Sourcing team success : team studies in a purchasing and supply management context

Sourcing team success

Team studies in a purchasing and supply management context

Boudewijn A. Driedonks

A catalogue record is available from the Eindhoven University of Technology Library
ISBN: 978-90-8891-289-4

Driedonks, Boudewijn Alexander

Sourcing team success: team studies in a purchasing and supply management context.
Eindhoven: Technische Universiteit Eindhoven, 2011.

Keywords: sourcing teams, purchasing organizations, team performance, functional diversity, perceptions, team embeddedness.

Eindhoven University of Technology
Department of Industrial Engineering and Management Science
www.tue.nl

Beta Ph.D. Theses Series D 145

Cover design: Alejandra Saurit
Printed by: Proefschriftmaken.nl || Printyourthesis.com
Published by: Uitgeverij BOXPress, Oisterwijk

Sourcing team success
Team studies in a purchasing and supply management context

PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de
Technische Universiteit Eindhoven, op gezag van de
rector magnificus, prof.dr.ir. C.J. van Duijn, voor een
commissie aangewezen door het College voor
Promoties in het openbaar te verdedigen
op vrijdag 17 juni 2011 om 16.00 uur

door

Boudewijn Alexander Driedonks

geboren te Vlaardingen

Dit proefschrift is goedgekeurd door de promotoren:

prof.dr. A.J. Van Weele
en
prof.dr. M. Jelinek

Copromotor:
dr. J.M.P. Gevers

Acknowledgements

Over the last two years, I have become familiar with sport climbing. Someone introduced me to the sport, transmitting great enthusiasm. I decided to make an attempt and climb a route myself. How I started my PhD wasn't any different.

I never thought I would do a PhD. Things changed, however, over the course of my master thesis project. My thesis mentor Arjan van Weele demonstrated the beauty of doing research that is grounded in practice, and transmitted an impressive enthusiasm. With Arjan as a mentor, and Josette Gevers as a second supervisor, it was rewarding to complete my first academic study. And there we stood, on a crossroad.

Without Arjan, I would not have written this book. He motivated me by suggesting an ambitious path to carry on this research, and facilitated it in every way. Climbing a beautiful route with an experienced as well as adventurous person was an offer I simply couldn't refuse. Josette's participation sealed the deal for me.

Then Mariann Jelinek, introducing herself as 'Sam', joined us. I felt absolutely confident that with the guidance of such an accomplished team, it would be a wonderful journey. In fact, it went far beyond my expectations.

In sport climbing, two techniques can be distinguished: top-roping and lead climbing. Top-roping, simply put, is climbing a rock face with the rope always anchored above you. The route is thus predetermined. The one holding the rope, called the 'belayer', keeps the rope tight at all times, so the climber never falls very far. Lead climbing, on the other hand, involves a lead climber who chooses his route whilst periodically attaching his rope to the face of the route. The belayer must hold the rope in the event of a fall, and paying out additional rope as the climber ascends. In lead climbing, belaying requires adaptability and precision at the same time.

I am grateful to Arjan, Josette and Sam for being incredibly good belayers. They allowed me to lead climb the route of my PhD. They helped me find the grips I could use, the routes I could take and the techniques I should employ. And most importantly, they called up to me when I risked veering off route. Their unique and complementary suggestions ensured a rhythm and pace that ensured I would accomplish my goals.

Along the way, I met numerous people from whom I learned about the surface and shape of the rock. I had the privilege to work with many professionals from a

range of organizations. This dissertation is a product of the insights and perspectives that these people brought forward. The contribution of the numerous interesting discussions to this dissertation, but even more so, to the joy I had in conducting my research cannot be overstated. I thank all the business contacts I met for sharing their knowledge and for being so helpful.

In particular, I would like to thank the CPOs and purchasing managers who decided to join our research efforts with their companies. The success of our scientific research fully depends on companies' support. The wide support from purchasing executives for our research has boosted our enthusiasm and the quality of work has followed suit. As much as I would like to mention these people here explicitly, we stick to non-disclosure arrangements. My gratitude, however, is great.

With others I could discuss academic "climbing techniques". It was a pleasure to work with the colleagues from the Innovation, Technology Entrepreneurship & Marketing department. In particular, I thank Wendy van der Valk, who introduced me to the world of teaching and the academic circle of purchasing and supply management. Her critical and constructive attitude in evaluating each activity has been of great value. Also, I am grateful towards my PhD colleagues. While climbing similar routes, I enjoyed sharing experiences. In particular, I mention Katrin Eling, my companionable and enthusiastic roommate. Finally, Bianca van Broeckhoven and Marion van den Heuvel are the glue of the department, extremely talented in creating an atmosphere for everyone to feel at home immediately. Although there are many others to thank, the conclusion is evident; I have been in excellent company at Eindhoven University and beyond.

In the end, however, I would not fully enjoy any journey without a home base to return to time after time. My friends and family give me a zest for life, and put everything into perspective. On top of that, my partner Kim has the miraculous and inscrutable capacity to make my life feel so much more worthwhile. As a scientist I must conclude that this phenomenon warrants endless future empirical research…

It may sound very "Zen", but climbing really is not about reaching the summit, as much as the climb itself. I've now topped-out on one mountain and the stunning view is filled with other peaks to climb. The knowledge, ideas and kindness of the people I worked with during my PhD have equipped me well for the next journey.

Boudewijn Driedonks
Eindhoven 2011

Table of Contents

Chapter 1

Introduction

Sourcing teams have become an increasingly popular form of organization in purchasing and supply management. However, many companies that implement sourcing teams appear to face the risk that, within months after start-up, ambition levels decrease as motivation and cohesiveness among team members flag. In this chapter, we first discuss the characteristics and context of sourcing teams. Second, we review the wide range of team literature. We evaluate team research both in general, as well as in the specific context of purchasing and supply management. This review results in the conclusion that research on sourcing team success warrants further study to provide guidance for today's managers of sourcing teams. Moreover, since sourcing teams are representative for teams that cross functional, divisional and geographic borders, this dissertation will contribute to literature by providing deeper insights into team processes and success of sourcing teams and teams that share these characteristics.

1.1 Introduction

To deal with today's high demands on the purchasing function, sourcing teams have become an increasingly popular form of organization in large corporations. Sourcing teams have been installed widely with high expectations. Success, however, is not guaranteed. In a roundtable meeting with the CPOs of ten leading multinational companies, we learned that companies that implement sourcing teams face the risk that, within months after start-up, ambition levels decrease as motivation and cohesiveness among team members flag. How can companies reap the full benefits of sourcing teams? How should sourcing teams be managed to live up to, or exceed ambitious targets for contribution?

These are the essential questions, which we address in this dissertation. In this introductory chapter, we set the scene for this research by sketching the context of sourcing teams and by describing the sourcing team structures applied in practice. Next, we provide a helicopter view over the decades of team research that lie behind us, and explore the extent to which team research has been applied in the area of purchasing and supply management. Finally, we discuss the overall objective of this dissertation, and give an outline of its constituent studies.

1.2 Teams in a supply management context

1.2.1 The rise of sourcing teams

Although things have changed substantially over recent decades, the purchasing profession has a history as a clerical function (Ivens, Pardo & Tunisini, 2009). Purchasing professionals resided low in the organization, and executed operational tasks. More recently, however, companies have started to realize the potential of, and the need for, strategic sourcing to contribute to competitive advantage (Svahn & Westerlund, 2009).

The savings potential of volume bundling across business units is a key incentive for organizing the purchasing function on a corporate level (Arnold, 1999; Schiele, Horn & Vos, 2011). Also the increasing size and complexity of suppliers point at the need for cross-business unit supply management: a single supplier may supply multiple items for multiple business units. Moreover, the sourcing function is affected by a shift in strategic thinking (Cousins & Spekman,

2003). Much Western thinking has focused on product-based strategic business units, which deployed their strategies, including sourcing strategies, rather independently. However, with a shift to "core competencies," managed at the corporate level, functional areas like sourcing become multi-unit service entities (Prahalad & Hamel, 1990). Focusing on the core competences of the corporation implies an outsourcing strategy on the corporate level.

Companies have increasingly specialized on core business activities (Kakabadse & Kakabadse, 2002), outsourcing more and more non-core activities to suppliers (Jacobides, 2005). Suppliers' impact on companies' competitive advantage has increased significantly in this process, putting high demands on the purchasing and supply management function. Organizing this function around individual purchasers in functional structures no longer fits the requirement to contribute to a company's competitive advantage, as it limits possibilities for coordinating and aligning supplier solutions with business needs. Moreover, it may prevent companies from benefitting from economies of scale in multi business unit companies (Kakabadse & Kakabadse, 2002).

As a result, purchasing organizations in large companies have changed greatly. Purchasing organizations had to become more flexible to allow for cross-functional and cross-business unit collaboration and communication in order to capture corporate synergies (Trent & Monczka, 1998). Against this background, companies have started to install sourcing teams for categories of products and services which require a cross-functional and cross-business unit approach (Johnson, Robert, Michiel & Fearon, 2002; Zheng, Knight, Harland, Humby & James, 2007). Sourcing teams are thought of as an effective organizational mechanism to achieve superior purchasing performance (Giunipero & Vogt, 1997; Hardt, Reinecke & Spiller, 2007; Van Weele & Rozemeijer, 1996). Teams foster improved communication, awareness and integration of the purchasing function with other functional and divisional groups in the firm and a more strategic orientation (Gelderman & Van Weele, 2005).

1.2.2 A typology of sourcing teams

Purchasing organizations thus have increasingly adopted a team approach. Teams can be defined as "collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task

interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity" (Kozlowski & Bell, 2003, p. 334).

Sourcing teams, also referred to as category or commodity teams, are assigned the task of finding, selecting, and managing suppliers for a category of products or services across businesses, functions and disciplines. Sourcing teams have a boundary-spanning role, and have to deal with a wide range of internal and external stakeholders. Previous research showed that sourcing teams typically have a cross-functional composition, and span multiple business units (Johnson et al., 2002). With these various backgrounds, the status of team members may differ. Since sourcing team members in multinational companies may represent different geographically dispersed units, or different functional departments which are based in different offices, a (partly) virtual structure is common (Van Weele, 2010). Oftentimes, sourcing team members are assigned to the team on a part-time basis (Trent, 1998; Trent & Monczka, 2003a; Trent & Monczka, 1994). Beside their assignment to a particular sourcing team, members may belong to a specific functional department, may participate in other sourcing teams and/or may have (operational) purchasing responsibilities in a certain business unit.

Over the course of our research in over 20 multinational companies, we have observed different types of sourcing teams that share the features described above. Team structures in a purchasing context can be distinguished on two dimensions. The first dimension refers to whether teams have a permanent character, or whether they have been established for a single project. The second dimension distinguishes mono-functional teams, staffed by purchasing professionals only, from cross-functional teams, staffed by professionals from two or, typically, more functional backgrounds. Figure 1.1 graphically depicts four types of sourcing teams.

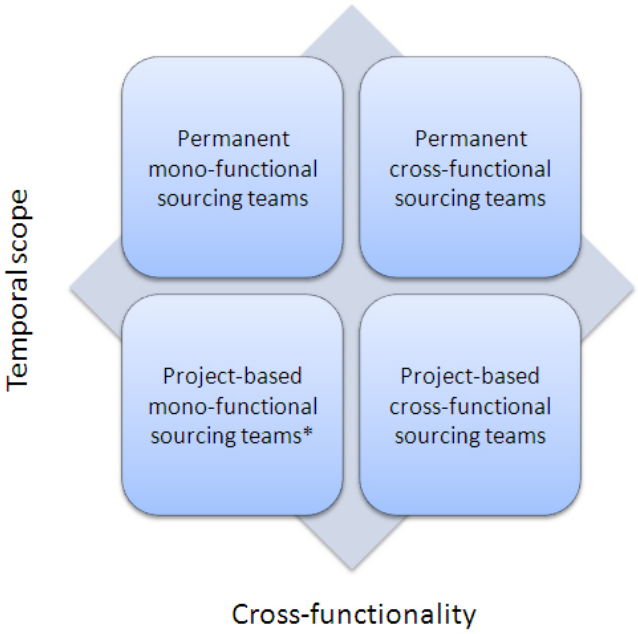


Figure 1.1: Typology of sourcing teams (* = not studied in this dissertation)

Permanent mono-functional teams are formed by purchasing professionals who have an ongoing responsibility for managing a certain spend category. Typically, but not necessarily, team members represent multiple divisions or business units. Permanent sourcing teams stay intact, as they move from one sourcing project to another, while also monitoring ongoing internal and external developments within their spend category. Purchasing team members may be allocated fulltime to the team. More often, however, they participate in multiple sourcing teams, or have other purchasing responsibilities in their home division, making them part-time team members.

Permanent cross-functional sourcing teams share these characteristics, but also involve other business functions (e.g. R&D, marketing, finance, etc., depending on the category) besides purchasing. Non-purchasing team members participate on a part-time basis in sourcing teams, as they are still part of the respective functional department they represent.

Contrary to permanent teams, project-based sourcing teams are installed for executing a particular project, after which the team dissolves again. In our extensive collaborations with the field, we have not come across any project-based

mono-functional sourcing teams. Possibly, when launched at all, such teams are rather ephemeral. Project-based cross-functional sourcing teams are much more common. Such teams share the characteristics of permanent cross-functional sourcing teams, but dissolve after their specific project is finished. Project-based cross-functional sourcing teams may be installed for large outsourcing projects and when buying complex goods and services (e.g. investments goods). Project-based cross-functional teams also frequently surface in combination with permanent mono-functional sourcing teams. Mono-functional teams often need to team up with other functions for completing their tasks successfully, or, alternatively, are involved by other functions that have taken on sourcing activities themselves. Members of permanent mono-functional sourcing teams then engage in cross-functional collaborations on a project-to-project basis. Observations from practice learn that in this context, project-based cross-functional sourcing teams sometimes lack a formal team status, and therefore formally don't exist. According to our definition of teams, however, these teams should be identified (and managed) as teams.

1.3 Half a century of team research in a nutshell

1.3.1 Towards team participation in organizations

The increased use of team structures in purchasing and supply management follows upon a general move towards the application of teams in companies. Over the last 40 years, the adoption of team structures for accomplishing work in organizations has increased rapidly (Salas, Goodwin & Burke, 2009). Almost all surveys of Fortune 1000 companies indicate that they will be placing more emphasis on teams and teamwork in the future (Cohen & Bailey, 1997). A team-based approach is expected to produce superior results on virtually every measure. The move towards the utilization of team structures is also driven by the continuing advances in information technology, the increasing importance of the "knowledge economy," and the growing movement toward "worker empowerment" in general.

This trend towards team structures in organizations is reflected in academic literature. The field of team research is rich and extensive. Systematic study of team phenomena began in the 1900s. The field, however, really started to

blossom in the social psychological literature of the 1940s, 1950s, and 1960s. Within social psychology, research attention declined in the late 1960s and 1970s, but research on teams continued in related fields such as organizational behavior (McGrath, Arrow & Berdahl, 2000).

The 1980s and 1990s have witnessed a resurgence in research on teams in social psychology. However, this stream of research mainly focused on individual cognition about teams or about attitudes ascribed to teams. The focus in this stream of research is more on the individual in the team, drawing attention away from the team itself. Moreover, this type of research predominantly features experimental studies, which have a limited validity for actual teams operating in the context of their organizations (McGrath et al., 2000). However, work on actual team processes of real teams operating in actual organizational contexts has appeared increasingly in organizational psychology and managerial journals. The field of team research has witnessed significant progress in these fields over the past years.

This dissertation builds on the main advancements in team research from the organizational behavior, operations and management literatures over recent decades. This period of team research has largely been dominated by input-process-output (IPO) models. However, critiques to this model have suggested alternatives that have received considerable research attention more recently. We discuss the background of the IPO model and these recent developments in the next sections.

1.3.2 The input-process-output (IPO) model

The IPO framework served as the backbone for decades of team research (see Figure 1.2). This model was initially advanced by McGrath (1964). The IPO theory postulates that input factors function through mediators or moderators to influence outputs. Inputs include individual team member characteristics (e.g., competencies, personalities), team-level factors (e.g., task structure, leader influences), and organizational and contextual factors (e.g., organizational design features, environmental complexity). These so-called antecedents drive team processes, which describe members' interactions directed toward task accomplishment. The processes in the framework describe how team inputs are transformed into outcomes. Outcomes are results of team activity that are valued

by one or more stakeholders. Broadly speaking, these include 1) performance, and 2) members' affective reactions. For example, the influential and frequently cited outcome measure developed by Kirkman and Rosen (1999) includes productivity, proactivity and customer services as performance outcomes, and job satisfaction, organizational commitment and team commitment as attitudinal outcomes. In conclusion, IPO models describe through which processes input factors impact various outcomes.

