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Individual ambidexterity: the challenge of changing the performed balance between explorative and exploitative behavior

Master thesis

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Preface

This master thesis has been written in order to complete my master study Business Administration in Innovation and Entrepreneurship. From September 2014 until February 2015 I've been occupied with this research project at a Business Unit of a company operating in the Telecom branch. This Business Unit will be called Business Unit X from now on, due to confidentiality reasons.

Several people helped me during this research period and I hereby like to thank them. First of all, I would like to thank my first supervisor Sandor Löwik for his help. Sandor gave me the freedom to create my own research, make my own choices and plan my own work, while also providing me with the opportunity to discuss my thoughts with him, thereby giving me valuable insights and feedback. Sandor motivated me and awakened my interest in the subject even further. Second, I would like to thank my second supervisor Matthias de Visser for his useful comments and feedback. Next to that, this thesis would not be possible without the workspace, help and support that Business Unit X provided me. All employees were very kind to me and embraced me as part of their close group of colleagues. Therefore I would like to thank all employees for the nice time I had with them during my research project. Further I highly appreciate the support of Senior Management and the three Product Managers. They made the quasi-experiment possible. Finally, I would like to thank my family, boyfriend and friends for their interest in the progress of my research and their support, either in financial or in motivational manners.

Management summary

It is important for organizations to perform both exploration and exploitation and maintain an appropriate balance between the two (March, 1991). This was first called ambidexterity by Duncan (1976). Herein exploitation refers to the extension and refinement of existing competences, technologies and paradigms, while exploration refers to experimentation with new alternatives (March, 1991). The challenge of performing both exploration and exploitation in an appropriate balance lies in the fact that there is a bias towards exploitation, because of its higher chance of short-term successes than exploration (March, 1991). The challenge of maintaining an appropriate balance addresses firm survival over time. Namely, the appropriate balance can change due to changes in environmental dynamics concerning the firm (O'Reilly & Tushman, 2013). That makes it necessary to be able to change the performed balance between exploration and exploitation. Given the fact that much of the work that is performed in organizations is done through organizational routines (March & Simon, 1958; Cyert & March, 1963), this could be deemed a challenge. Organizational routines are namely considered as constraining changes in behavior (Feldman, 2000; Gilbert, 2005) and therefore the performed balance between exploration and exploitation.

Many scholars on ambidexterity have explored why some organizations are ambidextrous, while others are not. Gibson and Birkinshaw (2004) have contributed herein by showing that ambidexterity at the organizational level can be achieved by supporting individual ambidexterity. Recent literature on individual ambidexterity is scarce though (Raisch, Birkinshaw, Probst & Tushman, 2009) and moreover neglects the challenge for individuals to change the balance between explorative and exploitative behavior, while working in organizational routines. Research into this challenge and how it can be overcome is vital though in order to understand individual ambidexterity and how it can be achieved. Therefore, the research goal of this thesis is to explore the challenge for an employee to change his or her balance between explorative and exploitative behavior.

Although it is considered difficult for an employee to change his or her balance between explorative and exploitative behavior when working in organizational routines, it is not impossible (Feldman, 2000; Feldman & Pentland, 2003). Using the work of Feldman and Pentland (2003), this thesis reasons that a change in the organizational perception of the routine (ostensive aspect) can induce a change in the performed routine (performative aspect) and therefore the performed balance between explorative and exploitative behavior. The organizational perception of the routine namely places expectations on the behavior of the employees performing the routine, which can guide their behavior. For one employee this means that a change in the expectations regarding his role can guide a change in his behavior (Biddle, 1979) and therefore the balance between explorative and exploitative behavior performed. To what extent a change in role expectations eventually leads to a change in behavior is dependent on factors that enable or constrain an employee to perform according to the new role expectations (Biddle, 1979). Investigating these factors could help us understand how a change in the balance between explorative and exploitative behavior, when necessary, could be supported, thereby supporting

individual ambidexterity. Therefore, in order to bring forward these factors, this thesis' central research question is defined as follows: ***"How is an employees' balance between explorative and exploitative behavior affected by a change in role expectations?"***

In order to address the central research question, the author conducted a literature review and empirical research. The empirical research was undertaken by using a quasi-experiment with three Product Managers. Herein, based on the literature review, an explorative or exploitative task instruction was used as an intervention and presented a change in role expectations (of management). Through the use of an interrupted time series design based on multiple unstructured and semi-structured interviews, it was investigated how the task instruction influenced the employees' balance between explorative and exploitative behavior.

In the fist place, the results of the research show that a change in role expectations indeed can lead to a change in the performed balance between explorative and exploitative behavior. Therefore the research supports the view that a change in the ostensive aspect of a routine (perception) could lead to a change in the performative aspect of the routine (performed behavior).

Besides, the research brought forward factors that can enable or constrain the possibility to change the balance between explorative and exploitative behaviors, when deemed necessary by management. Namely, the research brought forward factors that can determine how an employees' balance is affected by a change in role expectations and thereby the extent of the change in the balance between explorative and exploitative behavior.

In the first place, transferability of old activities (when necessary), personality (authority acceptance) and communication of management towards organizational members can explain how an employees' balance is affected by a change in role expectations of management. In the cases presented, these factors were namely found to have an influence on the willingness of employees to change their balance between explorative and exploitative behavior according to the changed expectations of management. Herein, the level of good fellowship and training of employees influence the transferability of old activities.

Second, the individuals' possessed knowledge and thereby the individuals' work experience and the level of knowledge sharing in the organization, the individuals' personality (Big Five), the individuals' time management and performance management in the organization can explain how an employees' balance is affected by a change in role expectations. These factors namely can have an influence on the degree to which an employee can act upon the changed expectations for self.

By bringing forward and elaborating on the influence of the above mentioned factors, this research provides insights in the ability of an employee to maintain an appropriate balance between explorative and exploitative behavior over time. This is an important aspect of individual ambidexterity, but has been neglected till now on.

Hereby this study contributes to both theory and practice. The theoretical relevance of this research lies primarily in the fact that it focuses scholars' attention to a more dynamic view and understanding of individual ambidexterity. Next to that, this research grounds the difficulties of ambidexterity in reality, thereby responding to the need for a 'practice-centered' approach (Antonacopoulou & Pesqueux, 2010, p.11) or case-based analysis (Nosella, Cantarello & Filipinni, 2012) in order to explore ambidexterity. The practical relevance of this research lies in the fact that managers of organizations can use the results of the study in the organizations' journey of survival over time, by enabling employees to change their balance between explorative and exploitative behavior over time.

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1. Introduction

It is important for organizations to perform both exploration and exploitation and maintain an appropriate balance between the two (March, 1991), which was first called ambidexterity by Duncan (1976). Herein exploitation refers to the extension and refinement of existing competences, technologies and paradigms, while exploration refers to experimentation with new alternatives (March, 1991). Engaging in either exploration or exploitation, to the exclusion of the other, is likely to be suboptimal. This makes it important to engage in both exploration and exploitation and maintain an appropriate balance between the two:

"Adaptive systems that engage in exploration to the exclusion of exploitation are likely to find that they suffer the costs of experimentation without gaining many of its benefits. They exhibit too many undeveloped new ideas and too little distinctive competence. Conversely, systems that engage in exploitation to the exclusion of exploration are likely to find themselves trapped in suboptimal stable equilibria. As a result, maintaining an appropriate balance between exploration and exploitation is a primary factor in system survival and prosperity" (March, 1991, p. 71).

In the view of March (1991), the difficulty in performing both exploration and exploitation in an appropriate balance lies in the fact that there is a bias towards exploitation. Namely, when organizations engage in exploitation, they are more certain of short-term successes than when engaging in exploration. Exploration unavoidably leads to an increase in the number of bad ideas and is by nature inefficient. Without exploration though, the organization is likely to fail in times of change (O'Reilly & Tushman, 2013).

Next to that, the challenge of maintaining an appropriate balance addresses firm survival over time, since the appropriate balance can change due to changes in environmental dynamics concerning the firm (O'Reilly & Tushman, 2013). That makes it necessary to be able to change the performed balance between exploration and exploitation. For example, consider a firm that successfully focuses on selling a standard product portfolio and refining efficiency levels (exploitation), while also exploring new opportunities to a certain extent (exploration). Given the firm and its environment this is the appropriate balance between exploration and exploitation. Then, due to environmental dynamics concerning the firm (for example rising competition and drastically changing customer demands), this appropriate balance between exploration and exploitation changes, making it necessary to change the performed balance between exploration and exploitation to a greater focus on exploration and a lesser focus on exploitation. Given the fact that much of the work that is performed in organizations is done through organizational routines (March & Simon, 1958; Cyert & March, 1963), this could be deemed a challenge. Organizational routines are namely considered as constraining changes in behavior (Feldman, 2000; Gilbert, 2005) and therefore the performed balance between exploration and exploitation.

Based on the above ideas, many scholars tried to explain why some organizations are ambidextrous, while others are not. Herein Gibson & Birkinshaw (2004) have contributed by arguing that organizational ambidexterity can be achieved by creating an organizational context that supports individuals to perform both explorative and exploitative behaviors and maintain an

appropriate balance between the two. This approach to ambidexterity has been termed 'contextual ambidexterity' by Gibson and Birkinshaw (2004). Although Gibson and Birkinshaw (2004) do not literally use the term 'individual ambidexterity', an individual that performs both explorative and exploitative behaviors and maintains an appropriate balance between them, can be logically termed an 'ambidextrous individual'. Thereby, contextual ambidexterity means that an organization performs both exploration and exploitation and maintains an appropriate balance between them through the creation of a context that facilitates individual ambidexterity.

Although Gibson and Birkinshaw (2004) pointed to the importance of supporting individual ambidexterity in order to achieve contextual ambidexterity, the theorization and empirical evidence on individual ambidexterity and how it can be achieved in practice is scarce (Turner, Swart & Maylor, 2012). Existing literature on individual ambidexterity focuses on explaining why some individuals perform exploration and exploitation to the same extent (see for example Mom, v.d. Bosch & Volberda, 2009 and Bonesso, Gerli & Scapolan, 2014), while others do not. Thereby it is assumed that it is always desirable that an employee performs exploration and exploitation to the same extent. It neglects the fact that the appropriate balance between exploration and exploitation for an employee may not always be fifty-fifty. Moreover it neglects the possible necessity and difficulty of changing the performed balance between explorative and exploitative behavior over time, while working in organizational routines. For example, if the competitive environment of an organization changes an employee may (ideally) have to change his or her balance between explorative and exploitative behavior from twenty-eighty towards eighty-twenty (more explorative behavior and less exploitative behavior). Achieving such a change might be challenging, since he or she probably works in organizational routines (March & Simon, 1958; Cyert & March, 1963), which are generally perceived to constrain changes in behavior (Feldman, 2000; Gilbert, 2005).

To the authors' current knowledge there is no empirical research regarding the challenge for individuals to change the balance between explorative and exploitative behavior, while working in organizational routines. Research into this challenge and how it can be overcome is vital though in order to understand individual ambidexterity and how it can be achieved. Therefore, the research goal of this thesis is to explore the challenge for an employee to change his or her balance between explorative and exploitative behavior.

1.1   Research questions

It can be considered difficult for an employee to change his or her balance between explorative and exploitative behavior when working in organizational routines, because routines are generally associated with stability and inertia to change (Feldman, 2000; Gilbert, 2005). Although it is considered difficult, it is not impossible to change behaviors in routines (Feldman, 2000; Feldman & Pentland, 2003). Using the work of Feldman and Pentland (2003), this thesis reasons that a change in the performed routine (performative aspect of the routine) can be induced by changing the organizational perception of the routine (ostensive aspect of the routine). The organizational perception of the routine namely places expectations on the behavior of the employees performing the routine, which can guide those employees' behavior.

For one employee this means that a change in the expectations regarding his role can induce a change in his or her behavior (Biddle, 1979). In other words, when an employee is expected to perform more explorative activities or exploitative activities in the organization, this could lead to a change in his or her performed balance between explorative and exploitative behavior (figure 1). To what extent this change in role expectations leads to a change in behavior is dependent on factors that enable or constrain an employee to perform according to the new role expectations (Biddle, 1979). Investigating these factors could help us understand how a change in the balance between explorative and exploitative behavior, when necessary, could be supported, thereby supporting individual ambidexterity (figure1).
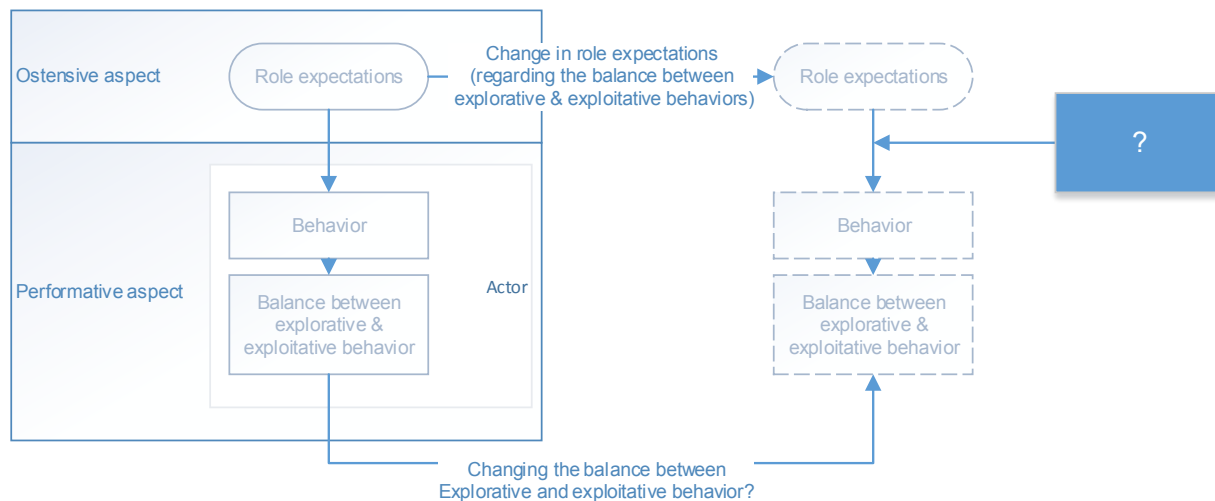
Figure 1. Focus of the central research question

Therefore, the central research question of this thesis is defined as follows: ***"How is an employees' balance between explorative and exploitative behavior affected by a change in role expectations?"***

In order to develop an answer to this central research question, certain sub-questions are defined. These sub-questions are defined in order to elaborate on the idea underlying the central research question (figure 1) and create an appropriate research framework:

1. *"What is meant with explorative behavior?"*

2. *"What is meant with exploitative behavior?*

3. *"What is the interaction between the ostensive and performative aspect of an organizational routine?"*

4. *"What is the relationship between role expectations and an employees' balance between explorative and exploitative behavior?*

1.2   Research strategy

In order to address the central research question a conceptual study and an empirical study were undertaken. This paragraph describes the research strategies undertaken for both studies. A more detailed description of the empirical method applied can be found in Chapter 3.

Theoretical research strategy

The conceptual study in Chapter 2 is a literature review in order to explore individual ambidexterity and to address the defined sub-questions. To do so, relevant literature is reviewed. In particular, the systematic literature review is based on 19 sources, which comprise several research fields, such as ambidexterity, organizational behavior and role theory. Based on this review, a research framework at the end of the chapter is presented.

Empirical research strategy

In order to see the influence of changing role expectations on an employees' balance between explorative and exploitative behavior, the author conducted a quasi-experiment using an interrupted time series design, in which a task instruction was used as intervention. The task instruction thereby presented a change in role expectations. By carefully designing the quasi-experiment, it was investigated how the task instruction influenced the employees' balance between explorative and exploitative behavior.

Before, during and after the intervention the balance between explorative an exploitative behavior was investigated by letting the research subjects rate and explain their engagement in explorative-related and exploitative-related activities. Next to that, multiple unstructured and semi-structured interviews were used to investigate the relationship between a change in role expectations and behavior. By using different methods to investigate the balance between explorative and exploitative behavior, data on the dependent variable was triangulated, thereby contributing to internal validity (Miles & Huberman, 1994). Next to that, this case-based analysis made the author able to identify explanations for the influence of the change in task instruction on the performed balance between explorative and exploitative behavior, thereby contributing to the internal validity of the research (Campbell & Stanley, 1963) and addressing the how-question. Furthermore, the research design automatically responds the need for a 'practice-centered' approach (Antonacopoulou & Pesqueux, 2010, p.11) or case-based analysis (Nosella et al, 2012) in order to explore ambidexterity. The semi-structured interviews were recorded, transcribed and coded in order to address the central research question properly.

1.3   Structure of the thesis

First, the following chapter provides a theoretical framework. It starts with discussing ways to achieve organizational ambidexterity and the role of individual ambidexterity herein. After that, individual ambidexterity is discussed in greater detail. Moreover, organizational routines and role theory are discussed in relation to individual ambidexterity. The chapter ends with a research framework based on these theories. The method is then presented in chapter three. This chapter extensively discusses the research setting, the quasi-experiment and specific data collection and

data analysis procedures used. In chapter four, the results are presented on the basis of the cases of Product Manager A, B and C. Chapter five compares the case evidence. Last of all, with the help of the results, the discussion chapter addresses the central research question. It further discusses the theoretical and practical relevance of the research, limitations and future research directions.

2 Theoretical framework

2.1 Achieving organizational ambidexterity

If an organization wants to be viable today, as well as viable in the future, it has to be able to perform both exploration and exploitation and maintain an appropriate balance between the two (March, 1991). This was first called ambidexterity by Duncan (1976). Existing literature on ambidexterity provides us with broadly three different approaches to achieve ambidexterity (O'Reilly & Tushman, 2013). Herein Duncan (1976) brought forward the first approach, in which organizations change organizational structures over time, from promoting exploration to exploitation over time, also called 'sequential ambidexterity'.

