (dataset 2). Study 2 differentiates by focusing on brand promotion behavior and organizational identification (dataset 1), but also by being the only study using customer satisfaction data (dataset 3). Study 3 complements the other studies by specifically focusing on FSE traits (learning and performance orientation), but also including role stress and FSE perceptions of managers' strategic emphases on efficiency and quality objectives (dataset 1). In this study, these management objectives are linked to FSE performance (dataset 2). Slight overlap between variables used also exists (i.e., FSE efficiency and quality performance, ideas for improvement, and FSE behavior to obtain customer feedback). Efficiency and quality performance are considered as key outcome variables that can be optimized through different psychological and behavioral processes. Ideas for improvement and FSE behavior to obtain customer feedback are variables that have not been researched before and are thus in need of detailed semantic embedding. In our opinion, this justifies the use of these core constructs across three studies in which they are embedded in three different theoretical perspectives (see p. 17).

| Dataset 1: FSE survey data (cross-sectional)   |                 |         |         |         |
|--|-----------------|---------|---------|---------|
| Variables                                      | Number of items | Study 1 | Study 2 | Study 3 |
| Ideas for improvement                          | 4               | x       | x       | x       |
| Core recovery behavior                         | 5               | x       |         |         |
| Knowledge sourcing / feedback seeking behavior | 8               | x       | x       |         |
| Brand promotion behavior                       | 3               |         | x       |         |
| Organizational identification                  | 4               |         | x       |         |
| Role stress                                    | 6               |         |         | x       |
| Learning orientation                           | 4               |         |         | x       |
| Performance orientation                        | 3               |         |         | x       |
| Manager's emphasis on efficiency objectives    | 4               |         |         | x       |
| Manager's emphasis on quality objectives       | 4               |         |         | x       |
| Customer familiarity                           | 2               | x       | x       |         |
| Product diversity                              | 2               | x       |         |         |

| Dataset 2: Objective firm data (longitudinal)            |                 |         |         |         |
|--|-----------------|---------|---------|---------|
| Variables  | Number of items | Study 1 | Study 2 | Study 3 |
| Failure complexity                                       | N/A             | x       |         |         |
| Product diversity (for validation of FSE survey measure) | N/A             | x       |         |         |
| Efficiency performance                                   | N/A             | x       |         | x       |
| Quality performance / service performance                | N/A             | x       | x       | x       |

| Dataset 3: Customer survey data (longitudinal) |                 |         |         |         |
|--|-----------------|---------|---------|---------|
| Variables                                      | Number of items | Study 1 | Study 2 | Study 3 |
| Customer satisfaction                          | 2               |         | x       |         |

| Dataset 4: Manager survey data (cross-sectional)       |                 |         |         |         |
|--|-----------------|---------|---------|---------|
| Variables  | Number of items | Study 1 | Study 2 | Study 3 |
| Customer loyalty intentions (post-hoc test)            | 2               |         | x       |         |
| FSE performance (post-hoc test)                        | 1               |         | x       |         |
| Idea relevance (for validation of FSE survey measure)  | 1               | x       | x       | x       |
| Idea usefulness (for validation of FSE survey measure) | 1               | x       | x       | x       |



# Appendix II

Operationalization of control and objective variables in Chapter 2.

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## Control variables

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### Innovation orientation (De Jong et al. 2003; $\alpha = .80$ ).

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1. I like to keep up with the latest technology developments in my areas of interest.
  2. I enjoy the challenge of figuring out new technologies.
  3. I am among the first in my circle of friends to acquire new technologies when they appear.
- 

### Learning orientation (Sujan et al. 1994; $\alpha = .86$ ).

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1. It is important for me to learn from each service visit that I do.
  2. If I want to be a good employee, it is important to continuously improve my skills.
  3. I find it important to always learn something new about my customers.
  4. It is worth spending time to learn new approaches to serve my customers.
- 

### Autonomy (Arnold et al. 2000; Zhang and Bartol 2010; $\alpha = .91$ ). *Generally, my manager...*

---

1. Gives me significant autonomy in determining how I do my job.
  2. Provides me with the freedom to decide on my own how to go about doing work.
  3. Gives me considerable opportunity for independence and freedom in how I do my job.
- 

### Self-efficacy (Spreitzer 1995; $\alpha = .87$ )

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1. I am confident about my ability to do my job.
  2. I am self-assured about my capabilities to perform my work activities.
  3. I have mastered the skills necessary for my job.
- 

## Objective variables

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### Failure complexity

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The number of repeat visits scheduled for product failures that could not be solved in one service visit (due to previously unencountered issues) relative to a frontline service employee's total number of service visits.