Many of the most influential and well-known team effectiveness models follow this IPO format (e.g. Gladstein, 1984; Hackman, 1987). Campion and colleagues (Campion, Medsker & Higgs, 1993) reviewed the wide range of literature on team effectiveness to present a metamodel, in which they categorized input variables into job design, interdependence, composition and context. Job design includes self-management, participation, task variety, task significance and task identity. Theory of motivational job design explains the positive effect of these inputs on processes and outcomes. Interdependence includes task interdependence, goal interdependence, and interdependent feedback and rewards. The composition theme is based on its prevalence in many team effectiveness studies, and includes heterogeneity, flexibility, relative size and preference for group work. Finally, training, managerial support and communication and cooperation between groups are included in the group of context factors.

The IPO model has served as a valuable guide for researchers over the years. Increasingly, however, there has been controversy surrounding the appropriateness of the IPO model in representing team effectiveness (Ilgen, Hollenbeck, Johnson & Jundt, 2005). The emerging consensus in team research is that teams should not be considered as static, isolated entities, as implied by the IPO model, but rather as complex, dynamic and adaptive systems.

Figure 1.2: Input-process-output (IPO) model

1.3.3 Critiques on the input-process-output model

The IPO model has been criticized in three specific ways for misconstruing the contextual, complex and dynamic nature of teams. First, many of the mediational factors that transfer inputs into outputs are not real processes (Ilgen et al., 2005). Many of the constructs presented by researchers as the processes in an IPO model are actually "emergent cognitive or affective states", such as potency, psychological safety and collective affect, which describe states that are affected by processes and in turn affect processes (Marks, Mathieu & Zaccaro, 2001). Ilgen et al. (2005) therefore proposed to replace the "P" for "processes" in the IPO model with an "M" for "mediator", in order to acknowledge the variety of mediational factors.

Second, numerous authors have emphasized that time plays a critical role in team functioning (Marks et al., 2001; Mathieu, Maynard, Rapp & Gibson, 2008). This temporal dynamic is not adequately represented in the IPO framework, which lacks feedback loops. The IPO framework limits research by implying a single cycle linear path from inputs to outcomes. In reality, however, traditional outputs such as team performance are inputs in a new cycle of team performance, and processes typically follow upon each other iteratively as the team members interact over time.

Third, the traditional IPO framework only covers team processes that evolve within the team. However, teams must increasingly coordinate and manage key relationships external to the team for achieving both team and organizational success (Marrone, 2010). IPO-based research has provided very limited insight into the processes that evolve beyond the team's boundaries, but that do affect team performance (McGrath, 1997).

In response to these limitations, three lines of inquiry have developed in literature. First, researchers have attempted to explicitly describe the factors which mediate the relationships between inputs and outputs, proposing a number of typologies and taxonomies of teamwork processes (Marks et al., 2001). A second stream of research addresses the temporal elements in team performance. Finally, a smaller stream of research has developed around external team behavior, investigating the effects of interactions between teams and their environment on team performance. In chapter 3, and particularly in chapter 4, we discuss these new research streams in more detail.

1.4 Team research in the area of purchasing and supply management

Team performance has thus been a major topic in academic research for a long time. Previous research in this field focused on many functional teams, including manufacturing teams, new product development teams, service teams and decision making teams (e.g. Alge, Wiethoff & Klein, 2003; De Jong, De Ruyter & Lemmink, 2004; Holland, Gaston & Gomes, 2000; Pinto, Pinto & Prescott, 1993). These studies have shown that studying different types of teams leads to different results. Sourcing teams can be defined by a typical set of task- and context characteristics (e.g., their boundary spanning role, cross-functional compositions, part-time memberships etc., as described in section 1.2.1), and practice indicates that these teams run into specific obstacles that influence success. One aspect of sourcing teams is that their work typically covers multiple business units. The cross-business unit characteristics of sourcing teams are far more general (e.g., design teams, facilities teams), but have been little studied. While it is acknowledged that the creation of successful sourcing teams is difficult, only a few empirical research projects have these teams as the prime subject of study.

When the team approach emerged in purchasing (Ellram & Pearson, 1993), Trent and Monczka (1994) explored a range of success factors for two dimensions of effectiveness of the then new phenomenon of sourcing teams. Subsequent research was mostly qualitative, focusing on specific aspects like leadership (Trent, 1996), team member effort (Trent, 1998), barriers for introducing teams (Murphy & Heberling, 1996) and the state of team empowerment at the time (Giunipero & Vogt, 1997). Johnson and colleagues quantitatively affirmed that the use of sourcing teams increased with purchasing's strategic role in companies (Johnson et al., 2002). Moreover, these researchers found that sourcing team structures are positively related to the use of e-business technologies (Johnson, Robert, Michiel & Amrou, 2007). Most recently, Englyst and colleagues described the functioning of sourcing teams in one company in an exploratory case study (Englyst, Jorgensen, Johansen & Mikkelsen, 2008).

In conclusion, large-scale empirical research addressing sourcing team effectiveness to provide guidance for purchasing managers in today's business environment has been limited. Team research over the last two decades has barely been translated to the purchasing context. Applying the significant methodological

and theoretical advancements that have been made in the field of team research to sourcing teams is an obvious opportunity to support purchasing managers in adopting the most effective managerial approach. Also, sourcing teams form an excellent subject of study to contribute to the field of team research, since they highlight some particular challenges which may be shared by other teams. Sourcing team's boundary spanning nature, dependence on effective cross-functional and cross-business collaboration, and complex team arrangements make these teams exemplar for modern-day organizational teams (Mathieu et al., 2008). Rigorous research on sourcing teams is thus not only necessary for investigating the particular management implications for effective supply management, but also provides an excellent opportunity for further exploring and developing team performance theory.

1.5 Research objectives and outline

At the very beginning of our study, we organized for a roundtable meeting with ten purchasing executives from different multinational companies. This encounter taught us that leading sourcing teams to success often appeared to be more difficult in practice than expected. This observation seems to be supported by CAPS Research[1] studies. In these studies, cross-functional teaming is repeatedly emphasized to be a key capability (Duffy, 2006; Giunipero & Carter, 2009; Monczka & Petersen, 2008). Various authors predict that significant improvements in the future will be driven by cross-locational and cross-functional teaming (Arnold, Cox, Debruyne, De Rijcke, Hendrick, Iyongun et al., 1999; Monczka, Trent & Petersen, 2006). However, the actual increase in team usage appears to be smaller than the expected rapid growth (Johnson & Leenders, 2004). An explanation raised by the CAPS authors is that companies may find teams to be ineffective, expensive, and difficult to organize and manage (Johnson & Leenders, 2004).

From the review of the literature discussed above we learn that sourcing teams are a popular form for organizing the purchasing function, but there appears to be a need for deeper insight into what constitutes effective sourcing team management. At the same time, we observed that rigorous empirical research

[1] CAPS Research (originally called the *Center for Advanced Purchasing Studies*), is a global research center for strategic supply management.

which provides meaningful insights for managers of sourcing teams in today's organizations is scarce. The central research question of this dissertation is:

How to improve sourcing team success?

In this dissertation, we thus focus on the performance of sourcing teams. As discussed previously, companies have widely adopted team structures for managing large and complex spend categories which require a cross-functional and cross-business approach. This dissertation does not compare the effectiveness of these team structures with traditional supply management organized around individuals, but intends to uncover the reasons why some sourcing teams in practice clearly perform better than others. Since effective strategic sourcing can engender sustainable competitive advantage and enhance firm performance (Chen, Paulraj & Lado, 2004), insight into the antecedents of sourcing team success is important. We restrict the scope of this research to large companies. Sourcing teams are installed for categories of products and services in which a company's spend is significant, justifying the involvement of multiple employees. As a result, team structures are primarily adopted in large corporations. Also, our interest lies in sourcing teams whose activities span clear divisional and functional borders, a context which is only provided by larger firms.

We address our research question in three empirical studies, which are reported in chapters 2-4 of this dissertation. Figure 1.3 provides an overview of this dissertation, including each sub-study's subject, underlying theoretical framework, research methodology and sample size. In the paragraphs below we will discuss the objective of each chapter in more detail

The first study's objective is *to identify the critical success factors for sourcing teams*. This study determines different dimensions of sourcing team effectiveness and investigates by what management practices these distinctive dimensions can be enhanced. This research builds on validated team performance theories and methodologies. The IPO model serves as the underlying framework for stating hypotheses, which subsequently are tested by means of a cross-sectional survey study, covering 59 sourcing teams –both "permanent" and "project-based", and virtually all cross-functional– in twelve multinational companies. Two remarkable findings of this study give rise to the second and third study of this dissertation. First, managers and team members appear to have different perceptions about the effectiveness of functional diversity in teams –a topic we further address in the

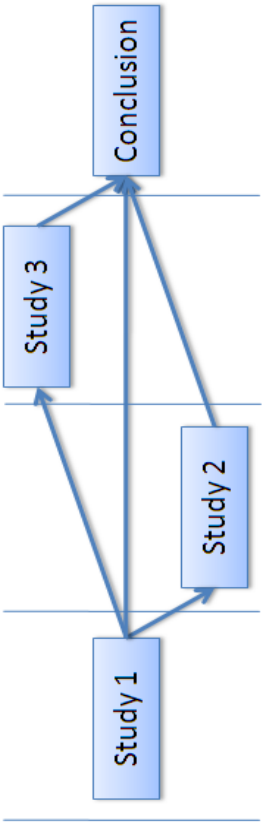
second study. Second, the quality of collaboration between sourcing teams and internal stakeholders appears to be a key factor in explaining sourcing team effectiveness. Since previous research interest for these 'external processes' is limited (see section 1.2.3), we explore this phenomenon in more detail in the third study.

The second study thus focuses on functional diversity in teams. More particularly, the objective of this study is *to investigate how team processes and performance affect perceptions of functional diversity appropriateness*, i.e., whether team members and managers believe that the right functions are represented. Its underlying theoretical framework is the IMOI (Input-Mediation-Output-Input) model, in which we focus on the effects of outputs (in this case: team performance) on the inputs for the next performance cycle (in this case: perceptions of functional diversity appropriateness, which form the basis for team motivation and management interventions). Although the IMOI model has rapidly gained attention among scholars, our study is among the first to apply this model in empirical research. Again, the study adopts a cross-sectional survey approach, conducted among 48 sourcing teams from eleven multinational companies. The teams under study all are of a permanent nature, and are either mono- or cross-functional.

The final study goes beyond existing team performance frameworks. This study aims *to integrate both teams' internal and external processes over time into one model*. This study introduces the concept of *team embeddedness*, that is, the extent to which team members have effective interactions with stakeholders outside the team, and results in the proposed Dynamic Embeddedness Model. Six case studies, taken from the sourcing practices of three multinational companies, serve to propose and explore the Dynamic Embeddedness Model. This study covers both permanent and project teams, and mono-functional and cross-functional teams.

The contribution to theory of the studies is cumulative. The approach in the first study builds on existing theory, but is new to the field of purchasing and supply management in multinational companies. The scope of the second study goes beyond sourcing teams alone, as it substantiates contemporary team performance theory. Finally, the third study contributes to team literature by proposing an entirely new model for team research in organizations.

In total, over 100 teams from 20 organizations are analyzed in these studies. In the final chapter, we synthesize all findings from these studies. In accordance with the overall objective of this dissertation, the concluding chapter



	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Subject	Success factors for distinctive dimensions of effectiveness	Perceptions among managers and team members of functional diversity appropriateness	Dynamic nature of teams and team embeddedness	Overall implications for effective sourcing team management
Theoretical framework	IPO framework	IMOI framework	Dynamic Embeddedness framework	Integral perspective
Methodology	Survey	Survey	Conceptual and case studies	-
Sample size	59 teams	48 teams	6 teams	-

provides an overview of the theoretical and managerial implications, supporting managers in getting the best results from sourcing teams.

Figure 1.3: Overview of the remaining chapters in this dissertation

1.6 Conclusion

In this introductory chapter, we reflected on the increasing popularity of team structures in purchasing and supply management. In a typology of sourcing

teams we mapped different sourcing team structures. Furthermore, we reviewed the team performance literature and evaluated the extent to which contemporary sourcing teams have been subject to rigorous studies applying the latest insights from the team literature. We concluded that existing studies provide limited guidance to today's managers of sourcing teams. Moreover, we identified sourcing teams as exemplar for rather complex team arrangements (e.g., part-time and temporary memberships, functional and geographical diversity, etc.), which are becoming more common and require different managerial interventions than more traditional (e.g., stable, mono-functional) teams. Hence, research on sourcing teams is necessary to provide managers with insights into what drives sourcing team success and how their effectiveness can be enhanced. Moreover, research on sourcing teams represents an opportunity to contribute to the team literature.

The central research question was formulated as: How to improve sourcing team success? Three empirical studies in this dissertation address this overall question, and serve different objectives. The first study aims to identify the critical success factors for sourcing teams. The second study's objective is to investigate how team processes and performance affect perceptions of functional diversity appropriateness. Finally, the third study's objective is to integrate both teams' internal and external processes over time into one model. The first two studies build on data from two cross-sectional surveys. The third study is a qualitative multiple case study. These three empirical studies are discussed in chapters 2-4. Finally, we address the overall research question in the concluding chapter, chapter 5. This final chapter presents the main conclusions from this dissertation and constructs a final set of practical implications. Theoretical implications and limitations are specified, and a number of avenues for further research are described. But first, we start in the next chapter by exploring the rich body of team research in order to identify success factors for sourcing teams.

Chapter 2

Success factors for effective sourcing teams:

Getting better results from category sourcing[2]

Chapter 1 concluded that sourcing teams are a form of organization to enhance purchasing's value-added contribution to a company's competitive advantage. In practice, however, many teams fail to meet management's long-term expectations. Sourcing teams have rarely been the prime subject of study to identify and understand the success factors that drive team performance in a purchasing context. In this second chapter, we present the results of a large-scale survey study. We use data from 275 sourcing team members, leaders and managers of 59 teams in twelve multinational companies to identify criteria for sourcing team success in today's business context. This chapter identifies a new dimension of sourcing team effectiveness –the ability to effectively cooperate with other stakeholders within the firm– and provides insights in how performance on three dimensions of sourcing team effectiveness can be improved by management. Overall, results point to team internal authority as the most important success factor.

[2] This research was conducted in collaboration with Josette Gevers and Arjan van Weele. This study was presented at the 2009 IPSERA Conference (Wiesbaden, Germany). The data presented in this chapter also formed the basis for the publication Driedonks, B.A., Gevers, J.M.P. & Van Weele, A.J., 2010. Managing sourcing team effectiveness: The need for a team perspective in purchasing organizations. Journal of Purchasing and Supply Management 16 (2), 109-117. An adapted version of this chapter is under review for publication.

2.1 Introduction

Strategic purchasing is at the forefront of contemporary company practice. The purchasing profession now has a strategic role in the firm (Carr & Pearson, 2002). Strategic purchasing, or sourcing, is part of the purchasing function that aims at selecting and managing the external suppliers in line with the strategic objectives and goals of the firm (Van Weele, 2010). There is some evidence which shows that a separate purchasing function is no longer appropriate in today's business context, but that alignment with other functions is critical (Brown & Cousins, 2004). Moreover, multidivisional corporations must achieve purchasing synergy among their subsidiaries, global efficiency and national responsiveness at the same time (Trautmann, Bals & Hartmann, 2009). Sourcing thus requires effective management of both external suppliers and internal stakeholders, and occurs as a cross-functional, boundary-spanning activity (Handfield, Petersen, Cousins & Lawson, 2009). Flexibility, and horizontal, and cross-functional communication must increase, while lead times must decrease, to ensure purchasing's value-added contribution to business success (Trent & Monczka, 1998). While taking advantage of emerging technologies for collaboration, knowledge-sharing and communication, new organizational structures are emerging to meet these new objectives.