Tushman & O'Reilly (1996) reasoned that in high-velocity markets, sequential ambidexterity might be ineffective and organizations need to exploit and explore simultaneously. They proposed that this can be achieved by structurally separating exploration and exploitation, also-called 'structural ambidexterity' (second approach). In particular, Tushman & O'Reilly (1996) proposed to separate a company in two autonomous subunits, one for explorative activities and one for exploitative activities, both subunits with their own cultures, processes, incentives, competencies and systems that are internally aligned. The two subunits are then held together by senior management through "a common strategic intent, an overarching set of values, and targeted linking mechanisms to leverage shared assets" (O'Reilly & Tushman, 2013, p. 9-10). Other scholars investigating this so-called structural ambidexterity have reasoned that the simultaneous performance of exploration and exploitation by one organization can also be achieved by structurally separating exploration and exploitation within the network of the focal firm. Using that approach, an organization uses other companies than the focal firm to perform explorative and exploitative routines and behavior for them (Lavie & Rosenkopf, 2006; Lavie, Kang & Rosenkopf., 2011; Puranam, Singh & Zollo, 2006; Kauppila, 2010). This specific form of structural ambidexterity has also been called 'inter-organizational ambidexterity' (O'Reilly & Tushman, 2013).

Gibson and Birkinshaw (2004) subsequently channeled our attention to the individual level underpinning the organizational level. They reasoned that organizations can manage the performance of both exploration and exploitation and an appropriate balance between them, by creating an organizational context that supports individuals to perform both explorative and exploitative behaviors and maintain an appropriate balance between the two (Gibson & Birkinshaw, 2004). Gibson & Birkinshaw (2004) have termed this approach 'contextual ambidexterity' (third approach). Thereby, they opened up the opportunity to stimulate individual ambidexterity in order to achieve organizational ambidexterity through the context. Currently, our understanding of individual ambidexterity is still relatively scarce though (Raisch et al., 2009).

2.2 Individual ambidexterity

Since the previous paragraph explained the possibility of stimulating individual ambidexterity, thereby influencing organizational ambidexterity, this paragraph will elaborate on what is exactly meant when referring to individual ambidexterity.

As brought forward in the introduction, the author of this thesis defines individual ambidexterity as the ability of an employee to perform both explorative and exploitative behaviors and maintain an appropriate balance between the two. Thus, when an individual performs both explorative and exploitative behaviors in an appropriate balance over time, individual ambidexterity is achieved. But, *what is meant with explorative behavior* and *what is meant with exploitative behavior?* These two research questions will now be addressed in order to create a better understanding about individual ambidexterity. In the first place, explorative behavior is focused on the experimentation with new alternatives, while exploitative behavior is focused on the extension and refinement of existing competences, technologies and paradigms (March, 1991). Therefore, exploitative behaviors are more focused on the daily business, while explorative behaviors are more focused on the future. Based on March (1991), Mom et al. (2009, p. 820) provide us with a more specific idea regarding explorative and exploitative behaviors by defining exploration-related activities (in which someone performs explorative behavior) and exploitation-related activities (in which someone performs exploitative behavior), as shown in Table 2. Based on this specification of Mom et al. (2009), from now on, when referring to explorative behavior, the performance of exploration-related activities as defined by Mom et al. (2009) is meant. When referring to exploitative behavior, the performance of exploitation-related activities as defined by Mom et al. (2009) is meant.

Exploitation-related activities	Exploration-related activities
Activities of which a lot of experience has been accumulated by him/her	Searching for new possibilities with respect to products / services, processes or markets
Carrying out activities as if it were routine	Evaluating diverse options with respect to products/services, processes or markets
Activities which serve existing (internal) customers with existing services/products	Focusing on strong renewal of products/services or processes
Activities of which it is clear to him / her how to conduct them	Activities of which the associated yields or costs are currently unclear
Activities primarily focused on achieving short-term goals	Activities requiring some adaptability
Activities which he/she can properly conduct by using his/her present knowledge	Activities requiring the employee to learn new skills or knowledge
Activities which clearly fit into existing company policy	Activities that are not (yet) clearly existing company policy

Table 1. Exploitation-related and exploration-related activities (Mom et al., 2009)

2.3 Organizational routines and individual ambidexterity

As pointed out in the previous sub-chapter, when an individual performs both explorative and exploitative behaviors in an appropriate balance over time, individual ambidexterity is achieved. Over time though, the appropriate balance between exploration and exploitation can change due to environmental dynamics concerning the firm (O'Reilly & Tushman, 2013). Therefore, in order to perform explorative and exploitative behaviors in an appropriate balance over time, one must be able to change the balance between explorative and exploitative behavior when necessary.

Although it is assumed that in order to achieve individual ambidexterity, an individual must be able to change the balance between explorative and exploitative behavior, this can be deemed a challenge within organizations. Namely, much of the work that is done in an organization is performed through organizational routines (March & Simon, 1958; Cyert & March, 1963), which are generally perceived to constrain changes in behaviors (Feldman, 2000; Gilbert, 2005). Although understanding this challenge and how it could be overcome would contribute to our understanding of how individual ambidexterity can be achieved, existing literature neglects it. Therefore, the paragraphs below will elaborate on it.

Conceptualizing an 'organizational routine'

It is generally accepted that "organizational routines can be defined as repetitive, recognizable patterns of interdependent actions, carried out by multiple actors" (Feldman & Pentland, 2003, p. 95). Because of the self-reinforcing nature of routines, they are generally perceived to be inflexible and contributing to inertia to change behaviors of employees performing the routines (Feldman, 2000; Gilbert, 2005). Therefore, organizational routines can be assumed to constrain the ability of an employee to change the balance between explorative and exploitative behavior.

Although organizational routines are often associated with stability and inertia to change, Feldman (2000) showed that change within routines does occur. To explain how change is possible within an organizational routine, Feldman and Pentland (2003) have conceptualized an organizational routine as a phenomenon that consists of two related aspects: the ostensive aspect and the performative aspect. The ostensive aspect hereby is the perception of the routine, while the performative aspect is the performance of the routine (behavior). Since individual ambidexterity is embedded in an individuals' behavior, it is therefore embedded in the performative aspect of the routine (figure 2).
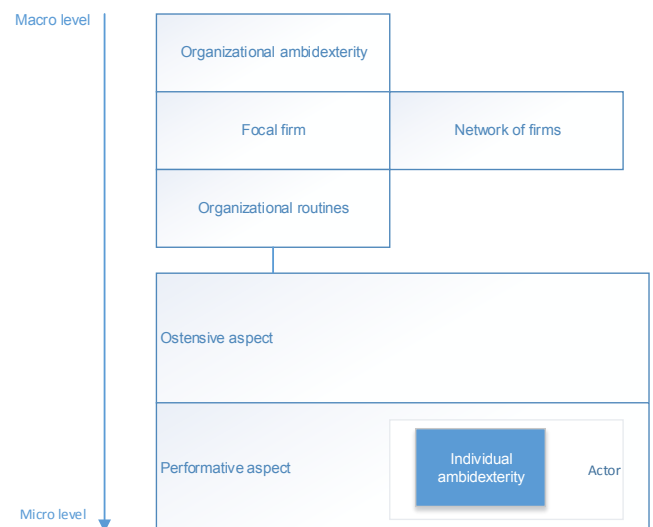

Figure 2. Individual ambidexterity embedded in an organizational routine

In particular the interaction between the ostensive and performative aspect is interesting, since it brings forward possibilities for change in an employees' performed balance between explorative and exploitative behavior. In order to elaborate on this interaction, the paragraphs below will first conceptualize the ostensive and performative aspects.

First, the so-called ostensive aspect of the routine is the perception of the routine on the organizational level (Feldman & Pentland, 2003). For example, organizational members could have the idea that every time intentions exist to hire someone, a number of employees should make sure that applicants are attracted, they are screened, someone is chosen when possible and a job offer is presented to the chosen applicant, when applicable. This organizational perception of the actions that have to be taken when hiring is conceptualized as the ostensive aspect of the hiring routine. This ostensive aspect of the routine can be codified as a standard operating procedure, but this is not necessary. It may also exist as a taken-for-granted norm (Feldman and Pentland, 2003). It is the general idea or perception of the work that has to be done and therefore contains certain expectations regarding the performance of (explorative and exploitative) behavior in an organization.

Second, the so-called performative aspect of the routine is the real performance of the routine: 'the specific actions taken by specific people at specific times when they are engaged in an organizational routine' (Feldman & Pentland, 2003; p.101-102). In the example of the hiring routine, it is about the real (explorative and exploitative) actions taken when hiring. Research into the performative aspect of a routine therefore is focused on individual-level behavior of the actors in the routine. Since individual ambidexterity is about the performance of explorative and exploitative behaviors and not about the explorative and exploitative behaviors that are expected, individual ambidexterity is embedded in the performative aspect of organizational routines.

The interaction between the ostensive and performative aspect

Feldman and Pentland (2003) describe the interaction between the ostensive and performative aspect of an organizational routine. Thereby they open up possibilities for change in routines and therefore the possibilities regarding change in the balance between explorative and exploitative behavior performed. The following paragraphs will first discuss the interaction between the ostensive and performative aspects, thereby addressing the third research question: "*What is the interaction between the ostensive and performative aspect of an organizational routine*?" On the basis of these paragraphs the possibilities for change in routines will be brought forward.

First, the ostensive aspect can be used by employees prospectively, as a guide to their actions, or retrospectively, in order to refer to actions already taken or to account for actions already taken (Feldman & Pentland, 2003). The guiding function of the ostensive aspect means that the ostensive aspect of a routine is used as a template or script for behavior (Feldman & Pentland,

2003). In other words, when organizational members have a certain perception of the actions that have to be taken when hiring, this perception guides the behavior of the employees that hire new employees. Next to using the ostensive aspect as a guide for behavior, employees can also use the ostensive aspect to account for their behavior. Logically, when you can link your behavior to the ostensive aspect of a routine, this legitimates your behavior. Your behavior then is in line with the organizational perception about how work should be performed. When it is not, it de-legitimates your behavior (Feldman & Pentland, 2003). By using the ostensive aspect of a routine employees can make sense of their behavior and it gives them an idea about when it is appropriate to ask someone else for an accounting. Further, employees can use the ostensive aspect in order to refer to behavior. By using the ostensive aspect employees are able to explain what they are doing. They use the ostensive aspect to refer to, and make sense of, a pattern of actions that would otherwise be overwhelming (Feldman & Pentland, 2003). This would for example be the case when the employees involved in hiring describe what the collectively do by stating that they attract applicants, screen them, choose someone when possible and present a job offer when applicable. In reality, the hiring routine includes numerous actions, but in order to provide an understandable summary of what they do, they refer to the ostensive aspect of the routine.

Second, the performative aspect of a routine can create, maintain and modify the ostensive aspect of a routine "in much the same way that speaking creates, maintains and alters a language" (Feldman & Pentland, 2003, p. 107). By performing a pattern of actions repeatedly, it can be recognized and the ostensive aspect can be created. Next to that, by performing the recognized pattern of actions repeatedly, the ostensive aspect is maintained. For example, when repeatedly attracting applicants, screening applicants, choosing one when possible and presenting a job offer when applicable, the ostensive aspect of the hiring routine is maintained. Nevertheless, when deviating from the ostensive aspect, the performative aspect can modificate the ostensive aspect, if members of an organization choose to incorporate variations in performances into the ostensive aspect of the routine (Feldman & Pentland, 2003). For example, the ostensive aspect of the hiring routine could include the norm that applicants are attracted by adverts in a paper. Now consider the situation in which the recruiter notices that just a few applicants are attracted via adverts in a paper and starts attracting applicants via Linkedin, thereby attracting more applicants. When organizational members approve this variation and think that in the future applicants should always be attracted via Linkedin, the performative aspect has modificated the ostensive aspect of the hiring routine.

Figure 3 visualizes what this interaction means for individual ambidexterity. In the first place, the performed balance between explorative and exploitative behavior is guided by the perception about the explorative and exploitative actions that have to be performed. Next to that, the ostensive aspect is used to
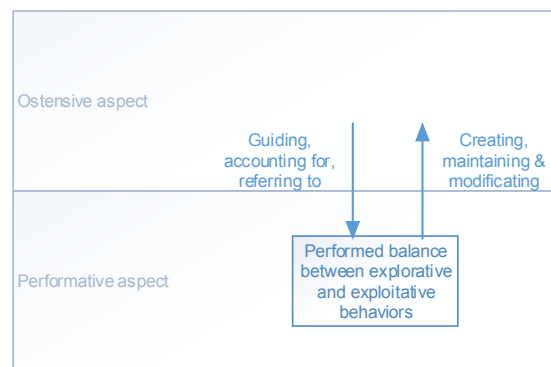
Figure 3. The interaction between the ostensive and performative aspect of an organizational routine and its impact on an employees' performed balance between explorative and exploitative behavior

account for the explorative and exploitative behaviors and refer to the explorative and exploitative behaviors. Second, the performed balance between explorative and exploitative behaviors can create, maintain and modificate the ostensive aspect. This means that the explorative and exploitative behaviors can create and keep into existence the general idea about the explorative and exploitative behaviors that have to be performed. Next to that though, when changing the performed balance between explorative and exploitative behaviors, the organizational perception (about the explorative and exploitative behaviors that should be performed) could also change.

Potential for changing the balance between explorative and exploitative behavior

Following the interaction between the ostensive and performative aspect, there are two ways of creating change in routines. In the first place the ostensive aspect can be changed in order to induce a change in the performative aspect, since the ostensive aspect can be used as a guide to performances. Second, the performative aspect can be changed and induce a change in the ostensive aspect, when organizational members are willing to incorporate these changes in the ostensive aspect (Feldman & Pentland, 2003).

The first option lies in the ostensive-performative relationship. Namely, since the employees performing the routines can use the ostensive aspect as a guide for their behavior, a change in the ostensive aspect could induce a change in the performative aspect. Feldman and Pentland (2003, p.9) use the example that the ostensive aspect is like a musical score for a musician. Logically, if you change the musical score, it is likely that the musician will change his performance. Applying this idea to individual ambidexterity a change in the expectations regarding explorative and exploitative behavior of employees in the product development routine for example, could lead to a change in the performance of explorative and exploitative behaviors in this routine. The second option lies in the performative-ostensive relationship, where a change in the performative aspect of the routine has the potential to induce a change in the ostensive aspect of the routine, when organizational members are willing to incorporate variations in the ostensive aspect. Since this thesis aims to explain a change in the performative aspect of a routine, it will focus on exploring the first option for creating change in routines.

2.4 Role theory and individual ambidexterity

While the literature on organizational routines largely focuses on collective behaviors of actors in an organization and the processes that presumable produce, explain or are affected by those collective behaviors, this thesis attempts to explain the behavior of an individual actor in an organizational routine. This thesis is therefore interested in how the ostensive aspect of a routine, containing expectations regarding explorative and exploitative behaviors, precisely guides an individuals' behavior (balance between explorative and exploitative behavior), which is the subject of role theory. Role theory namely is "a science that is concerned with the study of behaviors that are characteristics of persons within contexts (roles) and with various processes that presumably produce, explain or are affected by those behaviors" (Biddle, 1979, p.4).

In line with the literature on organizational routines, role theory assumes that expectations regarding the behavior of an employee occupying a certain position (role expectations) guide this employees' behavior (Biddle, 1979). Herein, role expectations regarding an employee can be viewed as embedded in the ostensive aspect of the organizational routine he or she is engaged in. Next to that, the actual behavior of this employee is embedded in the performative aspect of the organizational routine he or she is engaged in. Therefore, the performed balance between explorative and exploitative behavior is embedded in the performative aspect of the organizational routine. This addresses the fourth research question already: "*What is the relationship between role expectations and an employees' balance between explorative and exploitative behavior?*"

However, we can say more about the relationship between role expectations and an employees' balance between explorative and exploitative behavior, by reasoning how this guiding function works. Logically, in order for expectations to guide an employees' behavior, the employee should first perceive them, so that they become embedded in his or her expectations for self and guide behavior (figure 4).

When all organizational members have collectively agreed to a certain way of working, it is pretty straightforward that one organizational member is aware of the expectations regarding his behavior, they are all incorporated in his or her expectations for self and guide behavior (Biddle, 1979). In such a case the organizational member perceives consensus among the expectations placed on his behavior (Biddle, 1979), which then guide behavior.

Nevertheless, organizational members do not have to agree about a certain way of working or the behavior one organizational member should perform (Biddle, 1979). When this organizational member is aware of those contradictory expectations, he perceives dissensus among the expectations placed on him by himself and others (Biddle, 1979). In such a case, not all role expectations can be embedded in the organizational members' expectations for self. Therefore, when an organizational member perceives dissensus among the expectations placed on him, not all role expectations will guide behavior.
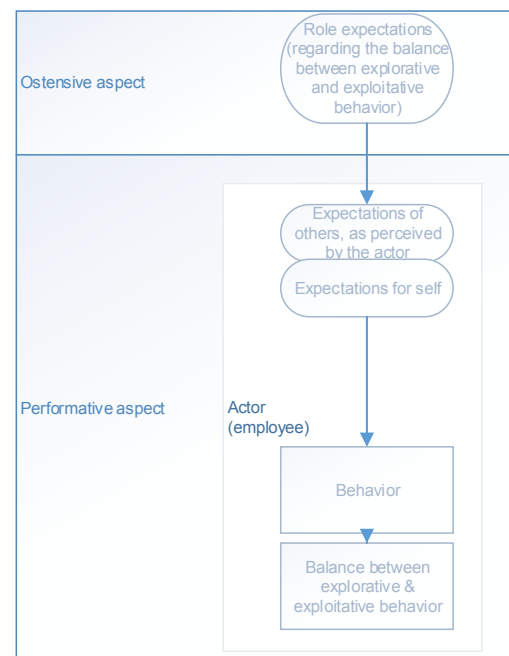
Figure 4. The relationship between role expectations and an employees' balance between explorative and exploitative behavior

Potential for changing the balance between explorative and exploitative behavior

The above paragraph described that role expectations can guide an employees' balance between explorative and exploitative behavior, if the employee is aware of the role expectations and incorporates them in his or her expectations for self. This also means that a change in role expectations can induce a change in an employees' performed balance between explorative and exploitative behavior, if the employee is aware of the change and incorporates it in his or her

expectations for self. Researchers in the field of exploration and exploitation support such a possibility for change by assuming that if you work in an organization and someone with authority expects you to change your balance between explorative and exploitative behavior, you will act upon those changed expectations, if you are aware of them. Chua & Iyengar (2008) for example reason, based on other research results, that an explicit task instruction focused on creating something novel, focuses the employees' attention towards exploration and experimentation. This is then logically also applicable to explicit exploitative task instructions. When someone is explicitly told to work on the refinement and extension of existing competences, technologies and paradigms, his or her efforts will be channeled towards exploitation. Rosing, Frese & Bausch (2011) also support this by proposing that if leaders focus the attention of their followers towards exploration, by encouraging experimentation with different ideas, for example, this has a positive effect on follower explorative activities. In addition, if leaders focus their followers' attention towards exploitation, this has a positive effect on follower exploitative activities. Thereby it is assumed that if someone with authority changes the role expectations regarding your explorative and exploitative behavior and you are aware of it, you will incorporate these changes in your expectations for self (to some extent) and subsequently in your behavior (to some extent).