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### Efficiency performance

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Composite measure of average problem solving speed by a specific frontline service employee (Mean Time to Repair, corrected for product-specific norms) and his/her average service visits per day (corrected for number of working days).

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### Quality performance

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Average uptime of products served by a specific frontline service employee (Mean Time between Failure, corrected for product-specific norms).

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*Note:* the control variables age, job experience and organizational tenure were measured in months.

# Summary

Today's manufacturers increasingly attempt to differentiate themselves by augmenting physical goods with after-sales service, such as repair and maintenance service. Besides being profitable, after-sales service also enables manufacturers to keep in touch and innovate through customer interactions. Frontline service employees (FSEs), such as call center employees or field service engineers, may play a crucial role in this. While FSEs are traditionally responsible for helping customers with their problems, firms increasingly recognize FSEs' potential to exchange information with customers. Due to their boundary-spanning position, FSEs are the few within an organization speaking the language of customers, leading them to truly understand their feedback and translate it into improved after-sales service. Consequently they are an important yet underestimated source of innovation. However, little is known about the impact of FSEs' innovativeness on their job performance and customer evaluations of the service. In addition, it remains unknown which employees are best capable of being innovative.

Based on a systematic review of frontline innovation literature, Chapter 1 of this dissertation shows that FSEs are a valuable source of ideas for improvement due to their dynamic work environment, in which they are exposed to a large variety of customer needs and demands. FSEs may share such ideas with one's own organization, but also use them to enhance their own performance during service delivery. The research aim of this dissertation is to examine the impact of FSEs' ideas for improvement on (a) after-sales service performance and (b) customer evaluations of the service, and (c) which FSEs are best capable of generating and implementing ideas for improvement. Three empirical studies are conducted to address the research aim. The first study in Chapter 2 examines the impact of FSEs taking up an "innovation role" on their performance and how this new role can be most effectively combined with their traditional duties. The study in Chapter 3 extends the prior chapter by examining the different ways in which FSEs' innovative behaviors impact customer evaluations of the service. Chapter 4 examines which employees are best capable of being innovative and how this can be influenced by managers. A more detailed summary of these chapters follows below.

The empirical study in Chapter 2 examines how the FSE's new innovation role can be most effectively combined with their traditional duties.

While research recognizes that FSEs can fulfill an innovation role by sourcing customer knowledge and developing ideas for performance improvement, it remains unclear whether such a role benefits or impairs the FSE's primary recovery service role of providing efficient and thorough solutions to customer problems. Moreover, the associated behaviors and outcomes of such roles have never been empirically examined. Therefore, the study models both FSE roles and explores under which conditions it is beneficial for FSEs to engage in an additional innovation role. Building on insights from creativity research, we consider contextual variety, such as task diversity, task complexity, and variety in social contacts crucial for idea development. The model is tested using survey and objective data from 134 FSEs. PLS results reveal that the innovation role is detrimental because sourcing knowledge from customers takes time and effort, but also beneficial because knowledge sourcing triggers FSEs to develop ideas for improvement, which positively influence their efficiency and quality performance. Managers can strengthen these positive effects of knowledge sourcing by optimizing an FSE's service portfolio (i.e., the combination of products, customers, and failures an employee is responsible for), which leverages the effects of knowledge sourcing on ideas for improvement. In addition, we observe a trade-off between efficiency and quality performance, as working fast causes FSEs to cut corners and overlook parts of a problem, thereby compromising quality performance. Results show that FSEs' ideas for improvement are crucial for solving this efficiency-quality trade-off.

Besides their job performance, FSEs' innovativeness may also impact customer evaluations of the service. Chapter 3 therefore examines the different ways in which FSEs' innovative behaviors impact customer satisfaction. FSEs may act as information interfaces, not only by enhancing their performance through seeking customer feedback and idea implementation, but also by communicating their ideas to customers in a positive way. Building on boundary spanning theory, we identify two information interface behaviors (IIBs) feedback seeking and brand promotion behavior. The aim of the study is to examine how these IIBs relate to customer satisfaction, and how FSEs can be motivated to perform them. Results show that the impact of IIBs on customer satisfaction is highly dependent on FSEs' familiarity with their customers, as well as their work creativity. Specifically, when FSEs develop ideas for improvement they (a) convert acquired feedback into enhanced service performance and subsequent customer satisfaction and (b) make customers more appreciative of their brand promotion activities. The

study also finds FSEs' organizational identification (OI: employee perceptions of oneness with their organization) to be an important factor influencing the effectiveness of IIBs and ideas; while strong identifying FSEs are more likely to engage in IIBs than their less identifying counterparts, a high OI can also make frontliners conform to organizational paradigms and constrains them to think "outside the box", thereby inhibiting FSE idea development.