Multinational firms adopt cross-functional, cross-business team structures to deploy their sourcing strategies, to manage their suppliers, and to harmonize their supply operations. Team-based organizational structures replace traditional functional departments (Ellram & Pearson, 1993; Giunipero & Vogt, 1997; Johnson et al., 2002; Monczka et al., 2006; Trent & Monczka, 1998; Trent & Monczka, 1994), a trend that is forecasted to continue (Zheng et al., 2007).

Scholars emphasize the role of team structures to align the interests of all internal stakeholders within a company with respect to sourcing and to deal with potential conflicts of interest among the stakeholders involved (Hardt et al., 2007). Team structure allows for more flexibility and improves horizontal- and cross-functional communication for complex purchasing decision-making. Such decision-making should result in better purchasing performance in terms of cost, quality, and innovation, and ultimately improve a company's financial results (Carr & Pearson, 2002).

The use of team structures in purchasing organizations seems to enhance performance outcomes. However, there is no guarantee to success. Companies that

implement sourcing teams face the risk that, within months after start-up, teams' ambition levels decrease as motivation and cohesiveness among team members flag. Furthermore, some teams seem to lack a mandate, which delays projects significantly when the teams try to close a contract (Englyst et al., 2008).

Effective management of sourcing teams is a key lever for increasing the purchasing function's contribution to company profitability. Although quite some research has been devoted to buyer-supplier relationships (Lahiri & Kedia, 2009; Trautmann et al., 2009), the internal organization of the purchasing function has achieved far less attention (Trent & Monczka, 2003b). Prescriptive literature in the area of sourcing team management is rarely supported by empirical evidence. Of course, team effectiveness has been studied extensively in other settings, such as in manufacturing, new product development, and service organizations. Yet these studies provide limited guidance for sourcing team management, since their contexts and performance requirements differ from those of sourcing teams. A combination of part-time team member allocations and cross-functional and cross-business unit team compositions characterizes the context of sourcing teams, whereas the teams referred to above often reside in one business unit, or have fulltime dedicated members (Trent, 1998). As boundary spanners, sourcing team members must align external offerings with internal stakeholder demands. Sourcing teams often deal with conflicting interests of different stakeholders, who may perceive the purchasing function to be of limited strategic importance (Carr & Pearson, 2002). At the same time, sourcing teams depend on others external to the team, since operational buying activities typically occur elsewhere in the organization (Karjalainen, Kemppainen & van Raaij, 2009). Prior research has not explored how this particular context and these performance requirements affect different antecedents of team effectiveness. Empirical research could identify success factors underlying sourcing team effectiveness, and provide insight into the mechanisms that drive sourcing team effectiveness in practice.

This chapter presents the results of a large-scale field survey study addressing the effectiveness of sourcing teams. The study translates implications from prior team effectiveness research in other areas into purchasing settings. This chapter aims to identify critical success factors for sourcing teams and to provide insight into the relationships between these factors, team processes, and specific dimensions of sourcing team performance. Recognizing multiple dimensions of sourcing team success opens the possibility that different success factors may drive different team outcomes (Scott-Young & Samson, 2008; Senior & Swailes, 2007).

This study carries practical relevance for those companies that have initiated sourcing teams with high expectations, only to face challenges in implementation.

The chapter proceeds as follows. The next section describes a conceptual framework and reviews literature for factors of potentially high impact on sourcing team effectiveness. Section three tests this framework empirically, section four presents the results, and section five discusses the findings. Finally, section 6 addresses the limitations of this study and raises additional questions for future research.

2.2 Hypothesis development

Sourcing teams are created when a certain product category represents both significant annual expenses for a company and large cost savings potential. Sourcing teams' assignments include finding, selecting, contracting, and managing one or more suppliers for the category on a global scale (Johnson et al., 2002). Such teams are responsible for the strategic part of the purchasing process, commonly referred to as sourcing (Samli, Browning & Busbia, 1998). However, a sourcing team typically does not execute operational purchasing activities, which occur instead in decentralized units (Trent & Monczka, 2003a). Thus, to complete the sourcing team's task, others external to the team must comply with a sourcing team's recommendations by implementing agreements reached by the team, and by placing orders against previously arranged contracts at selected suppliers.

Team performance requirements typically exist in terms of cost savings, but other objectives may include improved supplier relationship management, supply base responsiveness and access to suppliers' knowledge and expertise.

Sourcing teams typically assemble representatives of internal stakeholder groups, so members may come from different functional departments, or may represent a decentralized purchasing unit (Johnson et al., 2002; Trent & Monczka, 1998). Furthermore, sourcing team members typically have part-time assignments to the team, either because they retain their regular responsibilities in their home departments, or because they work on multiple sourcing projects simultaneously (Englyst et al., 2008; Trent, 1998). Since purchasing professionals involved in a multinational's global sourcing activities may work all over the world, virtual team structures have become a regular phenomenon (Van Weele, 2010).

These characteristics of sourcing teams suggested the outlines of an explanatory framework for sourcing team effectiveness. Our model draws on Hackman's (1987) input-process-output (IPO) model of group effectiveness and employs a three stage process in which input factors affect the team processes that evolve over time and impact team outcomes (see Figure 2.1) . In line with Cohen and Baily's (1997) heuristic model, the framework also allows for direct relationships between input- and output factors (Campion, Papper & Medsker, 1996; Cohen, Ledford & Spreitzer, 1996).

We conducted an extensive, cross-disciplinary literature review, including research on other types of teams, which identified a number of potential success factors for sourcing teams. The selected input factors appear as (a) "employee involvement context", which includes factors that aim to enable and support a sense of ownership and control by team members, (e.g., rewards and authority); (b) "organizational context", involving factors that provide teams with guidance regarding task execution (e.g., team leadership and formalization); and (c) "team composition", referring to the team's staff (e.g., functional diversity). The effects of these input factors on sourcing team effectiveness are mediated by (d) "team processes" (effort and communication). The framework is presented in Figure 2.1. The framework draws on leading articles contributing to team performance theories. The next sections explain all hypothesized relationships that follow from this framework on the basis of extant literature.

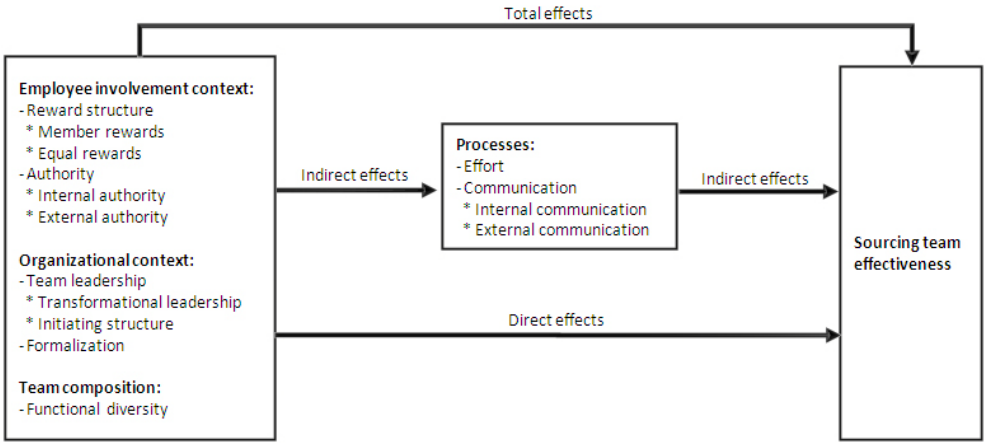


Figure 2.1: Conceptual framework for sourcing team effectiveness

2.2.1 Sourcing team effectiveness

This study distinguishes between two dimensions of sourcing team effectiveness. The first dimension, general overall team effectiveness, adapts measures widely used in team performance studies. This dimension covers general elements of team effectiveness, like quality and quantity of work, efficiency, planning, and overall performance (Barrick, Stewart, Neubert & Mount, 1998; Campion et al., 1996; Cohen & Bailey, 1997; Cohen et al., 1996). In order to also cover more specific strategic sourcing task elements, a second dimension, supply base management effectiveness, covers aspects such as improved quality of purchased items, improved supply base responsiveness, relationship management, and support for innovation (Trent & Monczka, 1994).

2.2.2 Employee involvement context

A correct team approach enables, allows, and permits a group of employees to execute a certain task (Giunipero & Vogt, 1997). Employee involvement context factors represent empowerment and appreciation. "Reward structure" and "authority" may contribute to a sourcing team's sense of ownership and control (Murphy & Heberling, 1996; Trent, 1998; Trent & Monczka, 1994). Motivation and systems theories suggest positive relationships with sourcing team effectiveness: the more of each element the sourcing team enjoys, the more employees will feel ownership and responsibility for their work, motivating them to outperform. Systems theories emphasize the importance of the internal congruence of these organizational design elements (Cohen et al., 1996).

Sourcing team members typically work in a matrix structure, and their part-time allocation to their teams creates a challenge for management to get the reward structure right and to involve non-purchasing members in the team. Two elements comprise the framework's reward structure: (1) who is rewarded, and (2) the basis of the rewards. First of all, the reward structures of all members should include the team's work (Robbins & Finley, 1995). If not, team members will prioritize their individual tasks instead, since these will have a more direct effect on their performance evaluation and reward. In this study, "Member rewards" refers to the factor representing whether or not all team members receive rewards and recognition for contributions made to the team. Second, these rewards can be based either on individual performance within the team, or on collective team

performance. Giunipero and Vogt (1997) find that firms do not adapt reward structures sufficiently to sourcing team structures: although *collective* team performance is the desired outcome, *individual* performance is rewarded. Such a situation may foster competition rather than collaboration among team members.

Hypothesis 1. Member rewards positively affect sourcing team effectiveness.
Hypothesis 2. Team-based rewards positively affect sourcing team effectiveness.

Receiving appropriate authority (Kirkman & Rosen, 2000) increases team effort and effectiveness in general, and for cross-functional teams in particular (Holland et al., 2000). We distinguish here between internal- and external authority. A team's internal authority refers to its ability to control internal team processes and activities; greater internal authority improves the flexibility of teams, and allows teams to deal with complex end-user demands and resource issues more effectively (De Jong et al., 2004). A team's external authority is its ability to make sourcing decisions without the approval of others external to the team. The team cannot deliver high quality results without a proper level of external authority. In the early nineties, researchers reported insufficient internal- and external authority as barriers to sourcing team success (Trent & Monczka, 1994).

Hypothesis 3. Internal authority positively affects sourcing team effectiveness.
Hypothesis 4. External authority positively affects sourcing team effectiveness.

2.2.3 Organizational context

Consensus identifies the organizational context factors "leadership style" and "formalization" as having a particularly high impact on sourcing teams by providing guidance in executing their tasks. Empirical evidence is lacking, however. The team leader's role in sourcing team effectiveness is critical (Harvey & Richey, 2001; Trent, 1996). Keller (2006) studies the impact of the two leadership styles "transformational leadership" and "initiating structure" on team performance. The characteristics of transformational leadership include charisma, an eye for individual team member needs and interests, and intellectual stimulation. Initiating structure, on the other hand, relates to how a leader defines, directs, and structures the roles and activities of subordinates toward the

attainment of a team's goals. Initiating structure as a leadership style resembles transactional leadership, in which the focus lies on control, standardization, formalization, and efficiency (Bass, 1985). Keller suggests that transformational leadership is more effective when knowledge from outside the team is required; initiating structure is more effective when the required information largely resides within the team.

Both transformational leadership and initiating structure may enhance sourcing team success. The transformational leadership style allows for effective communication among team members, with internal stakeholders, and with suppliers (Farris & Cordero, 2002; Jassawalla & Sashittal, 2000; Lowe, Kroeck & Sivasubramaniam, 1996; Miles & Mangold, 2002). Conducting high quality analyses by sourcing teams requires structured roles and activities, and a leader who initiates structure well. Creating trust, cohesion, and a clear vision in sourcing teams requires both types of leadership style (Kayworth & Leidner, 2001).

Hypothesis 5. Transformational leadership positively affects sourcing team effectiveness.
Hypothesis 6. Initiating structure positively affects sourcing team effectiveness.

Formalization refers to the emphasis a firm places on following rules and procedures in performing a team's task. Formalization relates positively to the effectiveness of cross-functional teams (Pinto et al., 1993), virtual teams (Workman, 2005), and boundary-spanning service teams (De Jong, De Ruyter, Streukens & Ouwersloot, 2001). Clear and fair rules and procedures can create internal support for team outcomes (Andrews, 1995; Chan & Mauborgne, 2003). This support is critical for sourcing team success, since sourcing teams typically rely on others in the organization to implement contracts and achieve compliance.

Hypothesis 7. Formalization positively affects sourcing team effectiveness.

2.2.4 Team composition

Purchasing's increasing strategic importance requires integration with other functions (Van Weele & Rozemeijer, 1996). Teams' ability to combine knowledge and skills from people with different functional backgrounds is an important driver for moving from a functional approach in purchasing to a cross-

functional team approach. But cross-functionality can also create team stress, thereby damaging cohesiveness (Keller, 2001). Nevertheless, given their tasks, sourcing teams need knowledge from diverse functional backgrounds to perform effectively, which favors cross-functional team composition (Hensley, Irani & Satpathy, 2003; Monczka et al., 2006).

Functional diversity in a team enhances communication across functional boundaries, increases the availability and number of sources of information, and should, therefore, result in higher team effectiveness.

Hypothesis 8. Functional diversity positively affects sourcing team effectiveness.

2.2.5 Processes

These factors under discussion may impact sourcing team effectiveness through several mechanisms. Effort, internal communication, and external communication seem particularly important. Trent (1998) argues that encouraging team members' effort is one of the most important issues that sourcing teams face as a result of part-time member allocations. Team members often represent different stakeholder interests, and those interests might not necessarily be in line with a sourcing team's objectives, as, for instance, when decentralized (national) units perceive compatibility of their interests with centrally organized sourcing team initiatives to be low, and do not want to give up direct control over spending (Riketta & Nienaber, 2007). Motivational theory suggests that reward structure and authority predict the level of effort brought to a team's task, and thus team effectiveness (Cohen & Bailey, 1997; Hoegl & Gemuenden, 2001). Fair member rewards and adequate authority, both internal and external to the team, likely increase levels of effort.

Hypothesis 9. Team member effort mediates the effects of member rewards, team-based rewards, internal authority, and external authority on sourcing team effectiveness.

Communication is another potential mediator in the relationship between team input factors and outcomes (Cohen & Bailey, 1997; Hoegl & Gemuenden, 2001). As sourcing is a boundary spanning, cross-functional activity, sourcing teams need to communicate extensively with internal stakeholders outside the

team and with suppliers. Effective communication enhances gathering relevant information and knowledge, sharing information and knowledge within the team, and follow up activities after team decisions. Communication, therefore, seems especially import for sourcing team success.

Internal authority implies that the team coordinates all tasks and activities autonomously, requiring effective communication among team members. Transformational leadership is also likely to enhance internal communication. A transformational leader is more communicative in general, but also stimulates members to actively participate in decision making and to discuss issues within the team (Lowe et al., 1996).

Hypothesis 10. Internal communication mediates the effects of internal authority and transformational leadership on sourcing team effectiveness.

The open and inviting style of the transformational leadership also likely enhances external communication (Howell & Shea, 2006). Also, team functional diversity likely increases external communication, since it provides the team with ties to more stakeholder groups (Choi, 2002).

Hypothesis 11. External communication mediates the effects of transformational leadership and functional diversity on sourcing team effectiveness.

2.3 Methods

2.3.1 Sample and procedure

Sourcing team members, leaders, and managers in twelve large West-European multinational companies took part in a cross-sectional survey to empirically test the conceptual framework in Figure 1. Participants were 392 individuals from 64 teams at companies from different industries. Each respondent received a personalized invitation through e-mail that gave access to an online questionnaire. In case of no response, or an incomplete response, the respondent received two reminders. Assured anonymity of respondents and non-disclosure of team scores contributed to a "high" (Baruch, 1999; Cook, Heath & Thompson, 2000) overall response rate of 70.2 %. Eventually, 193 team members, 38 team

leaders and 44 managers, referring to 59 teams, completed a total of 275 questionnaires (see Table 2.1). The average number of completed questionnaires per team was 4.7. Management ratings of team effectiveness referred to 32 of these 59 teams. We discussed the study extensively in a roundtable meeting with purchasing executives from the participating companies to improve interpretation of results in consultation with experts from the field.