To what extent a change in role expectations of your boss is incorporated in your expectations for self, if you are aware of them, is dependent on the question to what extent your are willing to incorporate them in your own expectations. For example, imagine that you normally perform explorative behavior thirty percent of the time and exploitative behavior seventy percent of the time. Management explicitly expects you to change that balance towards performing explorative behavior eighty percent of the time and exploitative behavior twenty percent of the time. You could be willing to act upon those expectations of management, thereby incorporating them fully in your expectations for self. Nevertheless, you could also be partly willing to incorporate them in your expectations for self, thereby for example expecting yourself to perform explorative behavior fifty percent of the time and exploitative behavior fifty percent of the time. Which factors could explain the extent to which you incorporate changed expectations of management (regarding the balance between explorative and exploitative behavior you are to perform) in your expectations for self (regarding the balance between explorative and exploitative behavior you are to perform) is not clear in the literature on individual ambidexterity (figure 5).

Next to that, to what extent a change in expectations for self is incorporated in your behavior, is dependent on the question if you can act upon your expectations for self. Elaborating on the previous example, imagine that, based on the changed expectations of management, you expect yourself to change your balance between explorative and exploitative behavior from seventy-thirty percent towards eighty-twenty percent. But can you do that, while working in organizational routines? Which factors enable you to do that and which factors constrain you to do that? For example, "without baseball bats it is impossible to play baseball" and "books in the homes stimulate reading" (Biddle, 1979, p. 6). Which (interplay of) factors could explain the extent to which you can act upon a change in expectations for self regarding the balance between explorative and exploitative behavior you are to perform? Since the literature on

individual ambidexterity is scarce (Raisch et al., 2009; Turner et al., 2012) and has not yet investigated the ability of an employee to change his or her balance between explorative and exploitative behavior in practice, we do not yet have a clear understanding of this (figure 5).
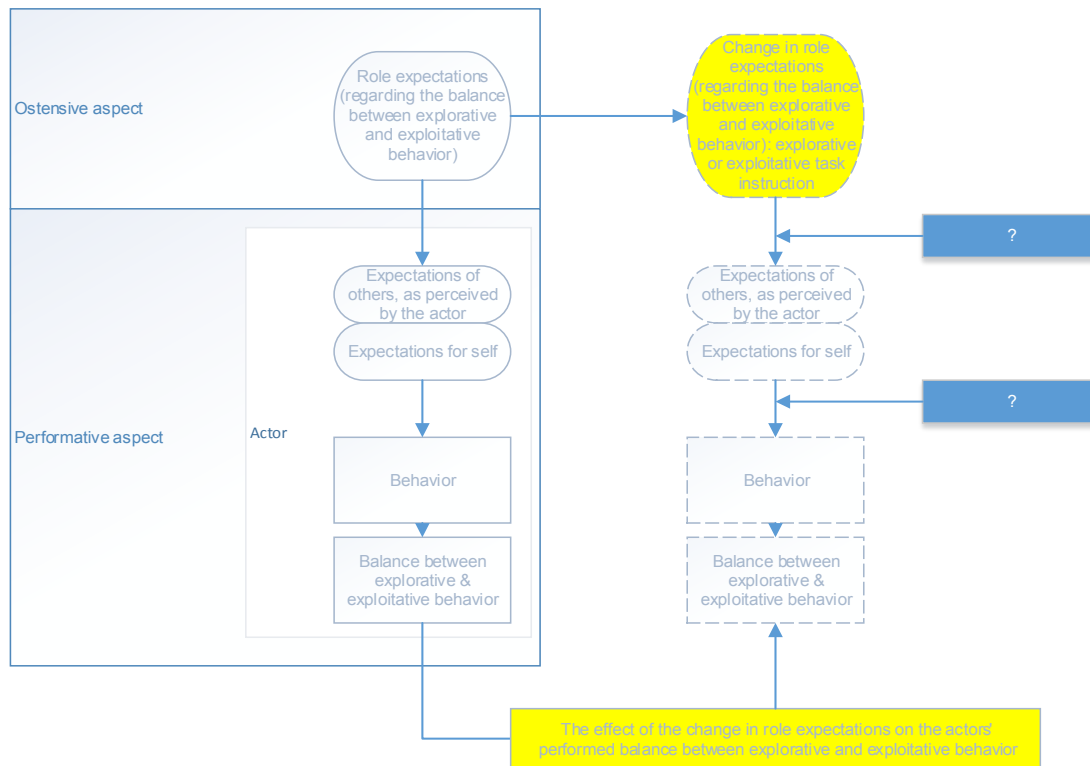
Figure 5. How an employees' balance between explorative and exploitative behavior is affected by a change in role expectations

## 2.5   Conclusions drawn from the theoretical framework

If an organization wants to survive over time, it has to be able to perform both exploration and exploitation and maintain an appropriate balance between the two (March, 1991), which was first called ambidexterity by Duncan (1976). One approach to ambidexterity is to create an organizational context that supports individual ambidexterity (Gibson & Birkinshaw, 2004). Individual ambidexterity logically is achieved when an employee performs both exploration and exploitation and maintains an appropriate balance between the two. Herein, maintaining an appropriate balance implies the ability to change the balance between explorative and exploitative behavior when necessary. This could be a challenge though, since much of the work that is done is performed through organizational routines (March & Simon, 1958; Cyert & March, 1963), which are generally perceived to constrain changes in behavior (Feldman, 2000; Gilbert, 2005).

Although the ability to change the balance between explorative and exploitative behavior is part of individual ambidexterity and can be deemed challenging, existing literature does not elaborate on this challenge. In the existing literature on individual ambidexterity it is not clear if and how

employees can change the performed balance between explorative and exploitative behavior when necessary, while working in organizational routines.

Based on the literary review this thesis assumes that if someone with authority changes the role expectations regarding your behavior (embedded in the ostensive aspect of a routine) and you are aware of it, you will incorporate these changes in your expectations for self to some extent and subsequently in your behavior (embedded in the performative aspect of the routine) to some extent. Thereby it is assumed that change in the balance between explorative and exploitative behavior, while working in organizational routines, is possible. Nevertheless, which factors explain to what extent this is possible is not clear. In the first place, which factors explain to what extent an employee incorporates the changed role expectations of management, regarding the balance between explorative and exploitative behavior he or she is to perform, in his or her expectations for self is not clear. Neither is it clear which factors explain to what extent he or she acts upon the change in expectations for self, thereby acting upon the changed role expectations of the boss. Mapping these factors could lead to a better understanding of the challenge for an employee to change his or her balance between explorative and exploitative behavior.

The above conclusions drawn from the theoretical framework lead to the research framework visualized in figure 6:
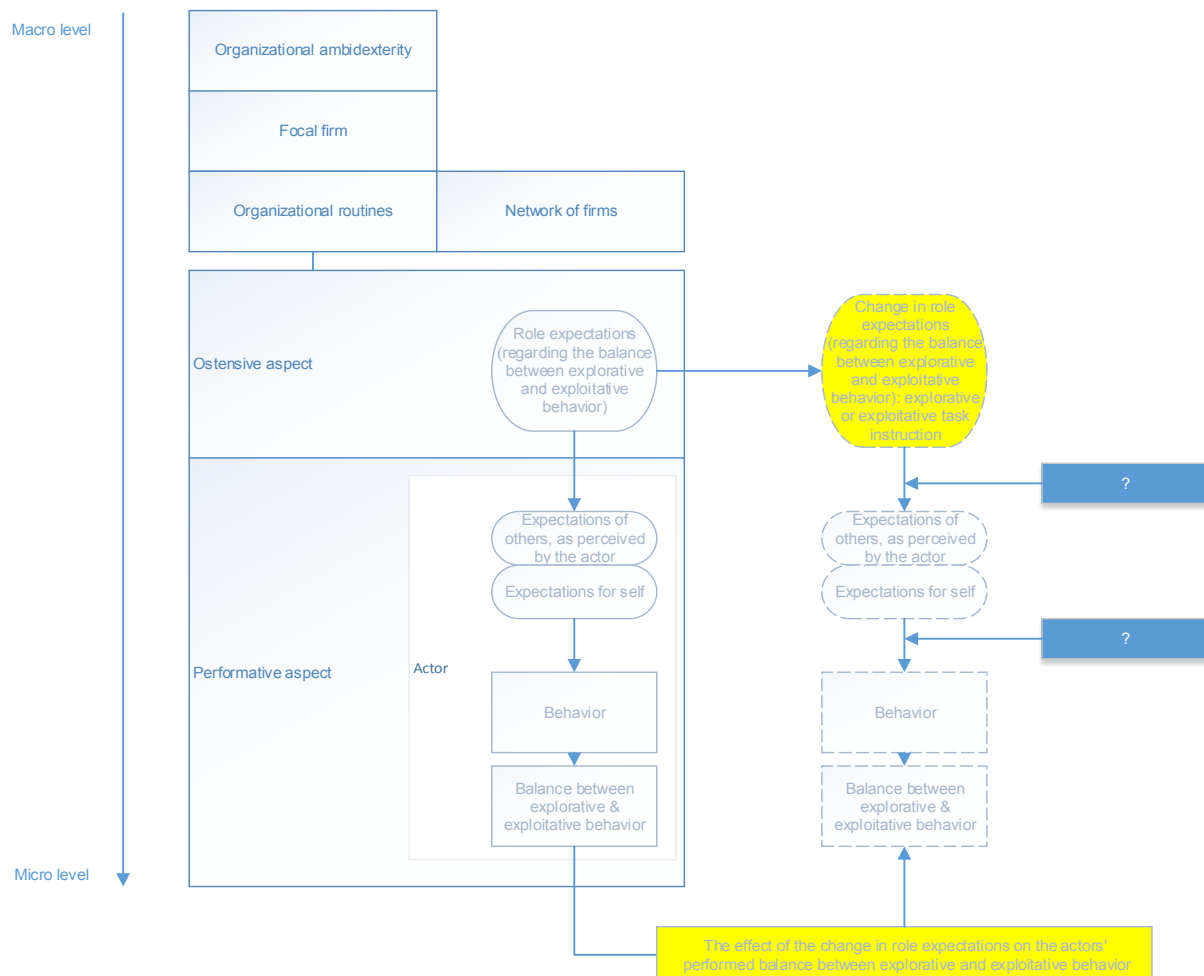
Figure 6. Research framework: how an employees' balance between explorative and exploitative behavior is affected by a change in role expectations

3 Method

3.1 Research setting and research subjects

The research setting is a medium-sized Business Unit in the telecommunications branch (Business Unit X). Business Unit X fits the research subject of ambidexterity, because it is forced to explore due to changes in customer demands, changes regarding technologies, regulation and competition. Next to that, the organization is also forced to exploit due to short-term competitive pressures in terms of an increased focus on cutting costs and efficiency. The appropriate balance between exploration and exploitation herein changes over time.

The research will in particular focus on the balance between explorative and exploitative behavior, and the ability to change that balance, of thee Product Managers working in the Product Development routine of Business Unit X. The focus will lie on three Product Managers in the Product Development routine, because Rosing et al. (2011, p. 966) suggest that 'ambidexterity is a central feature of innovation'. Moreover, senior management and other organizational members of Business Unit X reported that the three Product Managers, working in the Product Development routine, have the critical task of maintaining an appropriate balance between both the refinement and extension of existing technologies, competences and paradigms and the experimentation with new alternatives, which is less required of other actors.

3.2 The quasi-experiment with interrupted time series design

This thesis relies on an empirical study. A quasi-experiment was undertaken, using an interrupted time series design. An explorative or exploitative task instruction by management, with a duration of two weeks, was used as intervention.

In order to see how a change in role expectations influences an employees' balance between explorative and exploitative behavior, the role expectations of management regarding the research subjects were manipulated (by means of a task instruction) in order to observe the effects upon the balance between explorative and exploitative behavior performed by the research subjects. This sort of research is referred to as an experiment (Campbell & Stanley, 1963). Since the organizational context, with only three Product Managers did not allow to fulfill the requirements of a 'true experiment', the experiment can be called a 'quasi'-experiment' (Campbell & Stanley, 1963).

An interrupted time series design was used in the quasi-experiment, since a time series design can help to understand the effects of a planned intervention (Velicer & Fava, 2003). In particular, the essence of the time-series design is "the presence of a periodic measurement process on some group or individual and the introduction of an experimental change into this time series of measurements, the results of which are indicated by a discontinuity in the measurements recorded in the time series" (Campbell & Stanley, 1963, p.37). The periodic measurement of the balance between explorative and exploitative behavior in the first place took place by conducting

several unstructured and semi-structured interviews regarding the behavior performed before, during and after the intervention. In the second place, the three Product Managers were asked to rate and explain their engagement in explorative-related and exploitative-related activities before, during and after the intervention.

Further, in order to see *how* the intervention influenced behavior, the expectations of others, as perceived by the Product Manager and expectations of self, were also investigated before, during and after the intervention, during the multiple unstructured and semi-structured interviews. Moreover, the multiple unstructured and semi-structured interviews provided room for the Product Managers to bring forward extra information regarding their performed behavior and the expectations before, during and after the task instruction. Hereby, other factors than the task instruction that could explain a change in the balance between explorative and exploitative behavior were taken into account, thereby contributing to the internal validity of the research (Campbell & Stanley, 1963) and the how-aspect of the central research question. The following paragraphs will in more detail discuss the data collection and data analysis procedures used during the research.

3.3   Data gathering

Data was gathered in stages, in which the first stage was focused on getting a sense of the Business Unit and the way in which work was organized. Different data sources were adopted, including financial reports, guidelines, process descriptions and conversations with employees in the Business Unit during breaks and at other moments. In the same way as Feldman (2000) describes, this information gave me a feel for the culture and work of the organization, for how departments were organized and coordinated with each other.

In order to see the influence of the task instruction on behavior, the second, third and fourth stage were in particular focused on gathering data regarding the expectations of others, as perceived by the Product Manager (termed perceived expectations), the expectations for self and his or her performed behavior, as operationalized in table 2, before, during and after the intervention.

Variable	Operationalization
Perceived expectations	The expectations that organizational members, other than the employee self, place on him or her regarding the activities he or she is to perform in the current organizational context, as articulated by the employee
Expectations for self	An employees' own expectations regarding the activities he or she is to perform in the current organizational context, as articulated by the employee
Performed behavior	Activities performed by an employee, as reported by the employee

Table 2. Key variables investigated during the research

So, the second stage of data gathering was focused on the variables in table 2 before the intervention. The researcher therefore conducted 9 interviews (3 per Product Manager), which lasted generally an hour. The first interview was unstructured, just discussing the activities of each Product Manager and how they performed them. Hereby, examples were asked. Perceived expectations, expectations for self and performed behavior were automatically discussed during this interview. The second interview was semi-structured, in which the Product Managers were asked to indicate to which extent they were engaged in explorative-related and exploitative-related activities as mentioned by Mom et al. (2009), on a seven-point Likert scale (from 1 = "to a very small extent" to 7 = "to a very large extent"). The Product Managers were asked to explain their scores, by using examples. The third interview was semi-structured on the basis of the previous interview results and more focused on investigating the Product Managers' perceived expectations, expectations for self and performed behavior.

The third stage was focused on gathering data regarding the variables in table 2 during the intervention. During the ten days the intervention took place, the researcher conducted unstructured and semi-structured interviews with the Product Managers every other day (when possible). At the end of the intervention stage, the Product Managers were asked again to rate their engagement in the activities by Mom et al. (2009) during the intervention and explain their scores.

The fourth stage was focused on gathering data regarding the variables in table 2 after the intervention took place. One semi-structured interview per Product Manager was enough to map this situation.

After these data collection stages, one semi-structured interview per Product Manager was conducted in order to extend and refine the findings regarding the variables in table 2 and the relationships between them before, during and after the intervention.
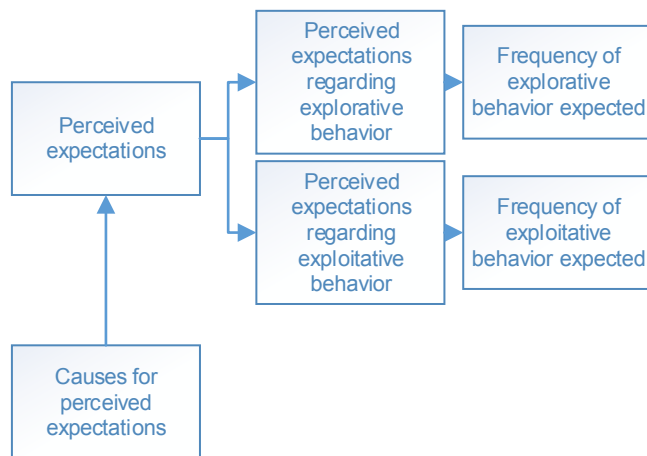
3.4   Data analysis

It is always a difficult task to specify where the data gathering stops and data analysis begins, because being part of an organization during the research process one is always trying to make sense of one's data (Feldman, 2000). Nevertheless, formal data analysis started by the transcription of interviews. In order to analyze these transcribed interviews, they were coded. Namely, following Babbie (2007, p.400), coding – "classifying or categorizing individual pieces of data" – is the key process in the analysis of qualitative research data.