If FSEs' innovativeness indeed pays off for their job performance and customer satisfaction, it is extremely useful for managers to know which FSEs are best capable of innovating. While literature implicitly assumes that due to their position all FSEs are in the opportunity to innovate, this does not mean that every FSE is capable to do so. Chapter 4 builds on the productivity-quality trade-off identified in Chapter 2, and identifies the individuals best able to develop and implement ideas for improvement as a way to deal with this trade-off. More specifically, we observe that managers increasingly want FSEs to work efficiently but also go the extra mile to provide customers with high quality service. These competing expectations cause FSEs to experience uncertainty and conflict in terms of how to perform their jobs, a phenomenon known as role stress. FSE role stress can drain resources and harm customer service, or it can stimulate employees to excel. Building on self-regulation theory, we identify two relevant predispositions influencing FSE reactions to role stress: a learning and a performance orientation. A learning orientation is a person's tendency to try to develop competence and gain skills. A performance orientation is an individual's inclination to demonstrate and validate his or her competence to others. Survey and objective performance data reveal that role stress has dysfunctional direct effects but also triggers FSEs to develop new ideas to improve their efficiency and quality performance. Learning-oriented (in contrast to performance-oriented) FSEs are most likely to improve their performance as a result of role stress; they adopt a long-term view and believe they can learn and gain control over situations. We discuss the implications of these results for managers, with regard to both FSE recruitment and job design.

Finally, Chapter 5 summarizes the main findings of the three empirical studies and shows how they address the research aim. Subsequently, an integrated perspective is given showing commonalities between the separate chapters. First, this dissertation shows that FSE role extension towards innovation can be extremely useful for improving FSE performance. Yet, its effectiveness is highly dependent on FSE traits and work conditions; particularly FSEs who are open to new experiences and willing to

learn on the job are good candidates for role extension. Second, we show that it can be very useful to extend FSE roles for effectively dealing with the productivity-quality trade-off. Although obtaining customer information takes time and energy, it pays off once FSEs integrate the new information with their existing knowledge and develop improved product and service solutions accordingly. These solutions play an important role in solving the productivity-quality trade-off. Finally, this dissertation is the first to substantiate that the design of individual portfolios has a great impact on the payoff of FSEs' innovation potential. We find that FSEs who work with a wide variety of technologies are more likely to develop improved routines as a result of customer interaction. Moreover, employees who have a fixed pool of customers with whom they have built stable relationships are more likely to benefit from customer interaction for the development of new solutions. However, while interaction with familiar customers benefits product and service improvement, it also carries a major risk; repeatedly asking the same customers for feedback creates annoyance because customers feel it structurally gets in the way of receiving quality service. Frontliners should therefore be careful with obtaining information from customers they repeatedly encounter.

In sum, this dissertation provides uncontested evidence that FSEs are a highly valuable source of innovation. Their boundary-spanning position provides perfect opportunity to generate and implement ideas for improvement on a regular basis, which can benefit both their work performance and customer evaluations of the service. Some FSEs are better capable of innovating than others. Moreover, engaging in innovative activities is not recommendable for every FSE – customer relationship. Hence, there is an important job for managers to select the right employees and provide FSEs with the right service portfolios to optimize the payoff of frontline innovation.

## About the author

Gielis van der Heijden was born in Best, the Netherlands, on April 24, 1985. After gaining his bachelor degree in Social Psychology, he studied Work and Organizational Psychology at Tilburg University, the Netherlands. In 2009 he graduated 'Cum Laude' within the School of Social and Behavioral Sciences on the topic of workplace boredom. In the same year he started his Ph.D. project at the Eindhoven University of Technology of which the results are presented in this dissertation. His work has been published in the *European Journal of Work and Organizational Psychology*, the *Journal of the Academy of Marketing Science*, and numerous conference proceedings. In 2012 he was awarded the Liam Glynn Scholarship made available by the American Marketing Association (AMA) and Services Marketing Special Interest Group (SERVSIG).