Group	Respondents contacted	Respondents who filled out the questionnaire completely	Response rate
Team members	276	193	69.9%
Team leaders	52	38	73.1%
Team managers	64	44	68.8%
Total	392	275	70.2%

Table 2.1: Response rates

2.3.2 Measures

The survey developed for this research drew largely on scales validated in prior research. All scales use a 7-point Likert scale, ranging from "completely disagree" to "completely agree", except for the measure of cross-functionality, which consists of a single open-ended question.

Two items on the questionnaire verified whether all team members received rewards for their contributions to measure the member rewards factor. The metric for team-based rewards comprised a scale (4 items) developed by Sarin and Mahajan (2001). We adopted Kirkman, Tesluk and Rosen's (2004) scale (3 items) for internal authority (autonomy), while an item adopted from Trent and Monczka (1994) measured external authority. Transformational leadership and initiating structure by the leaders were assessed by Keller's (2006) measures based on Bass's (1985) Multifactor Leadership Questionnaire (MLQ) and the Leader Behavior Description Questionnaire (Stogdill, 1963). Formalization was measured by De Jong's et al. (2001) selection of two items from Ferrel and Skinner's (1988) instrument. Functional diversity was not measured on an attitudinal scale. Instead, the answer to an open-ended question in the leader questionnaire formed a formative scale to assess the absolute number of functional representations in the team.

Four items from Hoegl and Gemeunden (2001) assessed effort. Communication involved internal communication (1 item) and external communication (3 items), both taken from Keller (2001). Finally, the operationalization of sourcing team effectiveness involved items from two dimensions developed by Trent and Monczka (1994): general overall team effectiveness (9 items) and supply base management effectiveness (13 items).

These items comprised questionnaires for team members, team leaders, and managers. All questionnaires were in English, since all respondents operated in an international environment and depended on English language skills to do their work. The questionnaire for team members held all the items described above, except the item measuring cross-functionality. The questionnaire for team leaders did not include questions about leadership styles, but their questionnaire included the question about cross-functionality. The logic here was that team leaders generally have a good overview of the functional backgrounds of individual team members. The managers' questionnaire showed only the items relating to sourcing team effectiveness. Items were randomized in all questionnaires.

2.3.3 Validation and reliability

In order to test for unidimensionality, we validated the models including the employee involvement context factors and the organizational context factors by means of exploratory factor analysis using principal component analysis with Varimax rotation. Items selected for further analysis showed: (1) a factor loading above .5 on the a-priori dimension, which is generally necessary for practical significance (Hair, Black, Babin, Anderson & Tatham, 2006); and (2) no other factor loadings above .5. Items not meeting these criteria were dropped from further analysis. All items loaded on the a-priori dimensions, except for some items referring to sourcing team effectiveness and reward structures, which are discussed in the next paragraphs.

Sourcing team effectiveness was operationalized through items from two dimensions developed by Trent and Monczka (1994). However, the exploratory factor analysis showed that these items actually relate to three dimensions. The first two factors corresponded to the a-priori dimensions "general overall team effectiveness" (GOTE) and "supply base management effectiveness" (SBME).

However, the items relating to the ability to cooperate with others within the company, but outside the team, represented a third unique factor. Indeed, both literature and practitioners suggest that sourcing team success depends highly on a team's ability to cooperate effectively with people external to the team (Hoegl, Weinkauf & Gemuenden, 2004; Hult & Ferrell, 1997; Senior & Swailes, 2007). Without effective cooperation with the wider organization, a team's output may not have an effect on company performance, due to a lack of alignment with strategy, poor implementation, and low compliance levels (Senior & Swailes, 2007). Therefore, we labeled this third dimension "external cooperation effectiveness" (ECE), and included it in further analyses. Cross-loadings of items suggested that best-in-class supplier selection and cost reductions related to both general overall team effectiveness and external cooperation effectiveness.

Member rewards and team-based rewards appeared to load on the same factor, with positive and negative loadings, respectively. Although these statistical results suggested that member rewards and team-based rewards refer to the same latent factor, we maintain that these factors are conceptually distinct. Therefore, these two factors remained separate in subsequent analyses.

The results showed some Cronbach's alphas to be just below .7 (see Table 2.3). These reliability scores are acceptable since prior research successfully validated these scales (Keller, 2001; Kirkman, Rosen, Tesluk & Gibson, 2004) or, in case of external cooperation effectiveness, because of the scale's exploratory nature (Robinson, Shaver & Wrightsman, 1991).

Secondly, we conducted confirmatory factor analyses (CFA) to test for discriminant validity. All CFA models included team processes and output factors, and CFA results can be found in Table 2.2. CFA results for the employee involvement context showed a good fit (Hair et al., 2006; Hu & Bentler, 1999). Some of the indices for the organizational context model showed a moderate fit (Hair et al., 2006; Hu & Bentler, 1999; Markland, 2007). This concerned indices affected negatively by scales including a large number of items, here the scale for transformational leadership (Kenny & McCoach, 2003). However, the validation of the leadership styles measure in prior research allowed for application of the scale as originally developed.

Model	**General overall team effectiveness**	**Supply base management effectiveness**	**External cooperation effectiveness**
Employee involvement context	X^2: 284.76 df: 161 GFI: .90 AGFI: .86 RMSEA: .054 NFI: .93	X^2: 280.17 df: 181 GFI: .90 AGFI: .87 RMSEA: .046 NFI: .94	X^2: 201.19 df: 124 GFI: .92 AGFI: .88 RMSEA: .049 NFI: .93
Organizational context	X^2: 866.58 df: 362 GFI: .75 AGFI: .70 RMSEA: .091 NFI: .93	X^2: 813.07 df: 362 GFI: .76 AGFI: .71 RMSEA: .087 NFI: .93	X^2: 736.98 df: 284 GFI: .76 AGFI: .70 RMSEA: .097 NFI: .93

Note: Each tested model included all process factors. Separate models have been tested for each output factor, in line with the regression analyses. Models for the organizational context, including the leadership styles, are based on a sample excluding the team leader responses.

Table 2.2: CFA results

2.3.4 Data preparation and data analyses

The unit of analysis was the team, conforming to the study hypotheses and the operationalization of the study variables. Scales in this study referred to attributes of the team, not individuals; and management ratings also referred specifically to the team. Analysis of variance results confirmed that the variance between teams was greater than the variance within teams, justifying aggregation (Danserau & Yammarino, 2000; James, 1982). Average $r_{wg(j)}$ values, all above .5, were satisfactory, but show relatively high levels of disagreement in a substantial number of teams (James, Demaree & Wolf, 1984). The average team score on the construct served as a replacement variable in further analyses. Table 2.2 shows the correlations between all constructs.

	mean	std. dev.	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Member rewards	3.80	1.17	59	.75																
2. Equal rewards	4.73	0.94	59	-.41**	.83															
3. Internal authority	5.15	0.68	59	.13	.00	.66														
4. External authority	4.32	1.19	59	.06	-.20	.02	na													
5. Transformational leadership	4.56	0.93	58	.04	-.28*	.34**	.20	.96												
6. Initiating structure	4.72	0.82	58	-.02	-.17	.11	.12	.63**	.75											
7. Formalization	4.22	0.84	59	.05	-.30*	.09	-.22	.35**	.38**	.66										
8. Functional diversity	3.64	1.85	36	.12	-.22	.04	.29	.06	-.34*	.06	na									
9. Effort	3.96	1.02	59	.34**	-.10	.34**	.17	.32*	.17	.19	.43**	.82								
10. Internal communication	4.63	0.97	59	.04	-.13	.42**	.10	.40**	.30*	.30*	-.06	.53**	na							
11. External communication	4.51	0.78	59	.08	-.11	.30*	-.01	.40**	.16	.47**	.45**	.53**	.51**	.65						
12. GOTE	5.06	0.68	59	.20	-.11	.46**	.15	.54**	.48**	.45**	.07	.56**	.62**	.45**	.86					
13. GOTE†	4.86	1.11	32	.14	-.11	.22	.17	.22	.36*	-.04	-.36	-.02	.30	.26	.28	.86				
14. SBME	4.71	0.67	59	.10	-.21	.41**	.31*	.43**	.25	.15	.43**	.48**	.43**	.38**	.67**	.12	.88			
15. SBME†	4.99	0.95	32	.30	-.22	.05	.05	.16	.18	.12	-.21	-.13	.08	-.01	.04	.72**	-.02	.88		
16. ECE	5.23	0.61	59	.34**	-.07	.57**	-.03	.35**	.20	.32*	.22	.44**	.44**	.48**	.68**	.25	.49**	.12	.68	
17. ECE†	4.99	1.02	32	.20	-.09	.16	-.08	-.03	.25	-.00	-.51*	-.20	.18	-.02	.11	.81**	-.10	.68**	.02	.68

† Management ratings

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

(Alpha coefficients are included on the diagonal)

GOTE: General overall team effectiveness

SBME: Supply base management effectiveness

ECE: External cooperation effectiveness

Table 2.3: Means, standard deviations and correlation table

In order to test the direct and indirect effects in the model simultaneously, we applied the strategy of Preacher and Hayes (2008). This strategy is appropriate for relatively small sample sizes, and assesses the significance of the indirect effects by the non-parametric method of bootstrapping. In this study, bias-corrected bootstrapping results served to evaluate significance, with all bootstrap results for the indirect effects based on a level of confidence of 90% and 5,000 bootstrap samples. For mediation to occur, a significant total effect of the input factor on the output factor was a precondition (Mathieu & Taylor, 2006). Given the sample size of 59 teams, separate tests analyzed the effects of each input factor on the three team processes and on each dimension of effectiveness. These tests involved the ordinary least squares procedure.

2.4 Results

Table 2.4 shows an overview of the regression results; Table 2.5 offers a graphical overview of the results of the hypothesis tests.

The employee involvement context covered empowerment and appreciation. Though indirect effects via effort are significant, member rewards did not show a significant total effect on either general overall team effectiveness or supply base management effectiveness. Member rewards related significantly to external cooperation effectiveness (b = .18, $p < .01$), implying support for H_1. Team-based rewards failed to show any significant relationship with team outcomes. Hence, the findings fail to support H_2. Internal authority showed a significant total effect on all three dimensions of sourcing team effectiveness (GOTE: b = .46; SBME: b = .40; and ECE: b = .51, all $p < .01$), supporting H_3. External authority, however, only showed a significant positive effect on supply base management effectiveness (b = .18, $p < .02$), supporting H_4. Positive effects on the other two dimensions of sourcing team effectiveness were not found. No significant effects were found between employee involvement context factors and management ratings of effectiveness, which showed low correlations with team member ratings of effectiveness.

The organizational context factors refer to the guidance that teams receive. In order to test the unique effect of the leadership styles under study, the indirect and direct effects of each leadership style have been tested while controlling for the other leadership style by treating this factor as a covariate (Preacher & Hayes,

2008). Results indicated that transformational leadership had a significant positive impact on all three dimensions of team effectiveness (GOTE: b = .27, $p < .01$; SBME: b = .31, $p < .01$; and ECE: b = .23, $p < .03$), supporting H_5. Initiating structure by the leader showed a significant positive effect on management ratings of external cooperation effectiveness (b = .58, $p < .04$), implying support for H_6. Initiating structure did not correlate significantly with team member ratings of effectiveness. Formalization appeared to be positively and significantly related to general overall team effectiveness (b = .36, $p < .01$) and external cooperation effectiveness (b = .23, $p < .02$) in the perceptions of team members, implying support for H_7. No significant correlations were found between formalization and management ratings of effectiveness.

We assessed the effect of different team compositions in terms of cross-functionality as proposed in H_8. The total effect of functional diversity on supply base management effectiveness was positive and significant (b = .15, $p < .01$). However, the total effect of functional diversity on management ratings of external cooperation effectiveness was negative and significant (b = -.23, $p < .02$). We thus find mixed and unexpected results for H_8, providing matter for discussion in the next section.

Finally, results showed to what extent team processes mediate the effects of the input factors as hypothesized in H_9, H_{10}, and H_{11}. In accordance with H_9, effort mediated the effects of the input factors internal authority and transformational leadership. Moreover, effort appeared to mediate the relationship between functional diversity and supply base management effectiveness. H_9 did not receive support for the reward structure. Although member rewards significantly impacted effort, the results showed no significant total effect of member rewards on general overall team effectiveness or supply base management effectiveness, and thus mediation cannot occur.

X	Y						
Member rewards		X-effort *.30***	X-internal comm. *.03*	X-external comm. *.05*	direct effect X-Y	total effect X-Y	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	*.17*	*.30***	*.07*	.05	.12	.43
	GOTE†	*-.43*	*.40*	*.48*	.23	.16	.08
	SBME	*.21**	*.14*	*.09*	-.01	.06	.23
	SBME†	*-.29*	*.27*	*.02*	.31	.28	.02
	ECE	*.03*	*.15*	*.24**	.15*	**.18****	.33
	ECE†	*-.44*	*.53*	*-.11*	.25	.20	.10
Equal rewards		X-effort *-.11*	X-internal comm. *-.14*	X-external comm. *-.09*	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	*.20**	*.29***	*.07*	-.01	-.08	.43
	GOTE†	*-.25*	*-.06*	*.03*	-.27	-.16	.07
	SBME	*.20**	*.14*	*.09*	-.10	-.15	.25
	SBME†	*-.33*	*.22*	*.09*	-.35	-.28	-.02
	ECE	*.11*	*.12*	*.22*	.00	-.05	.25
	ECE†	*-.45*	*.50*	*-.09*	-.20	-.12	.06
Internal authority		X-effort .51**	X-internal comm. .60**	X-external comm. *.34**	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	**.18***	**.25****	*.06*	.20	**.46****	.46
	GOTE†	*-.40*	*.36*	*.40*	.29	.43	.05
	SBME	**.18***	*.09*	*.08*	.22	**.40****	.27
	SBME†	*-.24*	*.23*	*-.05*	.10	.09	-.09
	ECE	*.07*	*.04*	**.20***	.38**	**.51****	.41
	ECE†	*-.41*	*.49*	*-.20*	.30	.28	.06
External authority		X-effort *.15*	X-internal comm. *.08*	X-external comm. *-.00*	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	*.19**	*.29***	*.07*	.03	.08	.43
	GOTE†	*-.43*	*.39*	*.36*	.14	.17	.05
	SBME	*.17*	*.13*	*.13*	.14*	**.18***	.29
	SBME†	*-.27*	*.25*	*-.09*	.10	.04	-.08
	ECE	*.12*	*.12*	*.21*	-.05	-.02	.26
	ECE†	*-.39*	*.52*	*-.15*	-.01	-.06	.03

Table 2.4: Indirect, direct and total effects of input factors on effectiveness dimensions

Transfor-mational leadership		X-effort .37*	X-internal comm. .36*	X-external comm. .40**	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	**.11***	**.17***	**.20***	.09	**.27****	.52
	GOTE✝	*-.49*	*.06*	*.73*	-.10	-.09	.13
	SBME	*.09*	*.04*	*.24*	.17	**.31****	.27
	SBME✝	*-.35*	*.18*	*-.04*	.26	.07	-.07
	ECE	*.01*	*.04*	**.38****	.07	**.23***	.29
	ECE✝	*-.39*	*.25*	*.13*	.29	-.43	.09
Initiating structure		X-effort *-.06*	X-internal comm. *.09*	X-external comm. *-.13*	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	*.11*	*.17**	*.20*	.20*	.18	.52
	GOTE✝	*-.49*	*.06*	*.73*	.54	.49	.13
	SBME	*.09*	*.04*	*.24*	.00	-.03	.27
	SBME✝	*-.35*	*.18*	*-.04*	.03	.13	-.07
	ECE	*.01*	*.04*	*.38***	.02	-.03	.29
	ECE✝	*-.39*	*.25*	*.13*	.49	**.58***	.09
Formalization		X-effort .23	X-internal comm. .34*	X-external comm. *.43***	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	**.23****	**.27****	*-.06*	.24**	**.36****	.50
	GOTE✝	*-.35*	*.48*	*.35*	-.20	-.06	.05
	SBME	*.20**	*.15*	*.10*	-.02	.12	.23
	SBME✝	*-.27*	*.16*	*.05*	.18	.16	-.08
	ECE	*.12*	*.11*	*.17*	.09	**.23***	.26
	ECE✝	*-.37*	*.57*	*-.21*	-.11	-.00	.04
Functional diversity		X-effort .21**	X-internal comm. *-.03*	X-external comm. *.15***	direct effect	total effect	Adj. R2
		effort-Y	internal comm.-Y	external comm.-Y			
	GOTE	*.38***	*.31**	*.11*	-.06	.03	.52
	GOTE✝	*.24*	*-.52*	*1.73***	-.53**	-.20	.45
	SBME	**.40****	*.06*	*.05*	.06	**.15****	.47
	SBME✝	*.22*	*-.34*	*.73*	-.26	-.10	-.03
	ECE	*.28**	*.11*	*.09*	-.00	.07	.28
	ECE✝	*-.02*	*-.04*	*.52*	-.32*	**-.23***	.18

NOTE: Correlations with non-significant mediators are printed in *italic*. Significance of mediators is based on BC bootstrapping results of 5000 bootstrap samples at a 90% level of confidence and on the premise of a significant total effect. Significant indirect and total effects are printed in bold.