In the first place, all answers or statements were categorized. Herein, the three key variables defined in table 2 were used as categories: 'PE' for perceived expectations, 'ES' for expectations for self and "PB" for performed behavior.

Based on the interview data related to the three categories and using the definitions of explorative and exploitative behavior based on Mom et al. (2009), the researcher was able to make a distinction between explorative and exploitative expectations and behavior. Next to that,

the interview data made the researcher able to say something about the frequency of the explorative and exploitative behaviors expected and performed. For example, when a research subject brings forward that he is continuously expected to sell existing products to existing customers and further do nothing else, it can be concluded that he is always expected to perform exploitative behavior, while never expected to perform explorative behavior. This is particularly relevant given the fact that this thesis is interested in the *balance* between explorative and exploitative behaviors performed. In particular, the researcher was able to label the explorative and exploitative behaviors expected and performed, using a five-point Likert scale, as expected or performed seldom or never, occasionally, about half of the time, often or (almost) always. Regarding the performed balance between explorative and exploitative behavior performed, the scores on the items of Mom et al. (2009) were compared with the interview results, thereby triangulating the interview data in order to validate results (Miles & Huberman, 1994).

This process of data analysis as visualized in figure 3,4 and 5, was executed before, during and after the intervention for each of the three Product Managers. Based on the results of this data analysis process, the author was able to address the central research question and create theory.

Figure 7. Data analysis regarding perceived expectations
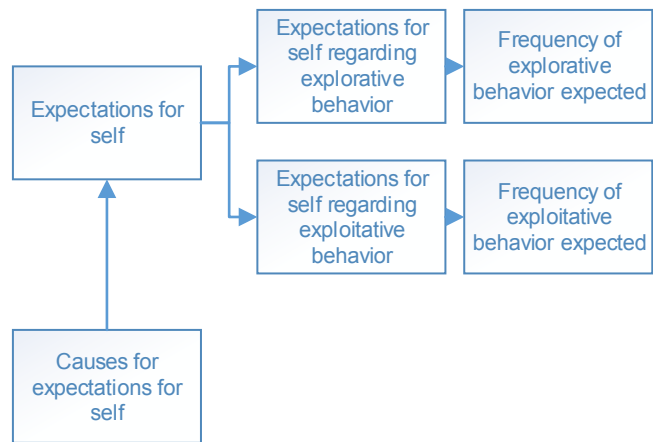
Figure 8. Data analysis regarding expectations for self
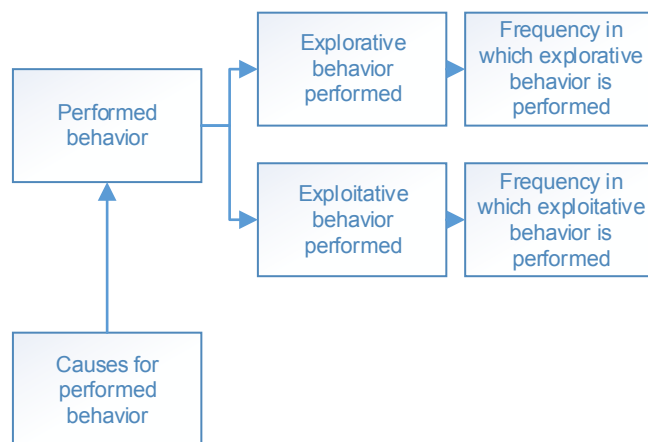
Figure 9. Data analysis regarding behavior performed

4 Results

Introduction

As described in the method, the research subjects of this thesis are three Product Managers working in the product development routine of Business Unit X. Within Business Unit X, all employees know what is meant when referring to the product development routine. In particular, the following four steps are generally recognized as the steps that are to be performed by the employees working on product development (ostensive aspect of the routine): 1. Identifying a product development need, 2. Initiating the product development project, 3. Executing the product development project, 4. Releasing the product. These steps are documented in the so-called 'Blue Book', which describes the general processes adopted in Business Unit X. Herein, on the basis of Mom et al. (2009), the first step can be deemed largely explorative, while the last three steps can be deemed largely exploitative. These steps can in turn focus on either a development of the cable portfolio or a development of the connectivity portfolio. When the process focuses on the development of the cable portfolio different sub-steps are recognized to be performed than when the process focuses on the development of the components portfolio, since the business unit always produces the cables in-house, while make or buy decisions are made regarding the connectivity portfolio. These more extensive steps of activities are documented in flowcharts.

The performative aspect of the routine is the real performance of those steps, which are performed by the actors in the routine. Within the Business Unit Product Managers, R&D Engineers, Application Engineers and Sales Engineers work together on the development of (new) products. The Product Managers, Application Engineers and Sales Engineers are part of the 'Competence Center', which also contains a Marketing and Communications specialist. The Competence Center is led by Manager Competence Center. The R&D Engineers are part of the R&D department, which is led by Manager R&D.

Since this thesis is interested in how a change in the ostensive aspect, specifically in the role expectations, affects the behavior of the three Product Managers in terms of explorative and exploitative behavior, first the situation before the intervention was investigated. On the basis of the situation before the intervention, the researcher together with the Managing Director of the Business Unit and Manager Competence Center decided to change the role expectations of them towards exploration or exploitation by providing the Product Managers an explorative or exploitative task instruction for two weeks. The Product Managers jointly were informed about their task instruction by word of mouth, without any other organizational members present. They were told that they got the task instruction as part of a research project into exploration and exploitation within Business Unit X. Next to that, the Managing Director of the Business Unit emphasized the importance of this project to him and articulated the fact that he expected them to work according to the task instruction.

The following chapters will discuss the effect of this change in role expectations on the behavior of each Product Manager, by discussing the relationships between perceived expectations, expectations for self and performed behavior before, during and after the intervention. The first chapter will present the case of Product Manager A, the second chapter the case of Product Manager B and the third chapter the case of Product Manager C. Further a concluding chapter will provide a cross-case analysis in which these relationships for Product Manager A, B and C are compared in order to address the central research question.

Product Manager A

Product Manager A focuses on the connectivity portfolio and shares an office with the Manager Competence Center.

The situation before the intervention

Before the intervention, Product Manager A perceives dissensus among the expectations regarding the activities he has to perform and due to that, the balance between explorative and exploitative behaviors he is to perform. In particular, Product Manager A highlights the current contradictory expectations of management and other organizational members, including himself, regarding the performance of exploitative behavior. These perceived contradictory expectations (table 3) lead to the fact that Product Manager A cannot behave according to all perceived expectations. In line with the perceived expectations of himself and other organizational members (excluding management), he performs explorative and exploitative behaviors to the same extent. Since he is not able to perform both explorative and exploitative behaviors often, as expected by himself and other organizational members (excluding management), he performs both about half of the time (table 3).

	Frequency of explorative behavior	*Frequency of exploitative behavior*
Perceived expectations	Often	• Management: Occasionally • Other organizational members: Often
Expectations for self	Often	Often
Performed behavior	About half of the time	About half of the time

Table 3. Perceived expectations, expectations for self and performed behavior for Product Manager A, before the intervention

The following paragraphs will give a more extensive description of Product Manager A's perceived expectations, expectations for self and performed behavior.

Perceived expectations and expectations for self

Product Manager A describes that in first instance he is expected by himself and others in the organization to perform explorative behavior often and exploitative behavior occasionally. He explains that once a division was made between Product Managers that were more technically oriented and Product Managers that were more commercially oriented. Following Product Manager A he is the more commercially oriented Product Manager and is therefore expected to scan the market and make sure the business unit stays competitive. In particular he feels expected to continuously map market developments and the competitive position in order to

come with proposals for new product development, which then have to be communicated to the internal organization, so that others can start a product development project and keep him up to date (largely explorative behavior).

In practice though, Product Manager A explains that when he brings forward his proposals, he cannot assume that other employees in the business unit will pick it up and independently arrange everything necessary for the new product development proposal to become reality, due to capacity problems. Therefore, in the current organizational context, organizational members and Product Manager A himself expect him to also lead the product development project internally, which takes up a lot of time and results in the fact that he is expected by his colleagues and himself to perform exploitative behavior often. Following Product Manager A management does not recognize the state of undercapacity though, which leads to perceived dissensus between the expectations of management on the one side and the expectations of other organizational members and Product Manager A on the other side (table 4).

Perceived expectations and expectations for self	Frequency of behavior preferred in the expectations	Quotes
Expectations regarding the performance of explorative behavior	Often	*"The hard expectations for the commercially oriented Product Managers are: scanning the market, make sure you stay competitive, that you know what goes on so that we stay viable a long time."* *"That is expected of a Product Manager: that we know what goes on in the market, that we know which direction to go and that we know what to develop between now and five years: in the long term."* *"A Product Manager should walk in front of Sales."* *"My role is to look together with the customer where the market is heading, where the needs of the customers lie and how we can fulfill those needs with the existing portfolio or new-to-develop products."*
Expectations regarding the performance of exploitative behavior	• Management: Occasionally • Other organizational members, including Product Manager A: Often	*"The most optimal situation would be that Product Management would lead a group people in which you would say: I am responsible for a part of the portfolio, I scan the market and I have a competent team of people within the organization, we have those products and we discuss progress regularly in which the team picks up activities.' Then you have a self-directing team that knows the products, that knows how the European market is structured and you have a person that leads that team: the Product Manager, who knows how the market is structured, what the competitive position is and that sort of stuff."* *"We are not built that way. I mean, capacity is not so big. Like at the new product X, people think it is good that you do negotiations with customers and sort of things, but they also expect you to arrange it internally."* *"Other colleagues expect that of me. Management shall not expect that. They don't care how it happens, as long as it happens. … if someone else does it, they will approve that and*

		say; you have delegated that nicely, but.." *"Those are soft expectations. If I communicate them with management they say that I have to delegate to someone else in the organization: but who to delegate to? They say you have to plan better or delegate or this or that."* *"Yeah, you know, you can say a lot of things, but it has to happen."* *"You have the customer and R&D and between those two there is a relatively large gap, which you have to bridge in order to develop a good product."*

Table 4. Perceived expectations and expectations for self for Product Manager A, before the intervention

Performed behavior

Following the interviews and his scores on the statements of Mom et al. (2009), Product Manager A performs this role by being busy with exploitative-related activities about half of the time and explorative-related activities about half of the time (table 5). On a scale from 1 to 7 he scored 4.1 on explorative behavior, while 4.7 on exploitative behavior.

Performed behavior	Frequency	Quotes
Explorative behavior	<u>About half of the time</u>	*"I look at new possibilities for improvements of products / services, processes or markets by visiting exhibitions, conferences, customers and keeping an eye on the rest of the market place."* *"Tomorrow, the commercial product management meeting is organized and then we discuss diverse options for products/services, processes or markets, which I am occupied with continuously myself."* *"Regarding a specific product for example, we first said we were going to make these passively, that was our policy. The German market though required an actively integrated part. In order to gain foothold, we did this.*
Exploitative behavior	<u>About half of the time</u>	*"I have a lot of contact with R&D, our developers, that one on one connection is clear and it takes a lot of time."* *"I am always to some extent busy with activities that I perform as a routine, but I am not very occupied with that. Think of activities like adjusting systems so that these are aligned with the new products, writing installation instructions and making project charters. That sort of activities are part of the function, but it is a grey area who executes what among the project managers. I don't like to be busy with writing installation instructions for example."* *"Serving internal clients with internal projects is not really my occupation. This is more the responsibility of Sales Engineering. Of course, I have a large network, so if customers have a question about a small adjustment, they tend to call me sometimes. Sometimes I directly put them through and sometimes I handle these questions myself. This isn't something I am working on a lot though."*

Table 5. Behavior Product Manager A performed before the intervention

The situation during the intervention

The intervention for Product Manager A meant that he got an exploitative task instruction of management with the highest priority for two weeks. He was asked to be busy with the management of the product portfolio internally (almost) always during those two weeks.

In comparison with the situation before the intervention, Product Manager A's behavior during the intervention was somewhat more exploitative and somewhat less explorative, but he did not behave according to the changed expectations of management, in which he was expected to perform exploitative behavior (almost) always and explorative behavior seldom or never (table 6).

	Frequency of explorative behavior	Frequency of exploitative behavior
Perceived expectations	• Management: <u>Seldom or never</u> • Other organizational members: <u>Often</u>	• Management: <u>(Almost) always</u> • Other organizational members: <u>Often</u>
Expectations for self	<u>Occasionally / About half of the time</u>	<u>About half of the time / Often</u>
Performed behavior	<u>About half of the time</u>	<u>Often</u>

Table 6. Perceived expectations, expectations for self and performed behavior for Product Manager A, during the intervention

The following paragraphs will give a more extensive description of this situation and the causes of it.

Perceived expectations and expectations for self

During the intervention Product Manager A brings forward that although he is aware of the fact that management expects him to be busy with the internal management of product development projects (almost) always, he does not expect that of himself and it was not communicated to other organizational members. He explains that he thinks he can easily perform the new expected balance of management due to the fact that he has been working on Inside Sales and Sales Engineering as well as Product Management. Therefore he possesses the knowledge necessary to perform the exploitative tasks, for example regarding the information systems used in the organization. Nevertheless he brings forward that he cannot expect himself to be seldom or never busy with explorative behavior, since he cannot easily transfer his old explorative activities (regarding idea generation) to someone else in the organization. Therefore he still feels responsible for these old explorative activities. He explains that he still has external appointments in his agenda for those two weeks, in which customers and he himself expect himself to be busy with explorative behavior (somewhat less than half of the time during those two weeks). The rest of the time during these two weeks he expects himself to be busy with exploitative behavior in line with the task instruction (somewhat more than half of the time).

Since other organizational members were not informed clearly, they still had the same expectations as before the intervention following Product Manager A.

Perceived expectations and expectations for self	Frequency of behavior preferred in the expectations	Quotes
Expectations regarding the performance of explorative behavior	• Management: <u>Seldom or never</u> • Other organizational members: <u>Often</u> • Self: Occasionally / <u>About half of the time</u>	"The Managing Director of the Business Unit expects that we cooperate in your research. He is very dominant in that, you must and shall do it, but he is not the man to communicate that further in the organization." "For me it is not so hard to switch, because I did this in the past and it is still a part of my job in the current situation." Next to that though, I still have my external appointments, with some pressure on them. It has to be done. I cannot neglect the expectations of customer, although management says so."
Expectations regarding the performance of exploitative behavior	• Management: <u>(Almost) always</u> • Other organizational members: <u>Often</u> • Self: <u>About half of the time</u> / Often	"After the two weeks life goes on. I cannot say to my customers: I am now not available, because I am participating in a project. That customer then will also say: hello, we have agreements with each other, we have deadlines. Who is going to do it then? Okay, management, who is going to it?"

Table 7. Perceived expectations and expectations for self for Product Manager A, during the intervention

Performed behavior

Following the interviews and his scores on the statements of Mom et al. (2009), Product Manager A during the task instruction was engaged in exploitative-related activities somewhat more than half of the time, thereby being better labeled 'often' than 'about half of the time' and explorative-related activities somewhat less than half of the time, but better labeled 'half of the time' than 'occasionally' (table 8). Thereby his performed balance between explorative and exploitative behavior is in line with his expectations for self. On a scale from 1 to 7, he scored 3,6 on explorative behavior and 5 on exploitative behavior.

Performed behavior	Frequency	Quotes
Explorative behavior	<u>About half of the time</u>	"Let me see, in the morning I had a thing, a webinar regarding a new product of a supplier of ours." "Wednesday I spent the whole afternoon at a customer of us, talking about a new product. How it goes now, which adjustments we still have to do, what we can expect of the project and which additional materials are still needed." "Thursday afternoon we sat at a customer because of a new product that is presented at that customer now and is going to be presented Monday at another customer. We have given a presentation. Next to that, we have discussed how to jointly sell the product to the other customer, because it is a development of the customer and us both."

		"Then I went on a trip to Belgium regarding a new product for a customer. I have discussed technical details together with the supplier and a French colleague of mine. What the product has to look like exactly, which improvements still have to be done, plus a logistics aspect: how to make the project happening at the customer."
Exploitative behavior	Often	*"Further we have discussed the general updates regarding a new product. It was about the latest status of the drawings, installation instructions that still have to be made, what still has to happen regarding new developments? What is the status of the supplies from China to the Netherland? So, discussing the main points."* *"That is just about an offer request of someone and you work it out.."* *"I have only been busy with operational stuff today actually."* *"I have just communicated the prices to a colleague."*

Table 8. Behavior performed by Product Manager A during the intervention

The situation after the intervention

Two weeks after the intervention, Product Manager A explained that his situation had changed back into the situation before the intervention (table 9).

	Frequency of explorative behavior	*Frequency of exploitative behavior*
Perceived expectations	Often	• Management: Occasionally • Other organizational members: Often
Expectations for self	Often	• Often
Performed behavior	About half of the time	About half of the time

Table 9. Perceived expectations, expectations for self and performed behavior for Product Manager A, after the intervention

Explaining the effect of the intervention

When management changed expectations regarding the balance between explorative and exploitative behavior performed by Product Manager A, he incorporated those changed expectations of management only to a limited extent in his expectations for self (figure 10). Product Manager A brings forward that he could not entirely align his own expectations with those of management, because of the fact that he could not easily transfer his old explorative expectations:

Next to that though, I still have my external appointments, with some pressure on them. It has to be done, I cannot neglect those expectations of customers, although senior management says that I should not be busy with them."

"After the two weeks life goes on. I cannot say to my customers: I am now not available, because I am participating in a project. That customer then will also say: hello, we have agreements with each other, we have deadlines. Who is going to do it then? Okay, management, who is going to it?"

Furthermore, the fact that management did not communicate their new expectations towards other organizational members than Product Manager A, also seemed to have a negative effect on the willingness of Product Manager A to work according to the task instruction:

"The Managing Director of the Business Unit expects that we cooperate in your research. He is very dominant in that, you must and shall do it, but he is not the man to communicate that further in the organization. Like 'they are less available for their normal activities these two weeks, please provide your support'. He wants it, but does not communicate it."

"People get frustrated if they don't get answers. 'I have an assignment of the Managing Director.' 'Why? This and that.' Management has to back it up. They do not have to say A and execute B, that is not possible."

*"I think it is very important that you create carrying capacity."*

Thus, the limited extent to which the change in role expectations was incorporated in Product Manager A's expectations for self can be explained by the low transferability of his explorative activities and the low communication of management towards organizational members (figure 10). Therefore low transferability of old explorative activities and low communication of management were found in this case to constrain the employee to change his behavior towards more exploitation and less exploration, when expected by management.

Although Product Manager A did not align his expectations for self completely with those of management, as said, he did change his expectations for self somewhat (figure 10). Therefore, during the intervention he did not expect himself to perform explorative and exploitative behaviour to the same extent, but he expected himself to perform somewhat more exploitative behaviour. During the two weeks he was able to act upon this changed expectations for self (figure 10). Product Manager A brings forward that this was possible, because of his personality, work experience and therefore knowledge regarding exploitative activities. In the first place he brings forward that 'explorative people' are less attached to rules, thereby being less suitable for exploitative activities. The degree to which someone is attached to rules can be deemed as part of one of the Big Five Personality Traits: "consciousness" (John & Srivastava, 1999). The Big Five Personality Traits namely cover a broad scope of the human personality (Digman, 1990), in which consciousness describes "socially prescribed impulse control that facilitates task and goal directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks" (John & Srivastava, 1999, p.121). Second,

he brings forward that he can easily perform exploitative activities, because of his work experience and therefore knowledge regarding exploitative activities:

"Pay attention to the fact that more explorative people do not know the systems very well. They don't know the rules that good or maybe they know them, but they are less attached tot hem; like "hello, we are going to do it so and so, that bureaucratic shit, I will do it in that and that way". You know what is very hard? For me it is not so hard to go back to exploitative activities, because I have always done that and it is still a part of my job now, because of the organization...."

So, the fact that Product Manager A was able to fully act upon his changed expectations for self during the intervention can be explained by Product Manager A's possessed knowledge regarding exploitative activities, obtained through work experience and his personality in terms of consciousness (figure 10). Therefore, these factors were found in this case to enable the employee to change his behavior towards more exploitation and less exploration.
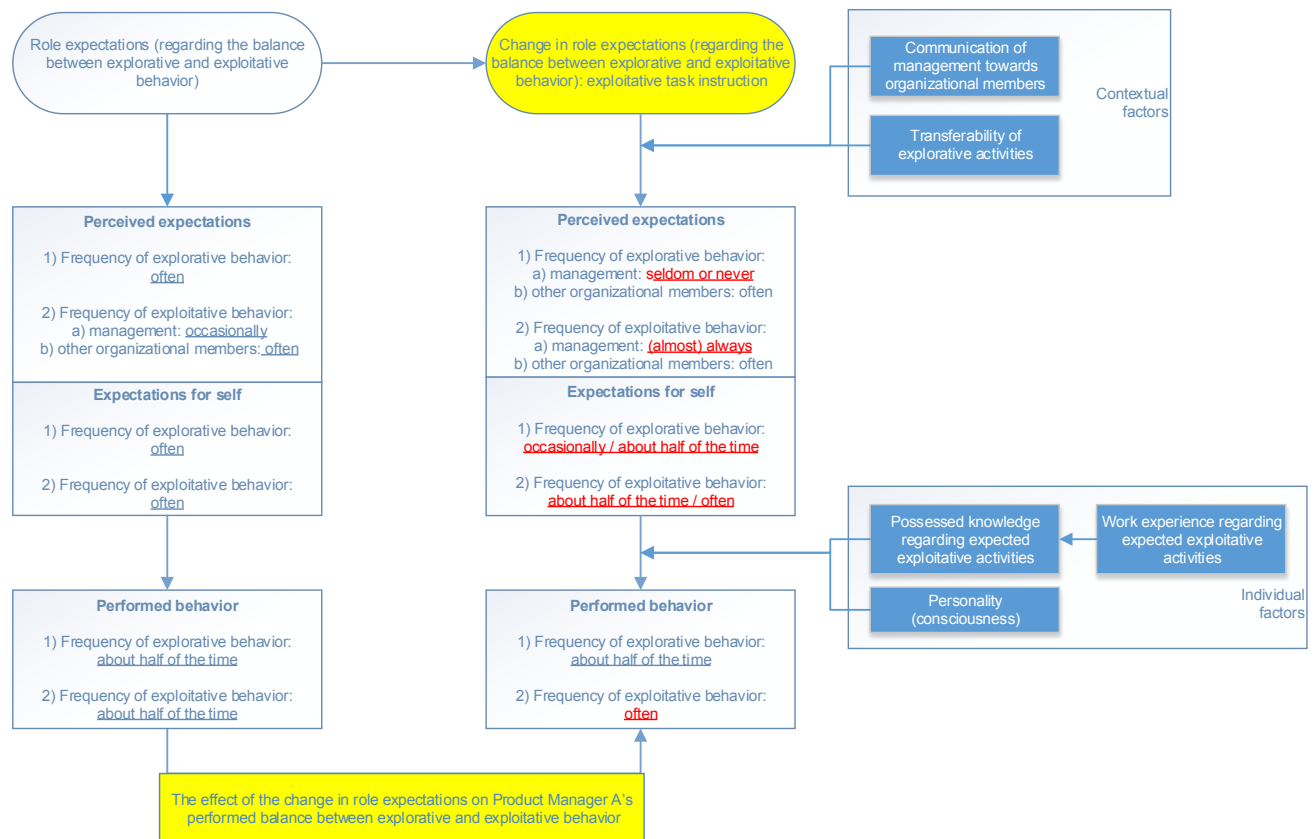
Figure 10. How Product Manager A's balance between explorative and exploitative behavior was affected by a change in role expectations

Product Manager B

Product Manager B sits in an office together with sales engineering and focuses on components.

The situation before the intervention

Before the intervention, Product Manager B perceives consensus regarding the balance between explorative and exploitative behavior he is to perform. In particular, Product Manager B is expected by himself and others to be busy with exploitative activities that are focused on (the management of) idea implementation and the existing portfolio most of the time. In line with those expectations, he performs explorative behavior occasionally and exploitative behavior often (table 10).

	Frequency of explorative behavior	Frequency of exploitative behavior
Perceived expectations	Occasionally	Often
Expectations for self	Occasionally	Often
Performed behavior	Occasionally	Often

Table 10. Perceived expectations, expectations for self and performed behavior for Product Manager B, before the intervention

The following paragraphs will give a more extensive description of Product Manager B's perceived expectations, expectations for self and performed behavior.

Perceived expectations and expectations for self

Product Manager B explains that a certain task division between the Product Managers was made in the past. In first instance this division was made on the product level. The cable portfolio was assigned to Product Manager C. The component portfolio was divided in 'chapters'. Product Manager A was assigned some chapters and Product Manager B also was assigned some chapters. Next to that, they made a division between 'technique' and 'commerce' in which a commercial Product Manager is more focused on customers and the technical Product Manager is more engaged with suppliers. Product Manager C became the technical product manager. Hereby, Product Manager B explains he is expected by himself and others to extend and improve the product portfolio regarding his 'chapters'.

Specifically, in his function as "technical Product Manager", Product Manager B explains that he is expected by himself and others to perform certain activities in order to extend and improve the product portfolio regarding his 'chapters'. When he was asked why, he explained that this is the result of an agreed way of working or "the way we do it around here". In particular Competence

Center and R&D jointly agreed to the division of certain tasks over departments once, which was documented in a flowchart. The specific activities that Product Manager B thereby feels expected to perform by himself and others are as follows:

1) *Attending the Commercial Product Management meeting.* Product Manager B explains that the product development process or routine starts with the identification of customer needs, which is taken care of by employees who handle the customer contact. These customer needs, and therefore possibilities for a product development project, are then discussed during the Commercial Product Management Meeting once a month. Product Manager B in turn explains that he is expected by himself and others in the organization to attend this meeting, since he is the one who is responsible for the follow up of the ideas regarding his 'chapters' in the component portfolio. Product Manager B further explains that regarding ideas for the development of (new) components, there often is a launching customer already. Often a certain release date is discussed with this customer, which leads to the fact that Product Manager B is expected to work towards that release date.

2) *Making a Project Charter together with R&D.* On the basis of new ideas for a product development project regarding Product Manager B's 'chapters', Product Manager B states he is expected to make a project charter together with R&D, in which they have to think about and document the technical and commercial requirements of the product development. In particular this is relevant for R&D, since they otherwise have no clue what the requirements of the product development are. Next to that he explains that the project charter has to be signed by the project leader R&D and Manager Competence Center. When the project charter is not signed the project cannot be started, because it then is not taken into account in the pipeline.

3) *Arranging supplier contact together with the Purchasing Department and R&D.* When the project charter is approved, R&D always makes a planning regarding the product development project. Product Manager B herein is expected to arrange the supplier contact together with Purchasing and R&D. Regarding the components portfolio the Business Unit namely designs the new product, which is in turn produced by a supplier. He explains that the supplier contact is the primary responsibility of Purchasing, but they need technical support, which he is often expected to provide them.

4) *Making a budget request.* When Purchasing has approached (potential) suppliers for an offer, Product Manager B explains that he is responsible for making a decision regarding which supplier is chosen. On the basis of that decision, he is expected to make a budget request in order to be able to place orders.

5) *Managing supplier contact and prototype.* When the budget request is approved, Product Manager B is expected to follow progress at the supplier together with Purchasing in order to work according to planning. When the prototype is received, Product Manager B explains that he and R&D are responsible for the testing and the comments towards the supplier again.

6) *Arranging market introduction.* When the product is technically released, Product Manager B explains he is expected to arrange the market introduction, in which commercial Product Management and the account managers also play a big role.

Further, Product Manager B mentions that logically there are some activities that have to be performed regarding updates in the existing portfolio, like the pricing of the products. He explains that it is not totally clear within the Business Unit who is responsible for which updates, but that he as Product Manager is implicitly expected to arrange that such updates are performed.

Product Manager B further explains that he is happy with these tasks as they are now, which can be explained by the fact that he was part of the decision regarding the task division in the product development routine. Next to that it can also be explained by the fact that he states that he likes to work on exploitative activities, since he has less affinity with tasks focused on the far future and finds it pleasant to do things of which he knows he adds value.

Although Product Manager B is generally satisfied with the activities he is to perform, he explains that he is less satisfied with the fact that next to those activities, he receives a lot of questions of colleagues, who expect him to answer those questions as soon as possible, which takes up a lot of his time. He explains that these questions are asked since other people need his knowledge and experience in order to solve their problems. Next to that, he is easily available for these questions, since he works on the Sales Engineering department, which makes it literally easier for colleague's to ask him questions than if he would work somewhere else. Since these questions are asked continuously, Product Manager B explains that he would like to be less busy with those questions and be busier with the activities he himself planned. Both the activities he would like to perform himself and the questions of colleagues are largely exploitative though. Therefore this perceived dissensus among the expectations regarding his behavior does not lead to perceived dissensus among the expectations regarding the balance between explorative and exploitative behavior he is to perform.

In conclusion, Product Manager B perceives consensus among the expectations of himself and others regarding the balance between explorative and exploitative behaviors he is to perform (table 11). In particular he feels expected by himself and others to perform exploitative behavior often, since he feels that he is often expected by himself and others to use his existing knowledge and experience. Next to that, he is occasionally expected by himself and others to evaluate diverse options with respect to products / services, processes or markets and focus on strong renewal of products/services or processes.

Perceived expectations and expectations for self	Frequency of behavior preferred in the expectations	Quotes
Expectations regarding the performance of explorative behavior	Occasionally	*"Often the market articulates its need for new products or a new methodology. That is discussed during the CPMO (Commercial Product Management Meeting)."*

		"..we have agreed to a certain process flow or what the whole procedure looks like. We gave different tasks different colors and hereby with the help of the colors we stated which department is responsible for which tasks."
		"I feel happy with the tasks the way they are now."
Expectations regarding the performance of exploitative behavior	<u>Often</u>	*"If I look back at the questions asked by boys from the University, I knew that they asked me if I would engage in projects focused on the far future and I don't have that very much. I have the horizon more close to me. I find it pleasant to do things of which I know that I add value."*
		"Other employees know that I have the degree of knowledge and experience and then come to me with certain issues to be solved.
		"I think it would be good to sit one day in our office. You will see how many people walk in and out with all sorts of questions. Sales comes in, Purchasing comes in, R&D sometimes comes in. Sometimes a stream of people come and go continuously.."
		"People come in and expect an answer to their question directly, or that you take action on the basis of their question."

Table 11. Perceived expectations and expectations for self for Product Manager B, before the intervention

Performed behavior

Following the interviews and his scores on the statements of Mom et al. (2009), Product Manager B's performed balance between explorative and exploitative behavior is aligned with his perceived expectations and expectations for self. Namely, he performs exploitative behavior often and explorative behavior occasionally (table 12). On a scale from 1 to 7 he scored 3.1 on explorative behavior, while 5.6 on exploitative behavior.

Performed behavior	*Frequency*	*Quotes*
Explorative behavior	<u>Occasionally</u>	*"Yeah, you try to adopt a different angle of approach towards a concept and then you sometimes come with very nice solutions."*
Exploitative behavior	<u>Often</u>	*"I live more or less by the day."*
		"If I look back at last year, I have been busy to a high extent with the connectivity portfolio. A number of new products had been developed and those products had to be extended with individual components. Next to the development, diverse tests had to be done. I have been busy with that a lot. Next to that, in the second half of last year some problems arose regarding an existing product. You are then busy with an existing product again, which is already released, but afterwards requires a lot of attention. The internet has also required a lot of my time last year. Especially the improvement of the website regarding the product portfolio part"

The situation during the intervention

Product Manager B got an explorative task instruction with highest priority for two weeks. He was asked to be busy with exploring possibilities for content management. Business Unit X does not work with content management, but in the future thinks this might be an important subject. Nobody in the Business Unit, including Product Manager B, has specific knowledge regarding content management, but Product Manager B is interested in the subject, since he sees the added value of the project.

In comparison with the situation before the intervention, Product Manager B's behavior during the intervention was somewhat more explorative and somewhat less exploitative, but in line with his behavior before the intervention he still performed exploitative behavior often and explorative behavior occasionally. He therefore did not behave according to the changed expectations of management, in which he was expected to perform explorative behavior (almost) always and exploitative behavior seldom or never (table 13).

	Frequency of explorative behavior	*Frequency of explorative behavior*
Perceived expectations	• Management: **(**Almost) always • Other organizational members: <u>Occasionally</u>	• Management: <u>Occasionally</u> • Other organizational members: <u>Often</u>
Expectations for self	<u>(Almost) always</u>	<u>Often</u>
Performed behavior	<u>Occasionally</u>	<u>Often</u>

Table 13. Perceived expectations, expectations for self and performed behavior for Product Manager B, during the intervention

The following paragraphs will give a more extensive description of this situation and the causes of it.

Perceived expectations and expectations for self

During the intervention Product Manager B explains that although he is aware of the fact that management expects him to be busy with the internal management of product development projects (almost) always, he does not expect that of himself and it was not communicated to other organizational members. On the one hand he expects himself to perform the explorative task for those twee weeks, since he finds it interesting and sees it as an opportunity to be busy with such a project. On the other hand though, Product Manager B cannot find himself in the expectation to perform exploitative behavior seldom or never, since it is not easy for him to

arrange that his old tasks are taken over by someone else and it does not lie in his personality to let go the exploitative tasks then (table 14). Furthermore, management did not communicate their new expectations to all organizational members, but only to the Product Managers. Therefore, the expectations of other organizational members than management also remained the same as before the intervention.

Perceived expectations and expectations for self	Frequency of behavior preferred in the expectations	Quotes
Expectations regarding the performance of explorative behavior	• (Management and self: (Almost) always • Other organizational members: Occasionally	"I think the assignment is interesting enough to start with it. I think it is nice that through this research you get the space to work on such a project." "I want to start now with the assignment, I want to start this afternoon. First, I want to decide the scope: what are the requirements, what are our needs and then I should look what to do next: which systems are available currently, what are the possibilities and finally what are the efforts to implement content management."
Expectations regarding the performance of exploitative behavior	• Management: Occasionally • Other organizational members and self: Often	"Like Product Manager C, he sent a mail and disassociates himself from his normal activities by saying; hey guys, I am not doing anything at the moment. I cannot do that. I will not succeed at that. There always will be questions of which I think: hey I can answer these questions the best. If I first have to explain it to others and it has to be turned over to someone else, that costs time, then I can better do it myself. "I cannot put aside the work I've always done. Before I would do that, I should have transferred this work to someone else."

Table 14. Perceived expectations and expectations for self for Product Manager B, during the intervention

Performed behavior

Following the interviews and his scores on the statements of Mom et al. (2009), Product Manager B performed exploitative behavior often and explorative behavior occasionally during the two weeks of the intervention (table 15). On a scale from 1 to 7 he scored 3.3 on explorative behavior, while 4.9 on exploitative behavior. Hereby his behavior is aligned with the expectations he perceives colleagues other than management place on him. The fact that Product Manager B aligned his behavior with the expectations of other organizational members than management can be explained by the fact that he feels to a higher extent expected to perform exploitative behavior by his colleagues than explorative behavior by management.