✝ Management rating, * Significant at a p=.05 level (two-tailed), ** Significant at a p=.01 level (two-tailed)

Table 2.4: Indirect, direct and total effects of input factors on effectiveness dimensions

Internal communication mediated the effects of internal authority, transformational leadership, and formalization. Consequently, H_{10} receives full support. Moreover, the results partially support H_{11} by showing a mediating effect of external communication for transformational leadership. The findings do not support a mediating effect on the relationship between functional diversity and team effectiveness as H_{11} predicts. Though functional diversity resulted in more external communication, a significant total effect to support mediation is lacking. Mediation by external communication occurred for internal authority and formalization.

2.5 Discussion

This study aimed to identify critical success factors for sourcing teams and to provide insight into relationships between these factors, team processes, and specific dimensions of sourcing team effectiveness. The findings indicated that sourcing team effectiveness is a three-dimensional construct, rather than the two-dimensional construct of earlier research. The ability of sourcing teams to cooperate effectively with internal stakeholders appeared to be a unique and critical dimension of sourcing team effectiveness, besides general overall team effectiveness and supply base management effectiveness.

Project success in terms of alignment with internal stakeholders is often overlooked (Bryde, 2005). The findings here suggest a need for including external cooperation effectiveness as a separate factor in future team effectiveness studies. Cross-loadings of items measuring team outcomes showed that success in selecting best-in-class suppliers and achieving cost reductions relates to both general overall team effectiveness and external cooperation effectiveness.

General team effectiveness allows the team to deliver a good solution efficiently; external cooperation effectiveness assures a certain level of influence of the purchasing function to create alignment with key business functions and divisions (Giunipero, Handfield & Eltantawy, 2006; Handfield et al., 2009). This pattern of results indicates that high performance on general overall team effectiveness and external cooperation effectiveness generally complies with the initial cost-focused objectives that companies typically set when they first install sourcing teams.

When purchasing organizations grow beyond this transactional focus, firms should introduce targets for high performance in supply base management. Strategic goals such as building strategic relationships with suppliers and supporting a company's innovativeness through the supply base encourage teams to also perform on the dimension supply base management effectiveness. As such, the three dimensions of sourcing team effectiveness serve as points of departure in crafting managerial interventions to improve performance. The following sections discuss the effects of all the input factors on these three dimensions of sourcing team effectiveness.

H	*Input factor*	**General overall team effectiveness**	**Supply base management effectiveness**	**External cooperation effectiveness**
Employee involvement context				
1	Member rewards			X
2	Equal rewards			
3	Internal authority	X	X	X
4	External authority		X	
Organizational context				
5	Transformational leadership	X	X	X
6	Initiating structure			X
7	Formalization	X		X
Composition				
8	Functional diversity		X	
Team processes				
9	Effort	Supported for internal authority and transformational leadership Not supported for member- and equal rewards, and external authority		
10	Internal communication	Supported for internal authority and transformational leadership		
11	External communication	Supported for transformational leadership		

NOTE: Xs indicate a significant total effect of the input factor on the respective effectiveness dimension.

Table 2.5: Overview of hypotheses tests results

2.5.1 General overall team effectiveness

With respect to the effects of the employee involvement context factors, the finding that the reward structure has no significant impact on general overall team effectiveness despite the fact that rewards prove to increase members' effort is surprising. A 7-point Likert scale measuring whether all team members are actually rewarded for their contributions to the team compiled an average score of

3.8. This result indicates that within the companies in this study's sample, not all sourcing team members receive rewards. This may also explain why the equality of rewards does not show a significant impact on any of the effectiveness dimensions; there can be no real equality in rewards when part of the team receives no rewards at all for their contributions.

The level of internal authority stands out as the strongest predictor for all three dimensions of sourcing team effectiveness. The large impact of internal authority is remarkable. Giunipero and Vogt (1997) reported that within purchasing organizations, one was highly committed to adopt empowerment principles. The present research indicates that, after more than a decade, companies still fail to fully capture the benefits of self management in sourcing teams, despite prior recognition that devolving authority to teams allows for greater flexibility, better collaboration, and more efficient and accurate knowledge exchange (Berry, Parasuraman, Zeithaml & Adsit, 1994). Therefore, managers should provide sourcing teams with a license to act, that is, a clear mandate to develop and execute a sourcing strategy.

External authority, which refers to a team's freedom in making final sourcing decisions, has no significant impact on general overall team effectiveness. Possibly the general overall effectiveness during a sourcing project, including productivity and the extent to which management expectations are met, are not affected by a team's mandate for making final decisions, which may only become manifest near the end of a sourcing project. At that point, performance outcomes here described as general overall team effectiveness may already be distinct. Another possible explanation is that general overall team effectiveness reflects performance on rather straightforward targets, for which decisions can promptly be approved by management without hindering the team.

Meeting research expectations, the organizational context factor transformational leadership positively affects team processes and all dimensions of effectiveness. Initiating structure appears not to enhance general overall team effectiveness, however. Sourcing teams benefit mainly from transformational leaders who communicate effectively and create a supportive climate.

The findings show a positive effect of formalization, and also suggest that formal procedures and rules foster both effort and communication. Apparently, rules and procedures help to clarify team members' roles and responsibilities, which may result in increased accountability and, hence, better team performance.

Clear sourcing procedures provide guidance to sourcing teams, and may reduce the need for strong capabilities of the team leader in initiating structure.

Finally, functional diversity seems not to enhance performance in terms of general overall team effectiveness. This may be due to the notion that functional diversity complicates internal team processes (Van Knippenberg, De Dreu & Homan, 2004). Very diverse teams may therefore not be likely to receive higher ratings on outcomes such as productivity, meeting schedules and meeting the expectations of purchasing managers.

2.5.2 Supply base management effectiveness

Similar to general overall team effectiveness, the reward structure seems to have no significant impact on supply base management effectiveness. Possibly, positive total effects of rewards through increased effort were marginalized because not all team members in our sample received rewards for their contributions.

The employee involvement context factors internal- and external authority appear to be of particular importance. Internal authority positively affects supply base management effectiveness, partly through high effort. The findings confirm that teams also become less effective when managers attempt to overrule final team decisions, reducing the level of external authority (Holland et al., 2000; Trent & Monczka, 1994), but indicate that this only holds for the more complex targets reflected by supply base management effectiveness.

Concerning the organizational context factors, only transformational leadership appears to correlate positively with supply base management effectiveness. Given that none of the team processes mediate this relationship, this effect seems to arise directly from the team leader's behavior. The lack of significant effects of initiating structure by the leader and formalization may indicate that achieving more advanced targets requires an autonomous, cross-functional and flexible approach, rather than a strict, standardized way of working.

Functional diversity does improve performance in supply base management. Supply base management effectiveness, referring to outcomes such as quality, innovation and flexibility, requires insights and information from multiple functional backgrounds (Lambert & Cooper, 2000). The team processes effort and external communication improve as a result of higher diversity, and team

members and leaders perceive their team's performance to increase due to the representation of knowledge and skills from different backgrounds. The positive effect of functional diversity on effort may spring from a team's increased perception of the strategic importance and meaning of its work when managers from multiple departments allocate resources to the team.

2.5.3 External cooperation effectiveness

The results of this study reveal a new, critical dimension of sourcing team success, representing the team's ability to cooperate effectively with others external to the team. Of the employee involvement context factors, member rewards and internal authority show a positive impact on a team's external cooperation effectiveness. While the total effect of member rewards on the other effectiveness dimensions is not significant, it is significant for external cooperation effectiveness. In the roundtable meeting, managers indicated that a main cause of the lack of member rewards lies in the limited influence that purchasing managers have on the reward structures for team members from outside their own departments. These results suggest that when different managers acknowledge and reward team membership, their departments will also be more likely to better act upon team outcomes. Recognition and rewards for team contributions by individual team members from different departments may serve as a measure for support for team initiatives in the wider organization. It shows that performance evaluations should include metrics measuring contributions to sourcing teams in home departments.

Internal authority enhances external cooperation effectiveness through more external communication by team members. External authority, mainly exerted at the end of a sourcing process, seems not to affect the quality of the cooperation within the organization which is developed during the entire project.

Both transformational leadership and initiating structure relate to teams' external cooperation effectiveness. Transformational leadership has a positive impact through enhanced external communication. Interestingly, however, in the perception of the managers it is a leader's capability to initiate structure that significantly affects the team's ability to cooperate effectively externally. This suggests that purchasing managers prefer team leaders whose within-company collaboration style is formal and clearly visible to management.

Formalization also enhances external cooperation effectiveness, as earlier research findings suggest, showing that clear procedures create support in organizations for team decisions (Andrews, 1995), and that formalization also improves cross-functional relationships (Pinto et al., 1993). Thus, formalized sourcing processes are particularly relevant when a team's recommendations must be implemented and followed up by other departments in the organization.

The findings with respect to the relationship between team composition and external cooperation effectiveness are remarkable. The negative relationship between functional diversity and management ratings of external cooperation effectiveness indicates that, according to management, the representation of more functional backgrounds in a sourcing team decreases its ability to cooperate effectively with others external to the team. In the roundtable meeting, a number of explanations were raised for these counter-intuitive effects.

First, the level of functional diversity can reflect the complexity of the sourced product or service, serving in effect as a proxy for likelihood of success. Second, when the team represents knowledge from more functional backgrounds, different viewpoints and interests and practical limitations will make both team management and task more difficult, as most practitioners would admit. Third, when conflicts arise across functional boundaries, these conflicts often escalate to management. Senior managers are therefore more likely to encounter issues with functionally diverse teams. At least these findings suggest that, while functional integration is a necessity for further development of the purchasing function (Reinecke, Spiller & Ungerman, 2007; Zheng et al., 2007), purchasing managers tend to perceive this integration as a troublesome process.

2.6 Limitations and Future Research

This research has a number of limitations. Organizational cultures in multinational companies reflect, at least partly, the national values of a company's home country (Hofstede, 1982). The multinational companies under study here are all headquartered in Northern Europe, and the majority of the globally operating managers and team members came from Northern Europe countries characterized by low power distance cultures. Previous research has indicated that empowerment may be beneficial in low power distance cultures (e.g., the USA and Northern Europe), but not in high power distance cultures (e.g., China and Russia),

since professionals from these cultures may not possess the background and ability to perform well when experiencing an empowerment intervention (Eylon & Au, 1999). So, our finding that internal authority is a key success factor for all three effectiveness dimensions may not be generalizable to every cultural setting.

Although the study used validated measurement scales that have high validity, some of these scales did not result in optimal factor structures, and a number of items dropped from further analyses. The items, however, reflected the respective factors well, and showed high face validity. In fact, including more items may sometimes increase ambiguity (Fields, 2002). Also, Cronbach's alpha scores just below the .7 level may have attenuated relationships, but the established relationships counterbalance this concern.

The metrics for all effectiveness dimensions were attitudinal scales, so common method bias was not cancelled out. Objective measures of team success across companies and industries are, unfortunately, difficult to define and to obtain. This is an issue not only for researchers, but also for the purchasing organizations involved, who find it difficult to develop fair performance indicators for their sourcing teams. The management ratings in this study counterbalance this limitation somewhat by providing more objective insights from a different source. The management ratings, however, showed relatively few significant effects. This is partly due to the limited sample size that was available to test the effects of input factors on management ratings of effectiveness (32 teams), compared to the sample size available for testing effects on team member perceptions of effectiveness (59 teams). Also, team member and management ratings of effectiveness showed low correlations. These divergent viewpoints on how well teams perform on the three distinctive dimensions of effectiveness as defined in this study might represent an interesting area for future research. In particular, the contrary perceptions by teams and their managers with respect to the effectiveness of functional diversity warrant further study. More insight into this phenomenon seems critical for effective sourcing team management. In the next chapter, we address possible causes for deviating viewpoints among team members and managers.

Our items and hypotheses were formulated at the team level. Moreover, our sample represented 12 companies, providing little statistical power at a company level. Therefore, we conducted our analysis at the level of the team. However, future research could explore the multilevel nature of our data in greater detail. Particularly the conformity of perceptions of individual members, team

leaders and managers in respective companies might be an interesting area for future exploration.

Finally, the cross-sectional nature of our research design prevents us from deriving hard conclusions about causal directions. Suggestions for further research therefore also include longitudinal studies in the area of sourcing team effectiveness. The mechanisms through which input factors affect team performance in executing sourcing tasks, particularly a team's external cooperation effectiveness, constitute an area of interest for further qualitative research. We address this topic in chapter 4.

In summary, this study's framework and recommendations offer guidance for practitioners to enhance a sourcing team's general effectiveness, its ability to cooperate effectively with others external to the team, and its effectiveness in managing the company's supply base.

Chapter 3

Management's blind spot:

Effects of team performance and teamwork behavior on perceived functional diversity appropriateness[3]

In this third chapter, the focus is on consequences of team performance. In this chapter, we built on the interesting finding in the previous chapter that team members and managers may have differing perceptions about functional diversity in teams. Here, we investigate how team processes and performance affect perceptions of functional diversity appropriateness, i.e., whether team members and managers believe that the right functions are represented in the team. The findings of our survey study, covering 48 sourcing teams from eleven companies, reveal how team members and their managers evaluate the effectiveness of functional diversity, and how these evaluations differ. Moreover, we show that the teams that report poor functional diversity appropriateness are not poorly performing teams, but in fact well performing teams. The implications from this study suggest that managers can prevent this situation from occurring by critically monitoring and enhancing teamwork behavior.

[3] This research was conducted in collaboration with Josette Gevers, Mariann Jelinek and Arjan van Weele. This chapter was presented as a paper at the 2010 IFPSM summer school (Salzburg, Austria), and at the 2011 IPSERA Conference (Maastricht, The Netherlands) where it won the IFPSM best paper for practitioners award, and ranked second for the best academic paper award. An adapted version of this chapter is under review for publication.

3.1 Introduction

As we have noted, over the course of recent decades, scholars in a variety of research fields (e.g. organizational behavior, management science) have established an extensive body of research regarding the effectiveness of cross-functional teams. Much of this research is based on the popular input-process-output (IPO) approach to identify how functional diversity affects team performance. In order to capture the dynamic nature of teams, Ilgen and colleagues (Ilgen et al., 2005) suggested the input-mediation-output-input (IMOI) model as a better alternative to the traditional IPO model. The extra input at the end of the model emphasizes the interdependence between subsequent team performance cycles since the outputs of one performance cycle serve as inputs for the next episode, creating a recurring loop.

Adopting this approach, the present paper is not about explaining team performance, but focuses instead on its consequences. Observations from practice reveal that the effectiveness of cross-functional team structures is often debated. While previous studies have investigated the effects of cross-functional team compositions on processes and performance, we investigate how team processes and performance relate to perceptions of functional diversity appropriateness, i.e., whether team members and their managers believe that the right functions are represented in their team for accomplishing its task effectively. We base our hypotheses on attribution theory, which predicts that team outcomes have psychological consequences that in turn determine future behavior (Weiner, 1985). Team members' and managers' perceptions are important because they ultimately determine the extent to which team members remain motivated to continue to work in cross-functional teams, and whether managers will continue to install cross-functional teams or will steer toward a more mono-functional approach (Gibson, Cooper & Conger, 2009; Greene, 1972; Wexley, Alexander, Greenawalt & Couch, 1980). Managers who perceive a team's performance to be below expectations are likely to intervene, most probably by changing the team's composition, which appears one of the most widely applied management interventions (Hollenbeck, DeRue & Guzzo, 2004). The question is, however, whether changing the team composition is always the optimal solution or whether a better answer lies in critically reviewing teamwork behavior and changing contextual factors influencing team performance.

Another important feature of the present research is that we distinguish between perceptions of team members and those of their managers. Extant research has shown clear differences of opinion between team members and managers regarding the effectiveness of functional diversity in teams (Ancona & Caldwell, 1992b). The previous chapter reported positive relationships between functional diversity and team ratings of performance, while management ratings showed negative relationships between functional diversity and performance. Peters and Karren (2009) recently found similar results in their empirical study among virtual teams. These differences of opinion may be the result of different access to information, divergent interpretations of the same information, or different referents used to assess team performance (Gibson et al., 2009). Whereas team members have day-to-day information about team interaction and may use this information to evaluate performance, more distant managers rely on quantitative data such as financial reports, budgets and project schedules (Ancona & Caldwell, 1992b). Also, the agency problem may explain these deviations. Interests of individual managers and individual team members with varying functional backgrounds may deviate from collective corporate interests (Alchian & Demsetz, 1972; Jensen & Meckling, 1976). As a result, managers and team members may define and assess performance differently. In the present study, we further investigate how perceived performance outcomes are attributed to the appropriateness of the level of functional diversity in a team. Perceptual discrepancies between team members and managers with regard to functional diversity appropriateness may compromise the effectiveness of subsequent managerial interventions. A better understanding of such potential discrepancies can provide insights for mitigating the risk of ineffective team management.

In sum, the aim of the present research is to determine how team members' and team managers' perceptions of team performance and teamwork quality relate to their perceptions regarding the appropriateness of the team's cross-functional composition. We hypothesize that managers base their judgments of functional diversity appropriateness primarily on reported performance. Team members, in contrast, are anticipated to also include the quality of teamwork in their judgments, which may also depend upon organizational context factors such as rewards and autonomy. We hope to provide insights for understanding and optimizing management decisions related to team composition and teamwork conditions.

This research is conducted among sourcing teams. The objective of such teams in general is to reduce a company's spend on specified categories of products or services by seeking, selecting and managing suppliers (Trent & Monczka, 1994). Sourcing teams are an excellent subject of study to investigate the phenomena mentioned above for three reasons. First, functional diversity is a recommended team characteristic for sourcing teams (Driedonks, Gevers & van Weele, 2010; Hardt et al., 2007; Monczka et al., 2006). Second, most sourcing teams are assessed in practice on a rather straightforward performance criterion: a sourcing team's most prevalent objective is to reduce expenses on products and services acquired by a company (Plank & Ferrin, 2002). This clear objective, which all teams under study shared, allows for comparing team and management perceptions of team performance. Finally, sourcing teams are typically supervised by purchasing managers. These purchasing managers delegate daily leadership over the team to the team leader, but monitor team performance, and are responsible for managerial interventions in the team's structure. Such managers qualify perfectly for the purposes of our study, since their interventions directly impact the operational processes of teams. In this research we investigate perceptions of sourcing team members –including the team leader– who collaborate on a day-to-day basis, and the perceptions of managers to whom these teams report.

This paper proceeds as follows. The next section describes a conceptual framework that is used to explain the perceptual differences that may exist between team members and managers of teams. The third section tests this framework empirically. The fourth section describes the results of our large scale survey, and the fifth section discusses the findings. The final sections address managerial implications and limitations of this study, and raises additional questions for future research.

3.2 Background and hypotheses

Team performance is one output that serves as input for the next performance cycle in the input-mediation-output-input model (Ilgen et al., 2005). Team performance influences team members' as well as managers' trust in the team's ability to perform (Baker, 2001; Feltz & Lirgg, 1998; Katz-Navon & Erez, 2005). An appropriate team composition is implicitly assumed to be a precondition

for good performance (Hollenbeck et al., 2004; Karakowsky, McBey & Chuang, 2004). Past performance, therefore, likely serves as an indicator for the perceived appropriateness of the team's composition for executing future work (Hoegl & Gemuenden, 2001), which in turn will impact possible managerial interventions in these compositions (Hollenbeck et al., 2004).

Although team studies sometimes rely on objective performance measures (Scott-Young & Samson, 2008), subjective measures are most typical (Lovelace, Shapiro & Weingart, 2001), due also to the fact that companies have not succeeded in developing fair performance measures on the team level (Gibson, Zellmer-Bruhn & Schwab, 2003). As a result, teams are in practice as successful as they are thought to be (Baugh & George, 1997).

Earlier studies showed a discrepancy between team and management ratings of performance (Ancona & Caldwell, 1992b; Campion et al., 1993; Campion et al., 1996; Cohen & Ledford, 1994; Cohen et al., 1996; Hoegl & Gemuenden, 2001; Hoegl et al., 2004; Kirkman, Tesluk & Rosen, 2001). Authors of these studies acknowledge that managers and team members assess performance partly by overlapping criteria, and partly by different ones. In these studies, managerial judgments of team performance were operationalized using measures such as adherence to budgets and schedules. However, judgments by team members were measured through the use of criteria such as quality, efficiency and employee satisfaction. We argue that if one and the same outcome criterion is used for both team members and managers, the observed discrepancy in performance ratings will likely be reduced.

Research on sourcing teams has revealed that the success of sourcing activities is in practice mainly measured in terms of cost savings (Plank & Ferrin, 2002). For this reason we consider sourcing team performance as the team's ability to reduce costs of purchased materials and services effectively. We hypothesize in this study that performance perceptions may differ among team members and purchasing managers, but only to a limited extent when the same criterion is used for team members and managers. Even though this hypothesis is straightforward, we do include it to verify the cause of potential differences between team members' and managers' perceptions of functional diversity appropriateness. We thus hypothesize:

Hypothesis 1. Team performance in the perception of team members, and team performance in the perception of managers are positively related.

Sourcing is a cross-functional activity that affects multiple disciplines in a company. Therefore, purchasing decision making requires input from a range of functions, that is, disciplines from within the company. Another advantage of having high levels of functional diversity is that this would augment broad stakeholder commitment throughout the company. Such a broad commitment would enhance teams' communication and collaboration beyond the team boundaries. Since outside others typically must execute team recommendations, such commitment is crucial. This explains why more and more companies have moved from teams staffed by purchasing professionals alone towards cross-functional sourcing teams staffed from relevant implementing units (Zheng et al., 2007).

Despite the obvious advantages of diversity, cross-functional sourcing teams in practice appear to have problems living up to their promise (Englyst et al., 2008). As a result, as discussed in the previous chapter, purchasing managers tend to perceive functional integration in sourcing processes as troublesome. It is a prime responsibility of purchasing managers to make decisions regarding the composition of sourcing teams, and to request for resources from other functional departments.

In line with the IMOI model, past team performance likely serves as an input for the next performance cycle by influencing perceptions with respect to the appropriateness of the composition of the team (Ilgen et al., 2005). The relationship between team outputs and inputs can be described by attribution theory. Attribution theory explains that (team) outcomes are ascribed to causal dimensions (Weiner, 1985). Although attributional processes have received little attention in the organizational sciences, they affect virtually all goal and reward oriented behavior, and provide unique insights into the causes of manager-members conflicts (Martinko, Harvey & Dasborough, 2011). Managers evaluating the appropriateness of teams' level of functional diversity will likely review teams' composition as a cause for performance. In a purchasing context, managers can be expected to consider the current level of functional diversity to be appropriate when teams achieve significant cost savings. Conversely, underperformance in terms of cost savings will likely be attributed by managers to an inadequate composition. Attribution theory subsequently predicts that such perceptions have behavioral consequences, in that they instigate management interventions in the team's structure, which in turn set the inputs for a new team performance cycle. We hypothesize:

Hypothesis 2. Management perceptions of team performance positively impact management perceptions of functional diversity appropriateness.

Similar attribution processes will affect functional diversity appropriateness perceptions of team members. Members of well-performing teams are likely to evaluate their level of functional diversity as more adequate than members of poorly-performing teams, resulting in a higher self-esteem (Weiner, 1985). Research has demonstrated links between team performance, team efficacy and potency (Gully, Joshi, Incalcaterra & Beaubien, 2002). Team efficacy refers to perceptions of task-specific team capability, whereas potency refers to broader perceptions of team capability spanning tasks and situations. Likewise, team performance and viability are intertwined concepts, meaning that members of well-performing teams want to remain as team members (Beal, Cohen, Burke & McLendon, 2003; Mathieu et al., 2008). The sense of confidence generated by high team performance is therefore expected to enhance perceptions of the team's compositional appropriateness. Such perceptions help teams persevere in the face of adversity and retain their members –conditions necessary for proper team functioning over time (Gully et al., 2002; Hackman, 1987). So, team member perceptions of an appropriate level of functional diversity positively impact future team performance.

Hypothesis 3. Team member perceptions of team performance positively impact team member perceptions of functional diversity appropriateness.

It should be noted, though, that managers often have a more distant role and are not involved in daily team processes. Consequently, they may lack proper insight into internal team processes (Baugh & George, 1997). Reported team outcomes are the primary information on which managers base their judgments. Management perceptions of functional diversity appropriateness are therefore expected to be primarily a result of team performance. For team members, however, team performance is likely not the sole factor to predict perceptions of functional diversity appropriateness. Members' perceptions of functional diversity appropriateness are more likely to stem from a combination of performance outcomes and teamwork processes. According to attribution theory, outcomes result from ability, which for teams is for an important part determined by its composition, and effort, i.e., the extent to which team members have tried to reach

their team goal through effective teamwork. In fact, because of their pervasive nature (after all, teamwork behavior, or a lack thereof, is what team members experience on a daily basis), teamwork processes may be expected to play a leading role in determining members' perceptions regarding the appropriateness of the team's composition given the team's performance. That is, good teamwork will enhance members' confidence in the team's abilities (Tasa, Taggar & Seijts, 2007) and will strengthen the idea that the team's high performance is attributable to its favorable functional structure. Working with members who show little or no teamwork behavior, on the other hand, is unsatisfying and frustrating, which will lower members' confidence in the team, even when the team is performing well. Hence, poor teamwork may be expected to marginalize the positive relationship between team performance and functional diversity appropriateness.

Hypothesis 4. The relationship between team member perceptions of team performance and functional diversity appropriateness is moderated by teamwork behavior, in such a way that high teamwork behavior strengthens the relationship between team performance and functional diversity appropriateness.

Our hypotheses suggest that teamwork behavior plays a pivotal role in explaining differences between team member and management perceptions. Prior research indicates that managers can apply a number of HR practices to foster teamwork behavior that leads to good internal team processes (Chi, Huang & Lin, 2009). Rewards and team autonomy are two particularly powerful factors to create a sense of ownership and responsibility, and positively affect the effort put into developing teamwork in cross-functional teams (Denison, Hart & Kahn, 1996; Driedonks et al., 2010; Spreitzer, Cohen & Ledford Jr, 1999). We include these factors in our research to demonstrate the impact of management interventions aimed at improving teamwork behavior rather than changing the team's composition.

Particularly for sourcing team members, who typically are allocated part-time to their teams, the team's work should be included in members' reward structure. A complicating factor, which we also observed in the previous chapter, is that the rewards of members of cross-functional teams are controlled by their functional home departments (Denison et al., 1996). If the team task is left out of the reward review, team members will rationally prioritize the tasks which have a

more direct effect on their individual performance evaluation (Robbins & Finley, 1995). In effect, teamwork behaviors are likely to diminish. Hence:

Hypothesis 5. Team-based rewards positively impact teamwork behavior.

A team's autonomy refers to its ability to control internal team processes and activities. Literature suggests that appropriate autonomy provided to teams in general (Kirkman and Rosen, 2000), and to cross-functional teams in particular (Holland, Gaston and Gomes, 2000) enhances internal teamwork behavior. Supply solutions proposed by cross-functional sourcing teams often impact many stakeholders within the buying organizations, who in turn try to intervene in the sourcing process. Such interventions reduce sourcing teams' levels of autonomy. Research has shown that a lack of autonomy prevents sourcing teams from achieving optimal performance (see chapter 2 and Giunipero & Vogt, 1997). Therefore, we hypothesize:

Hypothesis 6. Team autonomy positively impacts teamwork behavior.

The final research model is depicted in Figure 3.1. The upper part of the model reflects management perceptions; the lower part represents team member perceptions. Perceptions of team performance are expected to be congruent between managers and team members, since the same outcome criterion is assessed among both groups in this study. Whereas functional diversity appropriateness in managers' perceptions is a function of team performance alone, functional diversity appropriateness in team members' perceptions is predicted to be a function of both team performance and teamwork behavior. As a result, managers' and team members' perceptions of functional diversity appropriateness may not be congruent. We expect proper teamwork behavior to be a necessary condition for high levels of functional diversity appropriateness in team members' perceptions to occur. Autonomy and rewards are predicted to be important drivers of good teamwork behavior.

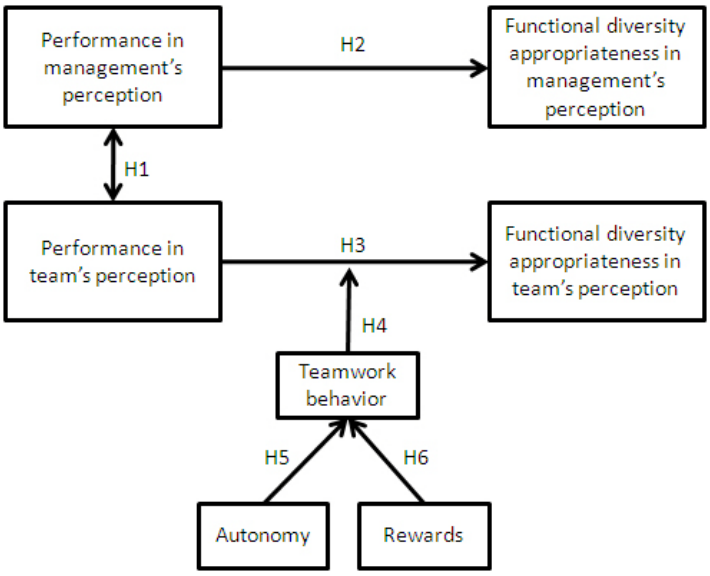


Figure 3.1: Conceptual framework

3.3 Methods

3.3.1 Participants

The conceptual framework in Figure 3.1 was tested empirically by means of a cross-sectional survey. In total, 310 individuals from 53 teams were contacted and invited to participate in this study. The teams operated in 11 different multinational companies[4], all from different industries. These companies were headquartered in either Scandinavia or The Netherlands. Team members and team leaders were represented by 247 respondents. In our sample, sourcing teams always reported to a purchasing manager. These external purchasing managers of teams were contacted to measure management perceptions, and comprised 63 respondents.

Each respondent received a personalized invitation e-mail that gave access to a web-based questionnaire. This personal e-mail included the name of the respondent, the company and the respective team and explained the study's relevance. Respondents who had not filled out the online questionnaire completely received two reminders. To increase response rates and to reduce the risk of social

[4] Four of these companies also participated in the empirical study reported in chapter 2.

desirability bias, confidentiality procedures were described in the announcement of the survey, in the e-mail invitations, and in the reminders.

The overall response rate reached 66.8%. In total, 207 questionnaires were completed, of which 164 were filled out by team members and team leaders (response rate 66.4%) and 43 by managers (response rate 68.3%). Only fully completed questionnaires were used for further analysis. Response rates were comparable across all companies. We found no significant relationships between our study variables and response rates per team, suggesting no systematic bias because of non-response (Armstrong & Overton, 1977).

The unit of analysis was the team. Responses that could be used for further analysis referred to 48 teams, for which at least two completed questionnaires were received. The average number of completed questionnaires per team was 4.3. Of the teams included for further analysis, 35% had a 'mono-functional' structure and were staffed by personnel who mainly represented the purchasing department. All other teams were cross-functional.

Management ratings were obtained for 36 of the 48 teams. No correlation exists between the absence of management ratings and the constructs in our research. Most teams had one manager to report to. A single non-response can thus lead to a missing management rating for a team. In one company, five teams reported to the same manager, who did not participate in our survey. Another company did not provide access to managers of all participating teams. These two situations account for ten of the twelve missing management ratings. These missing values do not cause non-response bias; the reasons for non-response are unrelated to our study variables.

3.3.2 Measures

The survey that was developed for this research was entirely based on instruments that were validated in earlier research, except for the scale measuring team performance (i.e., cost effectiveness). All scale items were measured on a 7-point Likert scale, ranging from (1) 'completely disagree' to (7) 'completely agree'.

Functional diversity appropriateness. Three items were used to assess to what extent either teams or managers believe that the right functions are represented in a team. An example of these items is, "This team has a nearly ideal 'mix' of members—a diverse set of people who bring different functional

perspectives and experiences to the work." This scale was adopted from Wageman, Hackman and Lehan (2005).