Performed behavior	Frequency	Quotes
Explorative behavior	Occasionally	"I did some research regarding the possibilities. I also specified myself what I think have to be the functionalities of a content management system and I had contact with our website builder to ask him if he

		knows such systems and if he can provide recommendations. I think that there has to be a good connection between content management and the website and that should be no problem, that is also what the website builder states. So, currently I have some companies of which I think: they have software that could help us: dedicated software. Now I am weighing the pros and cons." *"I had two suppliers and I had contact with the website builder to see if he had experience with content management, but that was not very extensive. I started with mapping requirements, what the pros and cons of a content management system are and I stopped actually after the development of a questionnaire for colleagues, employees. I didn't even contact suppliers with some questions."* *"We would be busy with the project two weeks and if you look how much I have been occupied with it: not much actually."*
Exploitative behavior	Often	*"If I look at myself, I relatively quickly fell back in my activities."* *"You try to be occupied with the project in your 'free time'. I did not plan this project in my agenda, so if someone comes in, you let go the one and you start with the other and then you proceed again."* *"Yeah I have some ideas about what I want to do for the project, but there is nothing that pushes me to do it. The other thing is that you are busy spending the day with solving urgent problems. Those are all urgent matters at that moment and then I think: that other thing can be done later. It is not that you are punished for it. So, then that is delayed relatively easy and then you get stuck in your daily activities again."*

Table 15. Behavior performed by Product Manager B during the intervention

The situation after the intervention

After the task instruction, Product Manager B explains that the situation quickly became comparable to the situation before the intervention again (table 16).

	Frequency of explorative behavior	Frequency of exploitative behavior
Perceived expectations	Occasionally	Often
Expectations for self	Occasionally	Often
Performed behavior	Occasionally	Often

Table 16. Perceived expectations, expectations for self and performed behavior for Product Manager B, after the intervention

Explaining the effect of the intervention

When management changed expectations regarding the balance between explorative and exploitative behavior performed by Product Manager B, he incorporated those changed expectations of management in his expectations for self, but not fully (figure 10). Product Manager B brings forward that he could not entirely align his own expectations with those of management, because he cannot find himself in the expectation to perform exploitative behavior seldom or never. Product Manager B brings forward that this is due to the fact that it is not easy for him to arrange that his old tasks are taken over by someone else and it does not lie in his personality to let the exploitative tasks go then:

"Like Product Manager C, he sent a mail and disassociates himself from his normal activities by saying; hey guys, I am not doing anything at the moment. I cannot do that. I will not succeed at that. There always will be questions of which I think: hey I can answer these questions the best. If I first have to explain it to others and it has to be turned over to someone else, that costs time, then I can better do it myself."

"I cannot put aside the work I've always done. Before I would do that, I should have transferred this work to someone else."

Furthermore, management did not communicate their new expectations to all organizational members, but only to the Product Managers. Following Product Manager B this also had a constraining influence on his willingness to act upon the task instruction:

"But, in fact, I expect more back up of management, so that if organizational members come to you, that they know that they might not be helped. Or if people come to me with urgent matters, also people from abroad, that they cannot come to me for a while, but that they have to go to someone else."

Thus, the fact that the change in role expectations was not fully incorporated in Product Manager B's expectations for self can be explained by the low transferability of his exploitative activities, his personality and the communication of management towards organizational members (figure 11). Thereby, low transferability of old exploitative activities, personality and low communication of management towards organizational members were found in this case to constrain the employee to change his behavior towards more exploration and less exploitation, when expected by management.

So, Product Manager B finds himself in a difficult situation. On the one hand he expects himself to be busy with the explorative task instruction almost always during the two weeks. On the other hand though, he also expects himself to be busy with the exploitative activities often, just as he normally does. Anyway, because of the task instruction his expectations for self have changed towards more explorative expectations (figure 11). In comparison with the situation before the intervention, Product Manager B's behavior during the intervention was somewhat more explorative and somewhat less exploitative, but in line with his behavior before the intervention

he still performed exploitative behavior often and explorative behavior occasionally. So, Product Manager B did not (fully) act upon the change in his expectations for self.

In the first place, this can be explained by the fact that Product Manager B felt the exploitative expectations to a higher extent than the explorative expectations, due to the time pressure related to the exploitative activities and the fact that management did not manage the explorative performance and did not attach any consequences to lacking explorative behavior (lacking performance management):

"Yeah I have some ideas about what I want to do for the project, but there is nothing that pushes me to do it. The other thing is that you are busy spending the day with solving urgent problems. Those are all urgent matters at that moment and then I think: that other thing can be done later. It is not that you are punished for it. So, then that is delayed relatively easy and then you get stuck in your daily activities again."

Next to that, Product Manager B also brought forward the explanatory relevance of his own time management, in which he did not plan the explorative activities in his agenda:

"You try to be occupied with the project in your 'free time'. I did not plan this project in my agenda, so if someone comes in, you let go the one and you start with the other and then you proceed again."

So, the fact that Product Manager B was not able to (fully) act upon his changed expectations for self can be explained by the lacking performance management regarding explorative activities in combination with his own time management, in which he did not plan the explorative activities in his agenda (figure 11). Therefore, these factors were found in this case to constrain the employee to change his behavior towards more exploration and less exploitation.
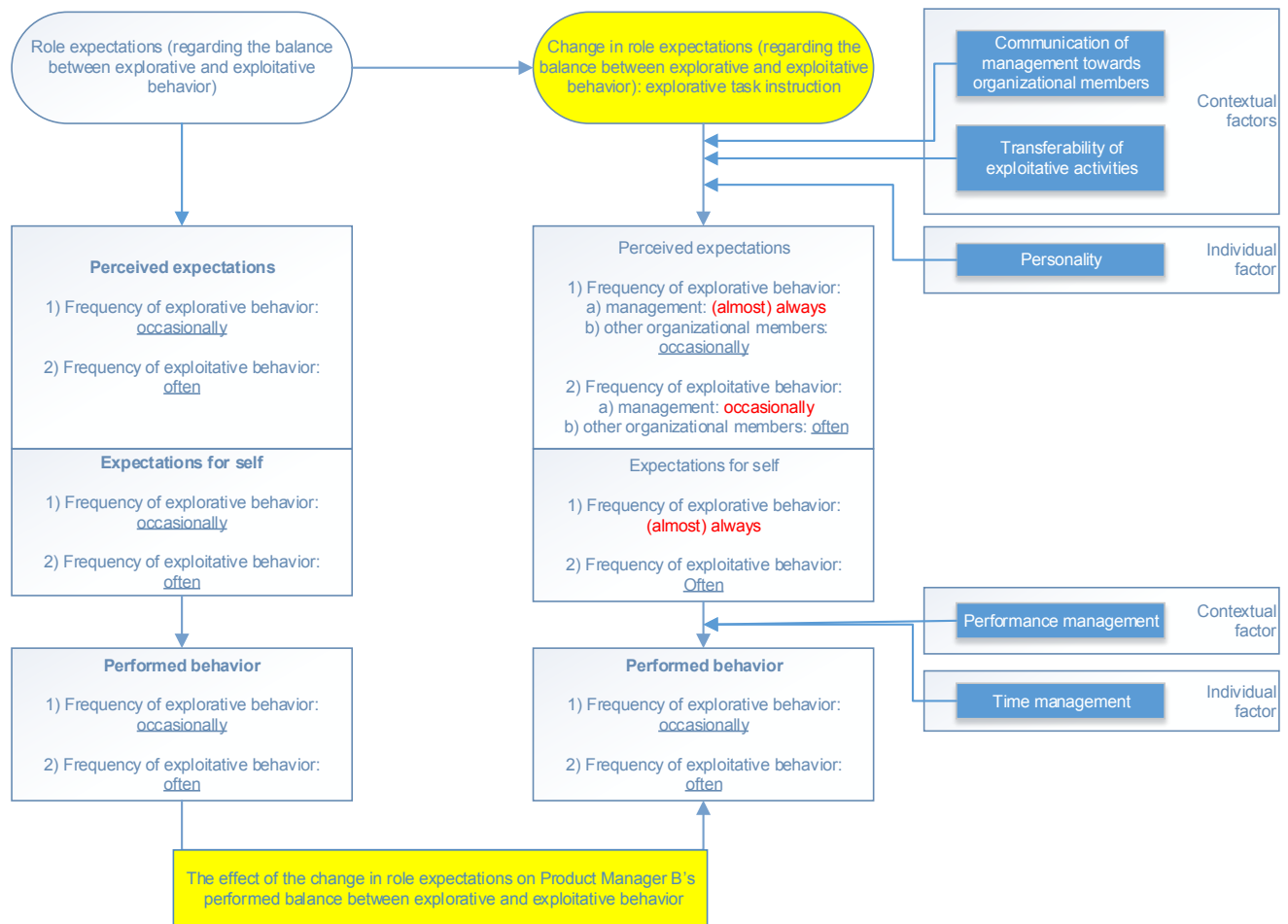
Figure 11. How Product Manager B's balance between explorative and exploitative behavior was affected by the change in role expectations

Product Manager C

Product manager C is responsible for the cable portfolio and works on the Inside Sales Department.

The situation before the intervention

Before the intervention, Product Manager C perceives consensus among the expectations regarding the activities he is to perform and therefore also regarding the balance between explorative and exploitative behavior he is to perform. In particular, he feels expected to be often busy with exploitative behavior and occasionally with explorative behavior. In line with those expectations, he performs exploitative behavior often and explorative behavior occasionally (table 17).

	Frequency of explorative behavior	Frequency of exploitative behavior
Perceived role expectations	Occasionally	Often
Expectations for self	Occasionally	Often
Performed behavior	Occasionally	Often

Table 17. Perceived expectations, expectations for self and performed behavior for Product Manager C, before the intervention

The following paragraphs will give a more extensive description of Product Manager A's perceived role expectations, expectations for self and performed behavior.

Perceived expectations and expectations for self

Product Manager C explains that within the Competence Center a division of tasks is made, in which Product Manager A and Manager Competence Center are the more commercial ones who map customer needs. Product Manager B and C are the ones who follow up and are expected to be occupied with product development internally.

Not only Product Manager A and Manager Competence Center are in contact with the market though, but the sales team too. Product Manager C states that the sales team in particular continuously expect him to help them with questions of customers regarding needs that are not directly covered by the existing portfolio. Customers could have seen a certain product at the competition or they could have a certain problem for which they are interested in a new solution that is not yet available. Following Product Manager C the Inside Sales employees do not always have the knowledge or experience to decide how to deal with those customer needs and therefore ask him.

Product Manager C assesses that three out of four times, he can answer the question of sales by telling them that an existing product of their portfolio would be a good alternative and would cover the need of the customer. He does this on the basis of his experience and knowledge and thereby performs exploitative behavior. One out of four times though, this is not the case and the business unit cannot fulfill the customer need yet. Product Manager C then has to explore if this would be possible and has to decide whether or not to start a product development project.

When starting a product development project, Product Manager C explains that the parties involved agreed to a certain way of working, which is documented in a flowchart. Therefore, a Product Manager C feels expected by himself and others to perform a number of activities during a product development project.

First, he is expected to make a project charter together with R&D, in which he is responsible for the business case. The business case contains information regarding the commercial potential of the product development. R&D in turn investigates the technical feasibility. Following Product Manager C the project charter is in particular expected by R&D and Manager Competence Center in order to account for used R&D capacity. If the project charter is not made, the product development project will not be started. Next to making a business case, Product Manager C feels expected to attend meetings in which the progress of the product development project is discussed. Usually those meetings are used to keep the parties involved up-to-date regarding the progress of the project, but when unexpected events occur, like problems in the execution of the product, Product Manager C also feels expected to think about new possibilities. When the product is released by R&D, Product Manager C in turn feels expected to arrange the market introduction.

In conclusion, Product Manager C feels expected to perform exploitative behavior often, since he is often expected to serve existing (internal) customers with existing services and / or products, work according to existing company policy and use his existing knowledge and experience. Next to that, he feels occasionally expected to evaluate diverse options with respect to products / services, processes or markets, focus on strong renewal of products/services or processes and adapt to unexpected circumstances (table 18).

Perceived role expectations	Frequency preferred in the expectation by organizational members	Quotes
Expectations regarding the performance of explorative behavior	Occasionally	"Product Manager B and I are the ones to follow up. So, the signals that Manager Competence Center and Product Manager A receive from the field, have to be translated to opportunities by us." "Meanwhile, if things do not work out as expected, you have to make a decision with each other: are we going to progress with this or are we going to work on another solution? Then you, as product Manager, are expected to give your input."
Expectations	Often	"Product Manager B and I make sure that everything goes to R&D,

regarding the performance of exploitative behavior		production: that side."
		"If Sales or a customer asks you a question, you are expected to react to that within a certain time frame."
		"If you look at the questions or problems that come from the market and sales: 3 out of 4 questions or problems can be solved with existing products and 1 not, because we do not have it or because we cannot make it (yet).
		"You don't place higher expectations on yourself than the organization does."
		"You try to act as good as possible within the defined framework."

Table 18. Perceived expectations and expectations for self for Product Manager C, before the intervention

Performed behavior

Following the interviews and his scores on the statements of Mom et al. (2009), Product Manager C's performed balance between explorative and exploitative behavior is aligned with his perceived expectations and expectations for self. Namely, he performs exploitative behavior often and explorative behavior occasionally (table 19). On a scale from 1 to 7 he scored 2.6 on explorative behavior, while 5.6 on exploitative behavior.

Performed behavior	Frequency	Quotes
Explorative behavior	<u>Occasionally</u>	"I'm not searching for new products/services, processes or markets directly, but I get signals from the sales team, distributors and customers. If that signals reach me, I start searching for new possibilities."
Exploitative behavior	<u>Often</u>	"You get a lot of ad hoc questions at the sales department."
		" A clear statement of requirements had been defined and R&D anticipated to that quickly."
		"Yeah, I am busy with some routine activities. Like at the market introduction, I have a standard text and checklist. There are always steps I take in certain processes."

Table 19. Behavior performed by Product Manager C before the intervention

The situation during the intervention

For a period of two weeks, Product Manager C got the task instruction to work on a new business model for a new product (product X), given highest priority by senior management. Product X is the responsibility of Product Manager A and it is not clear yet how this product should be marketed exactly. Product Manager C has no extensive knowledge about this product. Next to that, Product manager C has no experience or knowledge regarding business models.

At the beginning of the intervention, Product Manager C perceived consensus among the expectations regarding the balance between explorative and exploitative behavior he was to perform during the two weeks. The first day, his behavior was aligned with those expectations. The rest of the two weeks though, some factors were so constraining that he could not behave

according to those expectations. This resulted in the fact that over the course of the two weeks Product Manager C performed exploitative behavior somewhat less than before the intervention, but did not perform more explorative behavior than before the task instruction. In line with his performed behavior before the task instruction he performed explorative behavior occasionally and exploitative behavior often during the intervention (table 20).

	Frequency of explorative behavior	*Frequency of exploitative behavior*
Perceived role expectations	(Almost) always	Seldom or never
Expectations for self	(Almost) always	Seldom or never
Performed behavior	Occasionally	Often

Table 20. Perceived role expectations, expectations for self and performed behavior for Product manager C, during the intervention

The following paragraphs will give a more extensive description of this situation and the causes of it.

Perceived expectations and expectations for self

When Product Manager C got the task instruction he clearly felt he was expected to perform explorative behavior (almost) always during the two weeks. Nevertheless, he was aware of the fact that other organizational members were not informed about the task instruction he got and therefore held other expectations regarding his behavior for these two weeks than the expectations embedded in the task instruction. Therefore, in order to be able to focus on the task instruction, Product Manager C informed all his colleagues and customers that he would be working at a specific project for two weeks and that therefore his reaction to questions would take more time than normally would be the case. Next to that, he transferred his old activities to other colleagues. Following Product Manager C this was possible because his colleagues were willing and able to take over his old activities.

This resulted in the fact that at the beginning of the project, Product Manager C perceived consensus among the expectations regarding the balance between explorative and exploitative behavior he was to perform during those two weeks (table 21).

Perceived expectations and expectations for self	*Frequency preferred in the expectation by organizational members*	*Quotes*
Explorative behavior	Almost always	*"When I was asked to work two weeks with highest priority on this project, my expectation was to put everything aside to do this project. I have first disassociated myself from the normal*

Exploitative behavior	Seldom or never	activities."
		"I informed the people I work with to create an understanding for deviating reaction times. I protected myself with the help of an 'out of office message' with as goal to be able to focus and win time and capacity: protection of myself."
		"I noted: good fellowship, the willingness to take over my normal activities. Head Inside Sales is my first back-up, but now he is on a vacation, so that is a little unfortunate, but the other Inside Sales employees take over my tasks flawless, for what is possible given their capabilities."

Table 21. Perceived expectations and expectations for self for Product Manager C, during the intervention

Performed behavior

Following the interviews the first day of the task instruction the behavior of Product Manager C was aligned with his perceived expectations and expectations of self regarding the balance between explorative and exploitative behavior. The first day he was constantly busy with the project and searching for information. After the first day though, this changed due to lacking information availability. Although Product Manager C was able to perform explorative behavior occasionally after the first day, he explained that he could not work on that (almost) always, because he did not have enough knowledge about business models and product X himself and could not quickly gain this knowledge within the organization.

Generally, over the two weeks, based on the interviews and his scores on the statements of Mom et al. (2009), Product Manager B performed exploitative behavior often and explorative behavior occasionally (table 22). On a scale from 1 to 7 he scored 2.4 on explorative behavior, while 5.0 on exploitative behavior.