Teamwork behavior. Teamwork behavior is a construct originally developed by Tasa et al. (2007), of which six items were adopted in this study. For example, respondents were asked to what extent they agreed with the statement, "Our team addresses conflict immediately by raising it for discussion."

Rewards. We used the previous chapter's two items to verify whether all team members receive rewards for their contributions to team activities. We formulated one additional item for this study, resulting in a three item scale. For example, one item is, "All team members are rewarded for their work on the team."

Autonomy. To assess the level of autonomy experienced by teams, we adopted items from Kirkman and Rosen (1999), and Kirkam, Rosen, Tesluk and Gibson (2004). This scale included four items, for example, "My team can select different ways to do the team's work."

Team performance. Three items were formulated for this study to assess sourcing team performance, or more specifically, their ability to achieve cost-effective results. Example items are, "The team's ability to reduce total costs within a certain category of products or services is good", and, "The team's ability to reduce purchased item costs is good."

In our analyses, we control for the actual level of functional diversity in teams, that is, the absolute number of functions that are represented. A factor labeled 'actual functional diversity' is therefore included in our study, testing perceptions about diversity appropriateness against the actual level of cross-functionality of teams. Respondents were asked to list the functions that were represented in their team. The number of functions served as a formative scale.

These items comprised two different questionnaires, one developed for the teams, that is, the team members and team leaders, and the other for managers. The questionnaire for team members and leaders included all the scales listed above. The questionnaire for managers only included the scales for functional diversity appropriateness and for team performance, since managers have no direct insight into the processes that evolve internally within the team. Also, managers may have little insight into the exact reward structure of team members, since these members have different home departments that fall outside the direct range of influence of the managers included in this study. Interventions in reward structures can only be accomplished when the managers of cross-functional teams

work in conjunction with the managers of functional departments, something managers may fail to do. Likewise, the actual level of autonomy that teams experience can only be assessed by the teams themselves. Finally, we assumed the team leader and team members to be well-informed about the functional background of each team member, and therefore assessed the actual functional diversity only in the questionnaire for the teams. Teamwork behavior, rewards, autonomy and actual functional diversity were thus omitted from the questionnaire for managers. Items were randomized in all questionnaires.

3.3.3. Analysis

The measurement model, entirely based on scales validated in earlier research except for the team performance scale, was first validated by means of a confirmatory factor analysis (CFA)[5]. We removed one item from the management ratings for functional diversity appropriateness that showed a loading below .5. The resulting measurement model showed excellent fit (χ^2 = 204.90, *df* = 209, RMSEA = .000), and is used for further analysis (Hair et al., 2006; Hu & Bentler, 1999).

Study hypotheses take the team as the unit of analysis. Scales in this study refer to attributes of the team, not individuals, and thus results aggregate to the team level (James, 1982). Aggregation connects management ratings to specific teams. Analysis of variance results confirm that the variance between teams is greater than the variance within teams, and average $r_{wg(j)}$ values range between .78 and .85 for the constructs in our study, both justifying aggregation to the team level (Danserau & Yammarino, 2000; James et al., 1984). The average team score on each of the items is used in further analyses.

Since the data in this field study were obtained from practice rather than from designed experiments, and given the limited sample size and exploratory nature of our study, we use Partial Least Squares (PLS) to test our hypotheses (Wold, 1985)[6]. PLS is embraced by the field as a powerful and effective means to test multivariate structural models with latent variables (Cording, Christmann & King, 2008; Groth, Hennig-Thurau & Walsh, 2009; Sosik, Kahai & Piovoso, 2009).

[5] CFA was conducted using Lisrel 8.72

[6] PLS analyses were conducted using SmartPLS 2.0.M.3

All our scales are reflective and are modeled as such, except for the actual functional diversity, which was modeled as a formative scale.

In line with most typically applied PLS procedures, we report composite scale reliability to assess scale reliability (Nunnally & Bernstein, 1994; Sosik et al., 2009). This measure is similar to Cronbach's alpha, except that the latter presumes that each indicator of a construct contributes equally (i.e., the loadings are set equal to one). Fornell and Larcker (1981) argued that composite scale reliability is superior to Cronbach's alpha because actual item loadings obtained within the nomological network are used to calculate internal consistency reliability. The interpretation of the values obtained is similar and .7 cutoff value can be adopted (Hair et al., 2006). Composite reliability values ranged between .79 and .90, all well exceeding the .70 level. Also the Cronbach's alpha scores were above this level. Furthermore, we assessed the average variance extracted for each construct. All values were above the threshold of .5 (Fornell & Larcker, 1981).

In the PLS measurement model, all standardized loadings were above .7, indicating good convergent validity (Hulland, 1999). Although discriminant validity was already assessed by the confirmatory factor analysis, we also verified that the average variance extracted for each latent variable was larger than the correlation between two latent variables (Fornell & Larcker, 1981). Average variance extracted values, composite reliabilities and correlations are depicted in Table 3.1.

PLS assesses the structural component by generating estimates of standardized regression coefficients for the structural paths in the model. In this study, the statistical significance of these path coefficients was evaluated using bootstrapping (1,000 samples), and a hurdle rate of $p < .05$ to indicate significance of the path coefficients.

A PLS model including only direct effects was estimated to test hypotheses 1, 2, 3, 5 and 6. To test the interaction effect hypothesized in hypothesis 4, we apply the PLS strategy for testing moderating effects as described by Chin, Marcolin and Newsted (2003). In this strategy, the indicator variables of the predictor and moderator constructs are used to generate new standardized product indicators. These product terms measure the additionally created interaction term in our reflective measurement model.

Structural model fit is assessed by the R^2 values of the endogeneous constructs. PLS path modeling lacks an index that provides a global validation of the model. However, a goodness-of-fit (GoF) criterion has been proposed which

serves a diagnostic purpose (Tenenhaus, Vinzi, Chatelin & Lauro, 2005) and which will be referred to as such.

3.4 Results

Figure 3.2 summarizes the results of PLS analysis of the structural model with the direct effects of all predictor variables[7].

Hypothesis 1, which predicted a significant correlation between team member and manager ratings of team performance, was supported ($\beta = .40$, $p < .01$). Hypothesis 2 states that there is a positive relationship between management perceptions of team performance and management perceptions of functional diversity appropriateness. We found a strong positive correlation that supports this hypothesis ($\beta = .49$, $p < .01$). Hypothesis 3 predicted that team perceptions of team performance positively impact team perceptions of functional diversity appropriateness. This hypothesis was not supported by the structural model results ($\beta = -.01$, *ns*). Hypothesis 5, which stated that there is a positive relationship between autonomy and teamwork behavior, was supported by the results ($\beta = .40$, $p < .01$). Finally, Hypothesis 6 predicted a positive impact of rewards on teamwork behavior. We also found support for this hypothesis ($\beta = .25$, $p < .01$). Hence, all but one of the hypothesized direct effects received support in the structural model.

We assessed the model fit of the endogenous variables in the structural model depicted in Figure 3.2. R^2 values for teamwork behavior, functional diversity appropriateness in management's perceptions and functional diversity appropriateness in team members' perceptions were .31, .29 and .22 respectively.

To test the interaction effect hypothesized in Hypothesis 4, we added the interaction term to the structural model. The results of this second model are depicted in Figure 3.3. The interaction term proved to be significant ($\beta = .35$, $p < .05$), supporting Hypothesis 4, while the direct effect of teamwork behavior remained significant. The R^2 of functional diversity appropriateness in team members' perception increased significantly from .22 to .30 when the interaction term was added. We also calculated the goodness-of-fit (GoF) of a model including

[7] Missing management ratings were substituted by the mean over all available cases. Alternatively, one could also apply casewise deletion for those cases with missing data, but casewise deletion also deletes valuable team member ratings. However, testing both approaches in additional analyses led to similar results as those reported here.

team performance and teamwork behavior as predictors of team perceptions of functional diversity appropriateness, and of the model including the interaction effect. Without the interaction effect, the GoF value was .30. With the interaction effect added, the GoF climbed to .35. The entire model scored a GoF of .44, well beyond the .35 threshold level (Wetzels, Odekerken-Schroder & van Oppen, 2009)[8].

	AVE	Comp. Rel.	1	2	3	4	5	6	7
1. Performance management	.72	.89							
2. Functional diversity appropriateness management	.81	.90	.53**						
3. Performance team	.71	.88	.40**	.14					
4. Functional diversity appropriateness team	.61	.83	-.17	-.11	.10				
5. Teamwork behavior	.59	.90	.08	-.06	.55**	.32*			
6. Autonomy	.56	.79	.02	.02	.20	.35*	.52**		
7. Rewards	.65	.85	-.02	-.17	.43**	.31*	.43**	.46**	
8. Actual functional diversity	*na*	*na*	-.46**	-.31*	-.24	.32*	-.08	.01	.03

* Significant at a p=.05 level (two-tailed)

** Significant at a p=.01 level (two-tailed)

Table 3.1: Average Variance Extracted (AVE), Composite Reliabilities and correlations of study constructs.

Figure 3.4 provides a graphical representation of the interaction effect. As expected, a high level of teamwork behavior enhanced the relationship between team performance and functional diversity appropriateness. Under conditions of low teamwork behavior, however, the relationship between team performance and functional diversity appropriateness was not simply weakened, but actually became negative. This interaction effect was thus stronger than anticipated in our hypothesis.

[8] We also tested the direct effect of teamwork behavior on management perceptions of functional diversity, which was not significant (β = -.13, *ns*), neither was the interaction effect of management perceptions of team performance and teamwork behavior (β = -.09, *ns*).

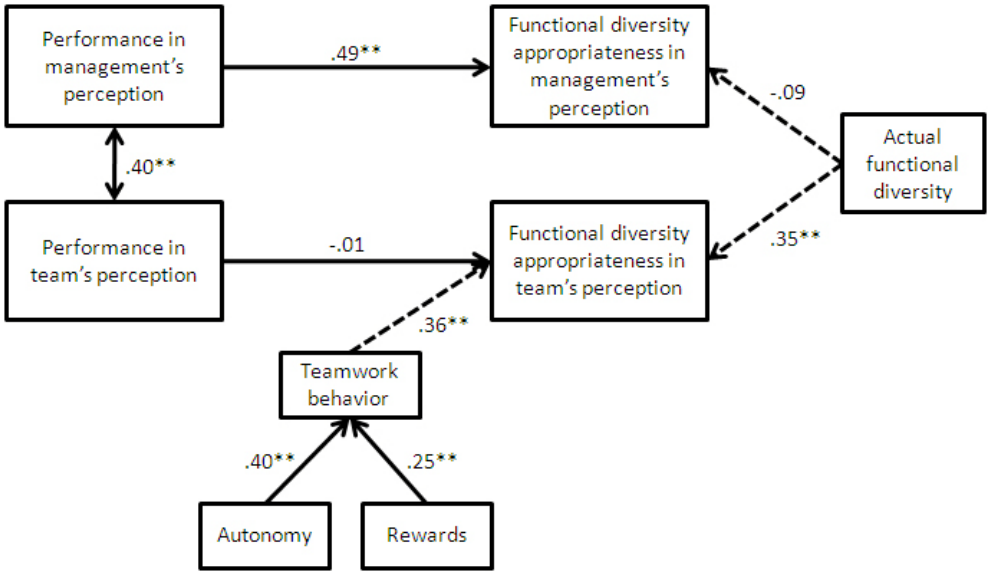


Figure 3.2: PLS model results for testing Hypotheses 1-3, 5 and 6.

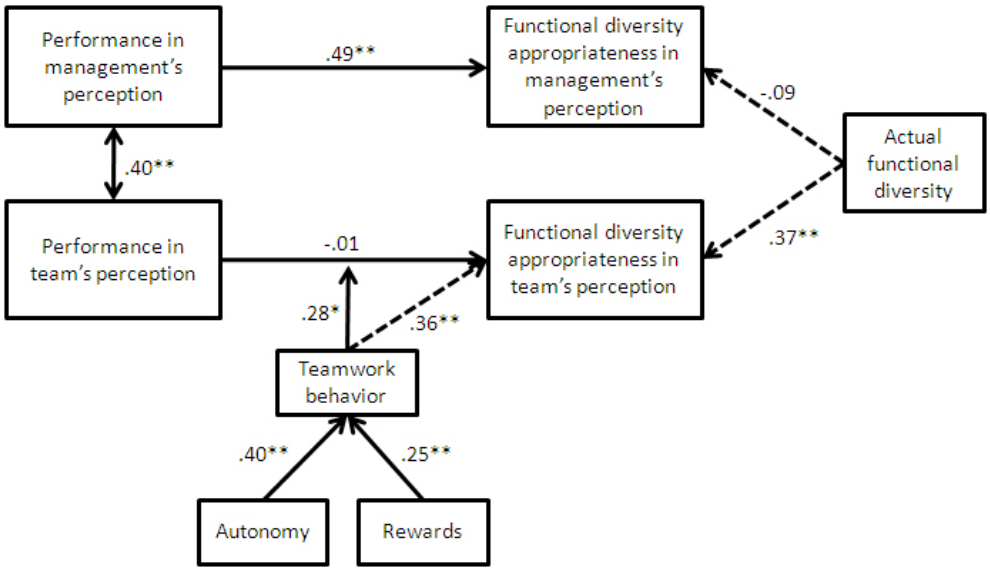


Figure 3.3: PLS model results for testing Hypothesis 4.

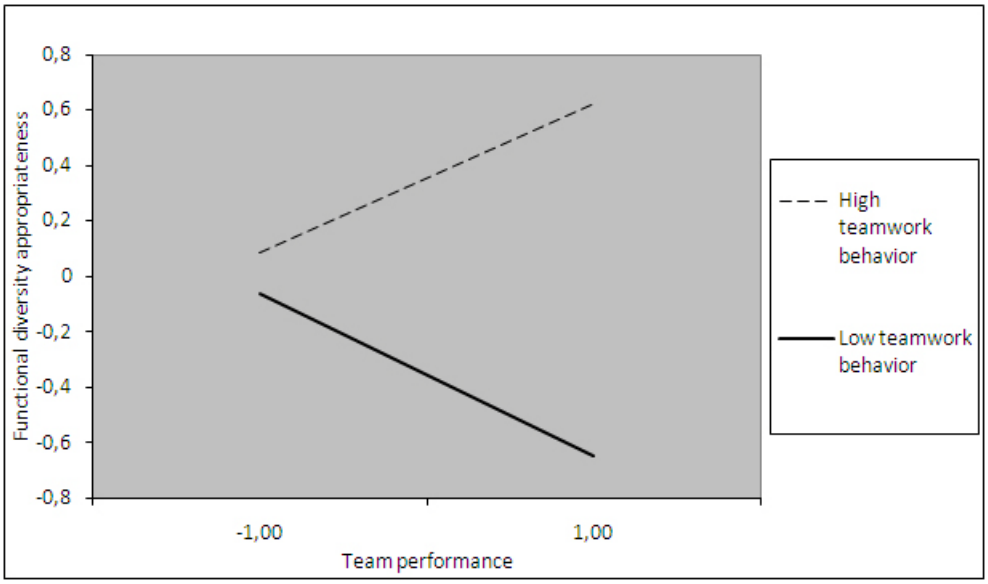


Figure 3.4: Directions of interaction effects.

3.4.1 Additional analysis

Two unanticipated results emerged from our initial analyses. First, the control variable actual functional diversity showed a positive and significant relationship with functional diversity appropriateness in the perception of team members ($\beta = .35$, $p < .01$), but not in the perception of managers ($\beta = -.09$, *ns*). Second, as mentioned above, the interaction effect of performance and teamwork behavior on team member perceptions of functional diversity appropriateness was stronger than expected, and resulted in a negatively skewed relationship between team performance and functional diversity appropriateness when teamwork behavior is low.