Performed behavior	Frequency	Quotes
Explorative behavior	Occasionally	"I have been busy with gathering information and reading about the subjects. So, what are business models? Which business models exist?, what is product X?, what are the advantages?."
		"I first filtered my mailbox on product X. Every document that has passed once about this product has never received my attention again."
		"Today I have planned a brainstorm session with some people next Wednesday. You have to deal with all the agenda's."
		"I am now searching for product related business models."
Exploitative behavior	Often	"It is still desk research for me; what is it precisely? Business models: do we work with them or not? Product X: what are the ins and outs? It still doesn't proceed very speedy."
		"Today I was not able to do anything."
		"These days I have been primarily busy with sales to maintain the process flow."
		"Next to that, no activities regarding the project actualy, because the planned brainstorm session now has to give new input for

		progress. That also is applicable to today. I could not do anything. Tomorrow is the brainstorm session, so a new phase is started."

Table 22. Behavior performed by Product Manager C during the intervention

The situation after the intervention

Two weeks after the intervention, Product Manager C immediately explained that during the two weeks after the intervention, he performed exactly the same behaviors as in the year before the intervention, only on a shorter term. He therefore felt again that organizational members expected him to perform (almost) always exploitative behavior, which was aligned with his expectations for self and performance (table 23).

"If you talk about routine, everything becomes normal again: the normal pattern of expectations, the tasks you normally perform. After the two weeks that all goes on again".

	Frequency of explorative behavior	*Frequency of exploitative behavior*
Perceived role expectations	Occasionally	Often
Expectations for self	Occasionally	Often
Performed behavior	Occasionally	Often

Table 23. Perceived expectations, expectations for self and performed behavior for Product Manager C, after the intervention

Explaining the effect of the intervention

When Product Manager C got the task instruction he clearly felt he was expected to perform explorative behavior (almost) always during the two weeks:

"When I was asked to work two weeks with highest priority on this project, my expectation was to put everything aside to do this project."

Nevertheless, he was aware of the fact that other organizational members were not informed about the task instruction he got and therefore held other expectations regarding his behavior for these two weeks than the expectations embedded in the task instruction. Therefore, in order to be able to focus on the task instruction, Product Manager C informed all his colleagues and customers that he would be working at a specific project for two weeks and that therefore his reaction to questions would take more time than normally would be the case. Next to that, he transferred his old activities to other colleagues. Following Product Manager C this was possible because his colleagues were willing and able to take over his old activities:

"I informed the people I work with to create an understanding for deviating reaction times. I protected myself with the help of an 'out of office message' with as goal to be able to focus and win time and capacity: protection of myself."

"The moment that someone goes on vacation, there has to be back-up. Therefore everyone on the Inside Sales department has an own buddy. For Product Management, Head Inside Sales is my first back-up, who is now on a vacation, so that's a little unfortunate, but the others take over my activities flawless, for what is possible given their capabilities."

"Within Inside Sales that is well arranged, but within other functions not."

"There are things that have to happen. If one cannot do that on the moment, someone else has got to do it. If that someone else is not motivated to do it, the whole process actually stops."

"Good fellowship is the motivation to help another, but they also have to be able to handle that, there has to be some knowledge to make sure that is possible. We have reached that by providing good training, by providing a good basis through which they can do a lot."

The above quotes also illustrate why Product Manager C was able to transfer his old activities to other people in the organization: his colleagues were willing and able to take over his old activities. The willingness to take over activities lies in the fact that on the Inside Sales department employees are motivated to help their colleagues (good fellowship). The ability to take over activities can be explained by the fact that the employees are trained to do that.

So, did Product Manager C align his expectations for self with those of management and inform the people he worked with, because he had the idea that it was possible, due to the fact that he could transfer his normal activities? The answer is no. In contradiction to Product Manager A and B, Product Manager C namely brought forward that if his colleagues would not have been able to take over his normal activities, he still would have expected himself to work on the explorative task of management those two weeks. In that case, following Product Manager C, management would have been responsible for the performance of his normal activities. This difference between Product Manager A, B and C can logically by explained by a difference in personality and herein particular point to a difference in the level of authority acceptance, in which Product Manager C feels more obligated to perform according to the expectations of management than Product Manager A and B.

Thus, the fact that the change in role expectations was fully incorporated in Product Manager C's perceived expectations and expectations for self (perceived consensus) can be explained by the transferability of old exploitative activities and personality (figure 12). Therefore relatively high transferability of old exploitative activities and personality (relatively high level of authority acceptance) were found in this case to enable the ability of the employee to change his behavior towards more exploration and less exploitation.

Although the change in role expectations of management became fully incorporated in Product Manager C's expectations for self, he did not (fully) act upon those expectations during the

intervention (figure 12). When using the scores of Mom et al. (2009) he performed exploitative behavior somewhat less than before the intervention, but he did not perform more explorative behavior than before the task instruction. In line with his performed behavior before the task instruction he performed explorative behavior occasionally and exploitative behavior often during the intervention.

The fact that behavior during the two weeks was not aligned with the collective expectations regarding his behavior can be explained by the fact that Product Manager C himself had little knowledge and experience regarding the explorative task and this knowledge was also not readily available in the organization. This led to the fact that Product Manager C deemed it impossible to perform the explorative activities (almost) always, thereby behaving according to the explorative expectations:

"Yeah, regarding the project, that talks about a business model, that is not my normal eh, my degree of knowledge is lacking there, so I have to conduct research into it."

"I notice that within our department, Competence Center, I actually do not know where Manager Competence Center, Product Manager A and B precisely are working on. I have to ask myself: business models, is anyone occupied with business models? I have heard the term before, but for me it is not something that is very familiar. I do not know if I can go to Manager Competence Center for that. I actually do not know enough of my direct colleagues; in which activities they are engaged."

"Manager Competence Center is my supervisor, so he knows what I'm occupied with, but I don't see what he is occupied with, I mean, regarding the higher management. I don't have an idea of that."

"Product Manager A is my first knowledge resource regarding that area, who is not available now.... I think that Manager Competence Center is the next one."

"I need Product Manager A and Manager Competence Center, because they are experts regarding product X. I would not know, besides those two people, who could provide me information. I was able to make an appointment with both gentlemen, but yesterday they were both not present, today they are. Tomorrow morning I have an appointment with Manager Competence Center and Friday with Product Manager A. .. Hopefully things will become speedier again then."

"Actually, Product Manager A has all the knowledge. This has to do with his previous function, his previous work context at company B, which means that within the whole Competence Center and Sales there is very scarce expertise regarding Product X."

The above quotes also illustrate why Product Manager C could not quickly gain the knowledge he needed. Namely, following Product Manager C, the fact that he could not quickly gain this knowledge was due to the fact that he did not know if the organization already adopted business models and if yes, who had knowledge about it. Furthermore, the knowledge about product X

was primarily held by only one employee within the organization, who was hard to reach. Thereby Product Manger C points to low knowledge sharing as a cause for the fact that he could not quickly gain the knowledge he needed.

So, the fact that Product Manager C could not (fully) act upon the changed expectations (for self) can be explained by Product Manager C's lacking knowledge regarding the explorative task and the low level of knowledge sharing in the organization (figure 12). Therefore, these factors were found in this case to constrain the employee to change his behavior towards more exploration and less exploitation.
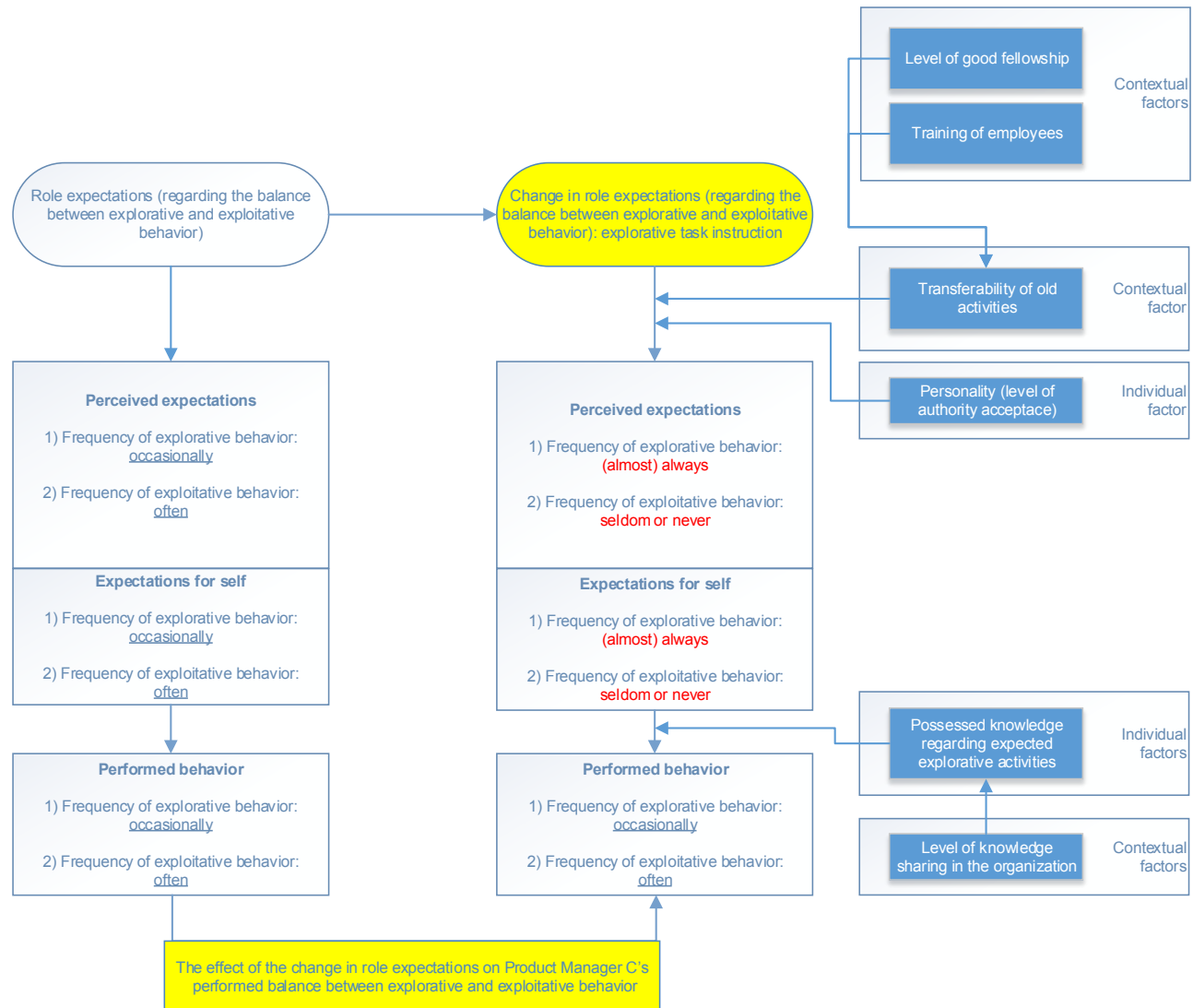
Figure 12. How Product Manager C's balance between explorative and exploitative behavior was affected by the change in role expectations

Interestingly, Product Manager C had the feeling that when he started performing his normal tasks again (exploitative behavior), his colleague's also expected him to perform exploitative behavior again:

"After the first days the sales people noticed that I was busy with my normal tasks again and they gratefully made use of that again."

This points to the possibility of change in routine through a change in the performative aspect that leads to a change in the ostensive aspect, as brought forward in the theoretical framework.

5. Cross-case analysis

When comparing the cases of Product Manager A, B and C before, during and after the intervention, it can be seen that the changed role expectations of management did have an effect on their behavior. Nevertheless, in all three cases this effect was marginal and the Product Managers did not behave according to the changed expectations of management. By analyzing how the change in role expectations of management led to the change in behavior in all three cases, factors were brought forward that can explain the extent to which the changed expectations of management were incorporated in the employees' performed balance. Therefore, factors were brought forward that can enable or constrain an employee to change his or her balance between explorative and exploitative behavior, when deemed necessary by management.

Task instruction – Expectations for self

As explained in the theoretical framework, in order for changed role expectations of management to guide an employees' behavior (if he or she is aware of them), they first have to be incorporated in the employees' expectations for self. Therefore, when management gives an explicit explorative or exploitative task instruction, through which an employee is expected to perform another balance between explorative and exploitative behavior, the employee should first expect him or herself to act upon this task instruction. The cases of Product Manager A, B and C bring forward some factors that can constrain or enable an employee to align his or her expectations for self with the changed ones of management (table 24), thereby enabling or constraining an employee to change his or her balance between explorative and exploitative behavior, when deemed necessary by management. Those factors are explained in the following paragraphs.

Factors	Evidence
Transferability of old activities	Cases of Product Manager A, B & C
Level of good fellowship (influences transferability of old activities)	Case of Product Manager C
Training of employees (influences transferability of old activities)	Case of Product Manager C
Personality (level of authority acceptance)	Comparison of the cases of Product Manager A, B & C
Communication of management towards organizational members	Cases of Product Manager A & B

Table 24. Factors that can influence the extent to which a change in role expectations of management (regarding the balance between explorative and exploitative behavior an employee is to perform) is incorporated in the employees' expectations for self (regarding the balance between explorative and exploitative behavior he or she is to perform)

Product Manager A, B and C all brought forward the influence of the transferability of old activities. Namely, Product Manager A and B perceived that it would be difficult to transfer their old tasks to other organizational members. Therefore they still felt responsible for their old tasks, which contributed to the fact that they did not align their own expectations with those of management and did not communicate those expectations of management clearly towards other organizational members. This resulted in perceived dissensus among the expectations. Thus in the cases investigated, low transferability of old tasks had a negative effect on the incorporation of the changed expectations of management in the employees' expectations for self and supported perceived dissensus.

On the other hand, Product Manager C found it relatively easy to transfer his old tasks to other organizational members, since they were both willing and able to take over his old activities. This could in turn be explained by the fact that on the Inside Sales department employees are motivated to help their colleagues and have been trained to be able to take over their colleagues' activities when necessary. Here, a high transferability of old tasks had a positive effect on the incorporation of the changed expectations of management in the employees' expectations for self and supported perceived consensus.

Of course, with this factor, we have to keep in mind that in the cases presented it was desirable to transfer old activities, because the project for two weeks was just temporary, after which the old activities had to be performed again. In real life, when the desired balance between explorative and exploitative behavior changes, some old explorative or exploitative activities may not be necessary anymore in the future. Then, transferring old activities is not necessary at all and will not be an important factor influencing the extent to which an employee incorporates the changed expectations of management in his or her expectations for self.

Personality (acceptance of authority)

Next to that, the three cases imply that personality and specifically the level of acceptance of authority of the employee influences to which extent a change in role expectations of management is incorporated in an employees' expectations for self.

Namely, Product Manager C explained that if his old activities could not have been transferred easily, he would still expect himself to entirely perform according to the expectations of management. This was not the case for Product Manager A and B. This variation logically seemed to lie in the personality of the Product Managers and their level of acceptance of authority.

Thereby, the cases investigated seem to bring forward that a relatively high acceptance of authority has a positive effect on the incorporation of the changed expectations of management in your expectations for self and perceived expectations and thereby perceived consensus. On the contrary, a relatively low acceptance of authority seems to have a negative effect on the incorporation of the changed expectations of management in the employees' expectations for self and perceived expectations, thereby supporting perceived dissensus.

The cases of Product Manager A and B further point to the constraining influence the communication of management had. Since management did only communicate their new expectations towards the Product Managers, Product Manager A and B were less willing to work on the task instruction than when management would have communicated their new expectations towards all organizational members. On the contrary, Product Manager C did not bring forward this communication of management as a problem. This could lie in the fact that he could transfer his old activities and therefore more easily communicate the changed expectations towards other organizational members himself, making the communication of management unnecessary. It could also lie in a less critical approach of Product Manager C towards management in comparison to Product Manager A and B (level of authority acceptance).

Expectations for self - Behavior

As explained in the theoretical framework, in order for a change in role expectations to induce a change in behavior (the balance between explorative and exploitative behavior), the change not only has to be incorporated in the employees' expectations for self, but the employee should also be able to act upon those expectations. Which factors enable or constrain an employee to act upon the new explorative and exploitative expectations was not clear though. The cases of Product Manager A, B and C bring forward (a number of) these factors (table 25), as discussed in the paragraphs below.

Factors	Evidence
Knowledge possessed by the individual	Cases of Product Manager A and C
Work experience (influences knowledge possessed by the individual)	Case of Product Manager A
Level of knowledge sharing in the organization (influences knowledge possessed by the individual)	Case of Product Manager C
Performance management in the organization	Case of Product Manager B
Individuals' time management	Case of Product Manager B
Personality (Big Five; consciousness)	Case of Product Manager A *(and Product Manager B)*

Table 25. Factors that can influence the extent to which a change in an employees' expectations for self (regarding the balance between explorative and exploitative behavior he or she is to perform) is incorporated in this employees' performed balance between explorative and exploitative behavior

Knowledge possessed by the individual

Both Product Manager A and C pointed to the degree of knowledge they possessed as factor that influenced the degree to which they could act upon their change in expectations for self. Product Manager C explained that he was not able to work on a new business model for product X, partly because he did not have enough knowledge about business models and product X himself. Thus, if you possess a low degree of knowledge regarding the new expected activities, this can constraint you in acting upon those expectations. Product Manager A also brought this forward by stating that for some employees it would probably be hard to perform exploitative activities, due to their lacking knowledge regarding the systems in the organization. On the contrary, Product Manager A brought forward that he possesses a high degree of knowledge regarding the new expected (exploitative) activities, which enabled him in acting upon those expectations.

Work experience

Product Manager A logically brought forward that the knowledge you possess is influenced by your work experience. Product Manager A possesses knowledge regarding the performance of exploitative activities, because he used to perform those activities in the past and still performs them to a certain degree. So a high degree of work experience regarding the new expected activities can enable you in acting upon those expectations.

Level of knowledge sharing in the organization

The fact that Product Manager C was not able to work on a new business model for product X was partly due to the fact that he did not possess enough knowledge about business models and product X himself. Next to that though, the fact that could not quickly gain this knowledge within the organization also played a role. Following Product Manager C, the fact that he could not quickly gain this knowledge within the organization was due to the fact that he did not know if the organization did already adopt business models and if yes, who had knowledge about it. Next to that, the knowledge about product X was primarily held by only one employee within the organization, who was hard to reach. Thereby, the case of Product Manager C points to the importance of sharing knowledge within the organization in order to support the ability of employees to change their balance between explorative and exploitative behavior.

Performance management in the organization

Product Manager B brought forward that he did not act upon his changed explorative expectations for self, because of the time pressure related to the exploitative activities he also expected himself to do and the lacking pressure to perform the explorative expectations. He brought forward that it would have been more likely that he acted upon the explorative expectations if performance management was to a higher extent applied, thereby 'forcing' him to perform according to the changed expectations of management. This is supported by the expectancy theory originally brought forward by V.H. Vroom (1964) who suggested that "people consciously choose particular courses of action, based upon perceptions, attitudes, and beliefs,

as a consequence of their desires to enhance pleasure and avoid pain" (Isaac, Zerbe & Pitt, 2001, p. 214).

The individuals' time management

Product Manager B further brought forward the influence of his own time management on the extent to which he acted upon his changed explorative expectations for self. Namely, he did not plan explorative activities in his agenda, which constrained him to perform explorative activities, while enabling him to perform his exploitative activities.

The individuals' personality (Big Five Personality Traits; consciousness)

Finally, Product Manager A pointed to the importance of personality, which could lead to the fact that some explorative employees would not be able to perform exploitative activities in which the following of rules is important. Thereby, Product Manager A pointed to the importance of one of the Big Five Personality Traits: "consciousness" (John & Srivastava, 1991): "a socially prescribed impulse control that facilitates task and goal directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks" (John & Srivastava, 1999, p.121). Herein, Product Manager A assumes that a high level of consciousness enables the performance of exploitative behavior, while a low level of consciousness constraints the performance of exploitative behavior. The case of Product Manager B also seems to bring forward the influence of this factor. Namely, before the intervention Product Manager B explains that he likes to work towards goals and has less affinity with tasks focused on the far future. Although not clearly brought forward during the intervention, this could logically also explain to some extent his exploitative focus during the intervention. Furthermore, Keller and Weibler (2014) also refer to the influence of the Big Five Personality Traits on the performance of explorative and exploitative behavior.

6. Conclusion

6.1 Results and discussion

For organizations it is important to be ambidextrous: to perform both exploration and exploitation and maintain an appropriate balance between the two (March, 1991; Duncan, 1976). Ambidexterity at the organizational level can be achieved by supporting individual ambidexterity (Gibson & Birkinshaw, 2004), but our current knowledge about individual ambidexterity and how it is achieved in practice is scarce. In particular, the challenge for an employee to change his or her balance between explorative and exploitative behavior, while working in organizational routines, is neglected. Research into this challenge is necessary though in order to understand individual ambidexterity and how it can be achieved.

The research presented in this thesis has addressed this research gap. In the first place it has shown that although it is assumed difficult to change the balance between explorative and exploitative behavior, while working in organizational routines, it is possible. In particular, the research showed that a change in role expectations of management can lead to a change in an employees' balance between explorative and exploitative behavior. Therefore the research supports the view that a change in the ostensive aspect of a routine could lead to a change in the performative aspect of the routine. Furthermore, Product Manager C brought forward that when he changed his behavior independently and thereby deviated from the expectations of management, other colleagues changed their expectations according to his new behavior. Therefore, although it was not specifically researched, the case evidence also seems to support that a more bottom-up way of change in routines is possible, as also clearly brought forward by Feldman (2000). Thereby, a change in an employees' balance between explorative and exploitative behavior can induce a change in the ostensive aspect of the routine.

Next to that, the research brought forward factors that can enable or constrain the possibility to change the balance between explorative and exploitative behaviors, when deemed necessary by management. Specifically, the research brought forward factors that can determine how an employees' balance is affected by a change in role expectations and thereby the extent of the change in the balance between explorative and exploitative behavior (figure 13). Thereby, this research has addressed the central research question: **"How is an employees' balance between explorative and exploitative behavior affected by a change in role expectations?"**

In the first place, transferability of old activities, personality (authority acceptance) and communication of management towards organizational members can explain how an employees' balance is affected by a change in role expectations of management. In the cases presented, these factors were namely found to have an influence on the effect of role expectations on the employees' expectations for self, which guide behavior (figure 13). Herein, the level of good fellowship and training of employees influences the transferability of old activities. Next to that, the transferability of old activities may not always have an influence,

because when the desired balance between explorative and exploitative behavior changes, some old explorative or exploitative activities may become unnecessary to perform.

Second, the individuals' possessed knowledge and thereby the individuals' work experience and the level of knowledge sharing in the organization, the individuals' personality (Big Five), the individuals' time management and performance management in the organization can explain how an employees' balance is affected by a change in role expectations. These factors namely can have an influence on the degree to which an employee can act upon the changed expectations for self (figure 13).
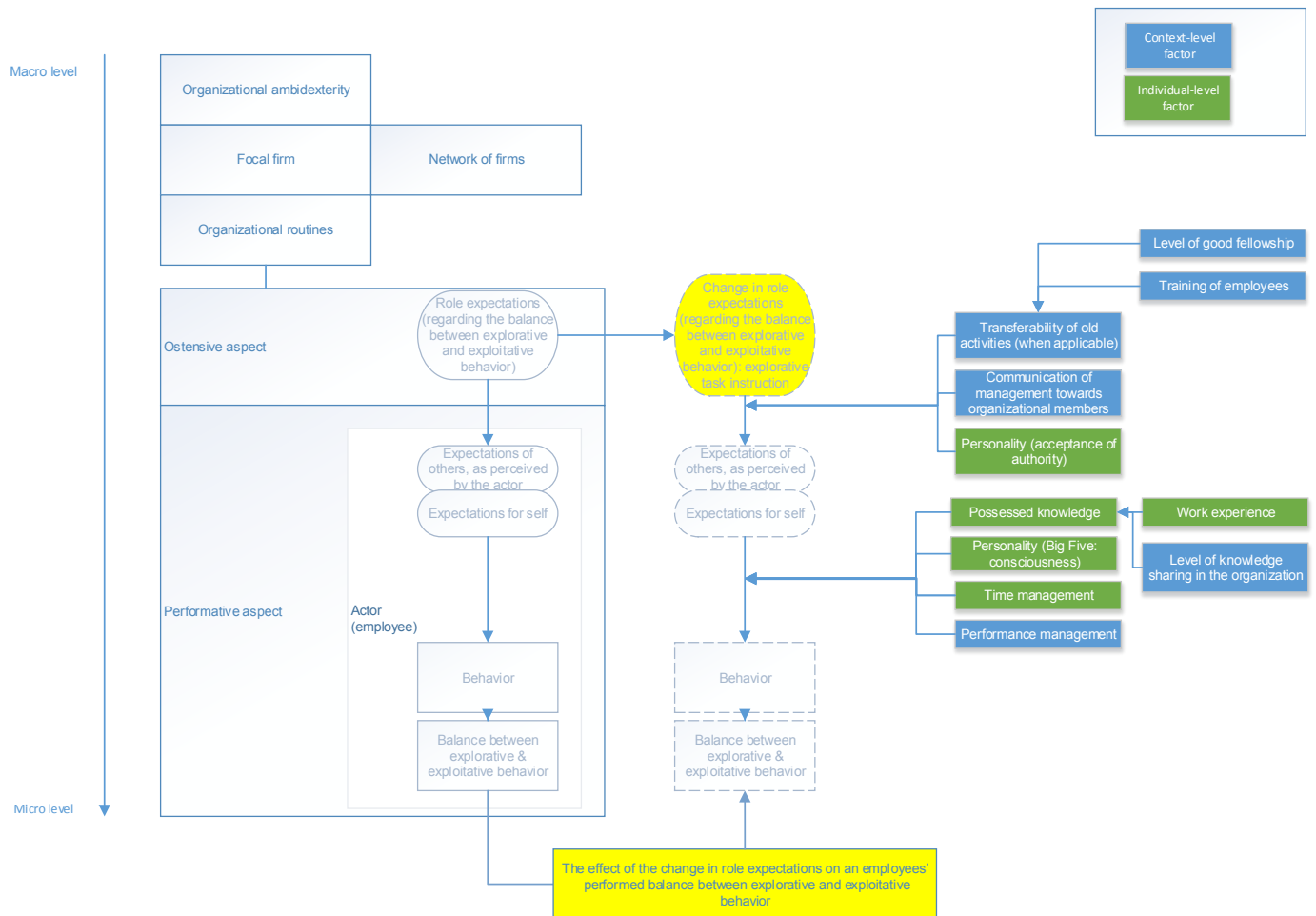

Figure 13. How an employees' balance between explorative and exploitative behavior is affected by a change in role expectations

By bringing forward the above mentioned factors, this research has provided insights in the ability of an employee to maintain an appropriate balance between explorative and exploitative behavior over time, which is an important aspect of individual ambidexterity, but has been neglected till now on.

6.2 Theoretical relevance

The theoretical relevance of this research lies primarily in the fact that this research contributes in the development of the current literature on ambidexterity towards a more dynamic view and understanding of individual ambidexterity. Further, this research grounds the difficulties of achieving individual ambidexterity in reality, thereby responding to the need for a 'practice-centered' approach (Antonacopoulou & Pesqueux, 2010: 11) or case-based analysis (Nosella et al, 2012) in order to explore ambidexterity. The paragraphs below will discuss these theoretical contributions in more detail.

Towards a dynamic view of individual ambidexterity

Ambidexterity is not simply about whether an organization can pursue exploration and exploitation, but it is about the long-term survival of an organization (O'Reilly & Tushman, 2013). In this view ambidextrous organizations are not organizations that are simply able to perform both exploration and exploitation, but in particular the organizations that are able to maintain an appropriate balance between the two when environments are (rapidly) changing. This results in the need for firms to be able to change the performed balance between exploration and exploitation over time, since different environments seem to require a different (appropriate) balance between exploration and exploitation (O'Reilly & Tushman, 2013). This could be challenging though, since much of the work that is done in organizations is performed through organizational routines routines (March & Simon, 1958; Cyert & March, 1963), which are generally perceived to constrain changes in behavior (Feldman, 2000; Gilbert, 2005).

When adopting a contextual ambidexterity approach, employees are faced with the challenge of changing their balance between explorative and exploitative behavior, while working in organizational routines. Nevertheless, existing literature on individual ambidexterity focuses on explaining the balance between explorative and exploitative behavior of an individual at one certain point in time (see for example Mom et al., 2009; Bonesso et al., 2014 and Keller & Weibler, 2014), thereby neglecting that ambidexterity is about the survival of an organization over time and the challenge to maintain an appropriate balance over time. Therefore, the author of this thesis has contributed to theory by using a dynamic view of individual ambidexterity. Thereby, individual ambidexterity was defined as the ability of an employee to perform both explorative and exploitative behaviors and maintain an appropriate balance between the two.

Towards a better understanding of individual ambidexterity as a dynamic concept

Next to only adopting a dynamic view of individual ambidexterity, this dynamicity was also researched by investigating the ability of an employee to change his or her balance between explorative and exploitative behavior through the lens of role theory.

Although it is generally assumed that organizational routines constrain changes in behavior and thereby change in the balance between explorative and exploitative behavior, this research has shown that change is possible. Thereby it pledges for the further investigation of this possibility and the interplay between individual and contextual factors that seem to play a role.

From a methodological viewpoint, this thesis contributes to the literature on ambidexterity, by grounding the difficulties of individual ambidexterity in reality. Thereby, this thesis responds to the need for a 'practice-centered' approach (Antonacopoulou & Pesqueux, 2010: 11) or case-based analysis (Nosella et al, 2012) in order to explore ambidexterity. Next to that, it also addresses the concerns of Turner et al. (2012) who highlight the scant empirical evidence on achieving individual ambidexterity in practice.

6.3 Practical relevance

This thesis contributes not only to theory, but also to practice. Managers in organizations could use the results of this study in the organizations' journey to survive over time, by stimulating individual ambidexterity.

Although this research is case specific and not generalizable, managers reading the case studies obtain an idea bout the challenges employees' can face when required to change their balance between explorative and exploitative behavior. This information can be used in order to assess the situation in their own organization and think about venues for improvement, so that it becomes easier for employees to change their balance between explorative and exploitative behavior when necessary. Further, this research provides managers with information about how to act when the appropriate balance between exploration and exploitation changes and employees have to act upon that change.

Specifically Business Unit X can use the results of this study. In the first place the results of the research provide management with an idea about why the Product Managers perform a certain balance between explorative and exploitative behaviors. Second, management can use the results of this study in order to improve facets of their organizations, so that it becomes easier for employees to change their balance between explorative and exploitative behavior when necessary. Thereby, the research has in the first place pointed to the importance of communicating new expectations regarding one employees' explorative and exploitative activities towards all organizational members.

Furthermore, the research highlighted the importance of supporting knowledge sharing, so that employees broaden their knowledge base regarding both explorative and exploitative activities. This can in turn support the employees' ability to change their balance between explorative and exploitative behavior when necessary.

Next to that, the importance of applying performance management regarding both exploitative and explorative activities was highlighted, so that employees not only feel pressure to perform exploitative behavior, thereby constraining a change towards explorative behavior.

Moreover, since the individual characteristics possessed knowledge, work experience and personality were found to play a role in the ability of an employee to change his or her balance between explorative and exploitative behavior, it can be recommended that the Human

Resources Department maps these individual characteristics of all employees. In the first place this is recommended, because this information can then be used to map possibilities for training and education, which can logically develop an employees' possessed knowledge and time management. This could in turn support the employees' ability to change their balance between explorative and exploitative behavior when necessary. Next to that, if the balance between exploration and exploitation changes, this information will probably make it is easier to decide which employees should act upon such a change. Finally, the Human Resources Department could also use the results of this research in their hiring process. Namely, when both exploration and exploitation are embedded in an employees' possessed knowledge, work experience and personality, this would support a quick change in the balance between explorative and exploitative behavior when necessary.

6.4 Limitations and future research directions

Although this research has contributed to both theory and practice, it comes not without its limitations in the method used and scope maintained, thereby providing venues for future research.

First, the fact that a change in the employees' balance between explorative and exploitative behavior was not really necessary given environmental conditions, may have influenced the research results. Since this research was not a real life case, but a quasi-experiment, the research subjects knew that they would have to return to their 'old activities' again, after the intervention period of two weeks. Therefore they brought forward the factor 'transferability of old activities' as having an influence. For two of the three research subjects, that did have an influence on their willingness to change their balance between explorative and exploitative behavior. When faced with a real-life necessity to change, the transferability of old activities may have had a lower influence, since (some of) their activities may have become unnecessary then. If they subsequently would have been more willing to change their balance between explorative and exploitative behavior towards that of management, other factors may have been brought forward that influenced their ability to change. Thus, future research could better investigate the ability of employees to change their balance between exploration and exploitation when faced with a real life necessity to change. This could be done through for example a longitudinal study. Such an approach will probably also offer the possibility to study the ability of an employee to change his or her balance between explorative and exploitative behavior over a period longer than two weeks, thereby probably leading to more insights.

Second, because of the qualitative approach towards the case studies, the frequency of explorative and exploitative behavior expected and performed was not concretely measured. Further studies should develop measurement scales in order to more objectively and precisely determine the balance between explorative and exploitative behavior expected and performed.

A further limitation of the qualitative study undertaken lies in the low level of research experience of the author in combination with the inductively-driven approach regarding the identification of causes for the effect of the task instruction on behavior. Namely, an inexperienced researcher as

the author might be limited in identifying the important aspects of the research data, especially when confronted with a limited period of time (Altinay & Paraskevas, 2008). Therefore, a more experienced researcher and ideally a team of researchers could extend the qualitative research into the causes for the effect of a task instruction on behavior. A more experienced researcher is more likely to be able to deal with the contradictions and complexities of an inductively-driven approach (Altinay & Paraskevas, 2008). Next to that, by operating in a team of researchers it is possible to triangulate data in order to obtain a higher level of validity (Miles & Huberman, 1994). Moreover, since the inferring of causalities from caste study data is difficult, quantitative studies should re-evaluate them.

Moreover, low generalizability of conclusions obviously is a limitation of a case-based research approach (Eisenhardt, 1989; Noor, 2008). Logically, it could not be concluded that the factors found in the three cases have an influence on the ability of an employee to change his or her balance between explorative and exploitative behavior in general. This could namely vary between cultures, industries and different company and environmental conditions. Future research should therefore test the influences of the factors found in different settings.

Next to limitations concerning the method used, as discussed above, two final limitations concerning the scope of the research can be mentioned. Just as with the limitations concerning the method, these limitations provide directions for future research.

In the first place, the research has focused on how the balance between explorative and exploitative behavior of an employee is influenced by a change in role expectations, embedded in the ostensive aspect of an organizational routine. However, it did not focus on how a change in the balance between explorative and exploitative behavior influences role expectations, embedded in the ostensive aspect of an organizational routine. Following the literature on organizational routines, a change in the balance between explorative and exploitative behavior performed by employees can also modify the ostensive aspect of routines. This already was highlighted a bit in the results of this research, since Product Manager C stated that when he changed his behavior, thereby deviating from the expectations, he had the idea that his colleague's changed their expectations regarding his behavior again. Which factors contribute to such a change would in particular be an interesting subject for future research, since it would provide the possibility to investigate how individual ambidexterity can contribute to organizational ambidexterity, without the steering of management. Hereby, future researchers could build upon the work of Feldman (2000) and Feldman and Pentland (2003), who provides interesting insights.

Next to that, the research focused on the role expectations as perceived by the Product Managers, thereby making no clear comparison between the 'actual role expectations' and the perceived role expectations. As pointed out by Biddle (1979) though, perceived role expectations do not necessarily have to be aligned with the actual role expectations. The 'actual role expectations' (from the viewpoint of the holders of those expectations) should therefore also be investigated in future research. Then an even better understanding of how an employees'

balance between explorative and exploitative behavior is affected by (a change in) role expectations can be developed.

7. References

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