Functional diversity ranges in our sample from one function to the representation of seven functions. To anticipate possible explanations for the negatively skewed interaction term, we split up the sample in two categories: mono-functional teams (17 teams), that is, sourcing teams staffed by purchasing personnel only; and cross-functional teams (31 teams), covering sourcing teams that represent two or more functions. We then reanalyzed the effects of the interaction term. The results are depicted in Figures 3.5a and 3.5b, which show the directions of the interaction in both groups. For both samples, the interaction term

remained significant (for mono-functional teams: β = .73, p < .01, for cross-functional teams: β = .30, p < .01). These results show that for mono-functional teams the direction of the effects is as hypothesized: low levels of teamwork behavior marginalize the positive effect of team performance on perceived functional diversity appropriateness. In contrast, among the cross-functional sourcing teams we find a negatively skewed relationship between team performance and perceived functional diversity appropriateness when teamwork behavior is low. This suggests that the negative effect of poor teamwork behavior on perceptions of functional diversity appropriateness, despite high cost reductions, is actually stronger for cross-functional sourcing teams than for mono-functional sourcing teams. Also, the positive moderating effect of good teamwork behavior appears weaker for cross-functional teams than for mono-functional teams. Future studies with larger samples of mono-functional and cross-functional teams should confirm these findings.

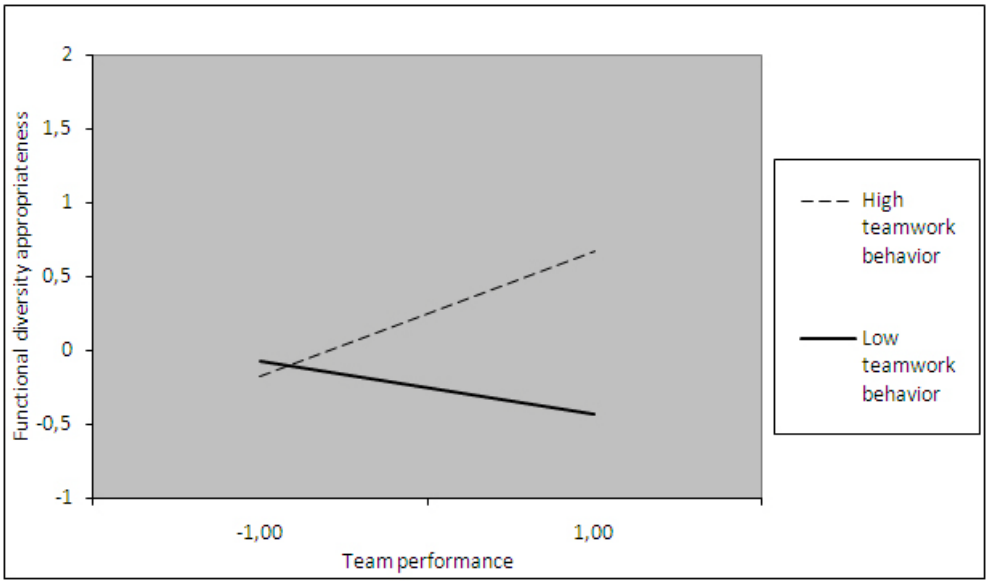


Figure 3.5a: Directions of interaction effects among mono-functional sourcing teams.

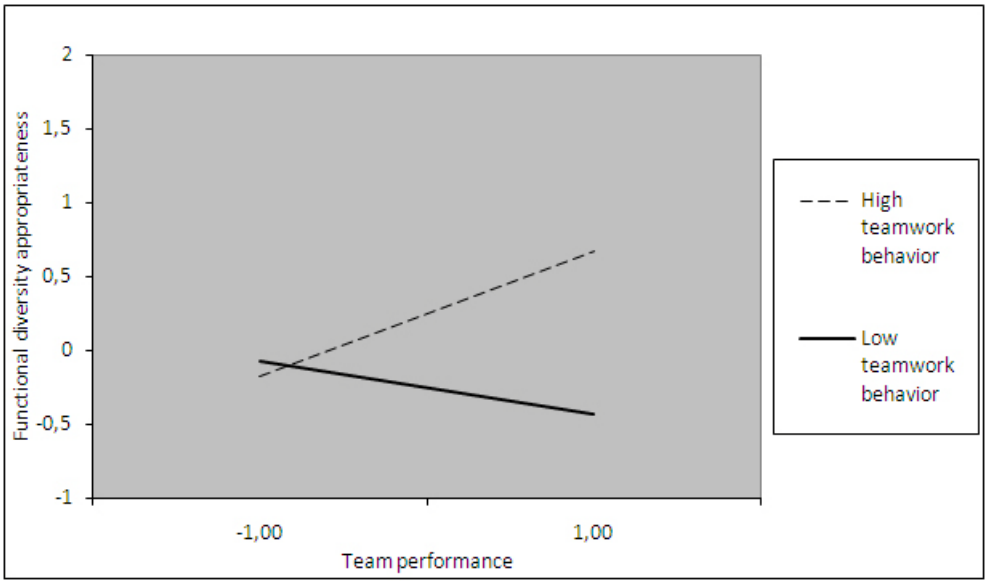


Figure 3.5b: Directions of interaction effects among cross-functional sourcing teams`

3.5 Discussion

This study explains how team members and managers develop their perceptions with regard to the appropriateness of the level of functional diversity within teams. Next, the study explains how team performance, teamwork behavior and contextual factors like autonomy and rewards affect perceptions of appropriateness of functional diversity. Our research framework, which was tested in a sample of 48 sourcing teams across 11 multinational companies, was based on the IMOI framework, in which past team performance influences the next episode's team performance.

Most of the hypothesized relationships were confirmed. As expected, the results indicated that team members and managers have similar perceptions about the performance of sourcing teams in terms of achieved cost savings. Although perceptions of team performance were consistent across managers and team members, the results showed different perceptions of functional diversity appropriateness. These differences originate from the fact that team members, unlike managers, acknowledge the quality of teamwork behavior when evaluating the appropriateness of their team's diversity. Team members attribute performance levels to a combination of shared effort (teamwork behavior) and ability (the

team's composition). The moderating effects suggest that appreciation for the team's functional diversity only increases as a result of positive performance outcomes when the quality of teamwork behavior has been high. Managers' perceptions of functional diversity appropriateness were largely explained by the financial outcomes of a team's work, rather than by the actual functional diversity of teams or the quality of teamwork behavior in those teams. In fact, the purchasing managers, who participated in our research, appear not in favor of a more cross-functional approach, while team members generally appreciate a more diverse team composition.

Differences in appreciation of functional diversity between managers and team members may result in suboptimal team compositions and team structures. Although managers' assessments of teams' performance and composition may be positive, team members' confidence may be subverted, eroding the basis for future work. A lack of managerial intervention, while team members feel that the composition is inadequate for addressing future tasks, compromises long-term team perseverance (Foo, Sin & Yiong, 2006). Hence, this situation can undermine long-term viability. On the contrary, when managers intervene in the composition of teams whose members perceive their cross-functional composition to be very suitable for executing their tasks, team members may interpret these interventions as a step backwards rather than forwards. Managers may be unaware of how functional diversity supports better team decision making. Hence, management interventions in the composition of cross-functional teams then lead to short-lived, viable teams. This in turn could erode team members' perceptions of autonomy, and thus their willingness to continue their efforts for the team. The message from this study is clear: before interfering in teams, managers should be aware of the quality of the team processes through which team results were achieved.

Some unexpected effects surfaced. The teams with the poorest perceptions of functional diversity appropriateness were not poorly performing teams, but in fact well performing teams. Contrary to what we expected, poor teamwork behavior did not just weaken the positive effect of team performance on perceived functional diversity appropriateness, but actually turned this relationship towards the negative. That is, when the level of teamwork quality in a sourcing team was low, higher performance in terms of cost effectiveness reduced team members' belief that the right functional backgrounds were represented in the team. At the same time, managers considered the diversity of these teams to be good, since achieved cost savings were high.

This finding could simply be the effect of some members of poor-functioning teams pushing the job harder and getting better results. However, their behavior may nevertheless result in judgments from team members that the composition of the team is inappropriate. Alternatively, the negative moderating effect may be explained in the light of the single functional criterion by which team performance was measured. In theory, different functional areas within an organization should have complementary goals derived from common, overarching company objectives and goals. In practice, however, organizational goals are often broken down into specific functional objectives that may conflict with each other (Pinto et al., 1993). Our results may reflect effects of agency costs, including divergence in interests and imperfect monitoring (Jensen & Meckling, 1976). Achieving cost savings is the primary goal from the purchasing department's –and purchasing managers'– perspective. Members with other functional backgrounds may be more concerned about the preconditions under which this goal is achieved (e.g., the quality of the sourced goods or services, the flexibility of the supplier, etc.), may assess the actual costs and benefits for the firm differently, or may simply prefer to focus on the activities for which they are actually assessed and rewarded. Individual purchasing team members may push cost saving goals without developing good teamwork with the other team representatives. Inputs from other functions that do not seem to contribute to cost reduction plans, or that even seem counterproductive to those plans, could be disregarded. Those high performing teams may reflect a situation in which other functional perspectives have insufficiently been taken into account, leading members to consider a stronger and wider representation of other functions necessary. Our additional analysis supports this latter explanation: the negative effect of high performance on perceptions of functional diversity appropriateness only surfaced in cross-functional teams, and not in mono-functional teams. Goal incongruence is absent in mono-functional teams, and hence, high cost effectiveness does not harm perceptions concerning the team composition in those teams, while it does in cross-functional teams.

This could point towards a general phenomenon in cross-functional teams: Teamwork behavior may suffer where one functional goal prevails over others. In turn, this will bring team members to doubt the functional diversity appropriateness of the team, thereby damaging the team's long term viability and performance potential.

Enabling teamwork behavior is thus critical, not only for current performance, but particularly for long term team success. Managers have a prime responsibility in enabling good teamwork behavior in cross-functional teams. At the same time, however, teamwork behavior seems to fall into management's blind spot, since managers do not consider the quality of teamwork in evaluating teams or when making decisions to interfere in team compositions. Providing teams with a sufficient level of autonomy and guaranteeing that all members are recognized and rewarded for their contribution prove to be effective practices.

In sum, this empirical study was among the first to have adopted the IMOI approach to study perceptions of team performance and functional diversity appropriateness. First, our findings indicate that differences in performance perceptions between team members and managers, as reported in prior research (Ancona & Caldwell, 1992b; Campion et al., 1993; Campion et al., 1996; Cohen & Ledford, 1994; Cohen et al., 1996; Hoegl & Gemuenden, 2001; Hoegl et al., 2004; Kirkman et al., 2001), may be attenuated when unequivocal and identical outcome criteria are used, about which both groups are well-informed. Second, this research explains how and why team member and management perceptions regarding the appropriateness of functional diversity differ. Our findings point towards the pivotal role of effective teamwork behavior and the contextual factors that consolidate it. Finally, the study brings to light the risk that cross-functional teams incur if they achieve high performance through poor teamwork behavior.

3.6 Implications

Despite claims that moving towards a cross-functional approach for purchasing and supply management is critical for future development of the purchasing profession (Carter & Narasimhan, 1996; Carter, Carter, Monczka, Slaight & Swan, 2000; Trent & Monczka, 1998; Van Weele & Rozemeijer, 1996), our results show that purchasing managers are reluctant to do so. In contrast, members of sourcing teams generally perceive that cross-functional compositions are a prerequisite for obtaining better future results. This discrepancy may lead to situations where managers intervene inappropriately to homogenize team structures, which team members perceive to be a step backwards rather than forward. Similarly, our results show that when current performance meets management expectations, managers will most likely not intervene, even if team

members themselves are critical with respect to the team's abilities. In those cases teams will be forced to "muddle through", which likely has a devastating impact on future team member motivation.

The preference not to involve other business functions among purchasing managers may also be present in other business domains. Such discrepancies may particularly occur in settings that require cross-functional cooperation, but where cross-functional teams are not a widely accepted practice yet, such as in sales environments (Weitz & Bradford, 1999). The primary commitment to one functional goal of a manager responsible for a cross-functional team contradicts with the purpose of cross-functional teams, which is to take into account multiple functional goals simultaneously.

As this study shows, managers are likely to base their decisions to intervene in teams on outcomes, rather than on processes. This phenomenon reduces the likelihood of interventions in the infrastructure that enables teams to develop productive internal processes. Our study indicates that under conditions of poor performance, managers should first focus on improving teamwork behavior, before intervening in the team's composition. Moreover, managers should not be misled by current performance alone; high performance may have been achieved at the cost of high personal sacrifice and team disputes, which may decrease chances for future team success (either with the same team members, or members representing the same implicated functional areas).

Finally, our study shows that high performance on one objective can lead to low levels of perceived functional diversity appropriateness in teams with poor teamwork behavior. One possible explanation is that goal setting remains to be a matter of concern for cross-functional teams. Goal acceptance and commitment among the cross-functional team members is key to success (Rauniar, Doll, Rawski & Hong, 2008). In order to achieve this, teams and their managers should define a clear set of objectives that is communicated to and accepted by senior management and their functional department managers (Parker, 1994). Failing to do so may −despite current performance− lead to a decline of team viability, as our data indicate.

3.7 Limitations and Future Research

One of the limitations of this study is that common method bias was not cancelled out. This limitation, however, does not hold for the notion that team member and management perceptions of performance are more similar than perceptions of functional diversity appropriateness. Moreover, if common method bias had occurred, we would likely have found positive relationships between all constructs measured under the same target group (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). This is not the case. In fact, the relationship between team performance and perceived functional diversity appropriateness was absent, although we had expected this correlation to occur. Finally, common method variance is unlikely to occur for moderating effects (Podsakoff et al., 2003).

A second limitation is that the direction of causality cannot be confirmed with a cross-sectional study design. Although we have theorized in this chapter about the order of constructs in one direction, it may also be that perceived functional diversity appropriateness is a predictor for team performance. Nevertheless, this would not affect the main conclusions of our study, namely that there is a discrepancy between management and team members' ratings of functional diversity appropriateness, that managers' perceptions are not related to actual teamwork behavior, that team member perceptions of functional diversity appropriateness are related to higher levels of functional diversity while management perceptions are not, and that teamwork behavior and team performance interact in their relation with perceived functional diversity appropriateness.

This study confirms the relevance of the IMOI approach, but could not capture the dynamic nature of teams. Future longitudinal research should confirm causality, but maybe even more interesting, it could investigate how perceptions lead to managerial interventions, and whether perceptual differences between team members and managers diminish or increase as time passes.

The finding that high performance on one functional goal leads to lower perceptions of functional diversity appropriateness when teamwork behaviors are poor is in our view a particularly interesting area for future research. Gaining more insight into the role that goal incongruence may play in explaining these findings would require in-depth investigations in the departmental background of individual members and the priorities they assign to various (sub)goals and requirements. Possibly, the overall level of corporate coherence might be an

overarching factor that predicts deviations in objectives of different departments (Bryceson & Slaughter, 2010). Next, it would be particularly interesting to study which members have the highest impact in setting the team's priorities. Finally, future research could explore how deviant goals of individual team members affect performance achievements in the long term. This phenomenon may be generalizable to other cross-functional teams, and could therefore be studied in other settings than sourcing teams (e.g., sales teams, inter-firm teams, etc.). Exploring goal prioritization processes in teams could make a significant contribution to the team performance literature. Particularly in this era in which effective cross-functional collaboration is more and more crucial for company survival (Denison et al., 1996; Hutt, Walker & Frankwick, 1995), research on how to achieve long-term rather than short-term team success is vital.

Chapter 4

Towards a holistic view on team performance:

The Dynamic Embeddedness Model[9]

Previous models used in team research fall short in capturing both the contextual and dynamic nature of teams simultaneously. Theories related to IPO, boundary spanning, and timing research have largely been developed in parallel and, unfortunately, lack an integrated perspective. In this chapter, we aim to consolidate and extend these perspectives on team performance. Whereas chapter 3 focused on effects of one performance loop on the next one, we here concentrate on the processes that evolve within one performance cycle. We propose the Dynamic Embeddedness Model, incorporating both internal and external team processes over time, and introducing the concept of team embeddedness. Team embeddedness is defined as the extent to which team members have constructive interactions with stakeholders in their upstream (towards the power structure) as well as their downstream (towards the workflow structure) networks. Using a multiple case study approach, we explore the relevance of applying the concept of team embeddedness in practice. We use data from six cases in three companies to further refine the Dynamic Embeddedness Model, and show how team embeddedness causes teams to exhibit either a smooth progression, or a lengthy, iterative path.

[9] This research was conducted in collaboration with Josette Gevers, Mariann Jelinek and Arjan van Weele. An earlier version of this chapter was presented as a paper at the 2010 IPSERA Conference (Lappeenranta, Finland). An adapted version of this chapter is under review for publication.

4.1 Introduction

As we have noted, the input-process-output (IPO) model has served as a valuable guide for team researchers over the years. However, there has been controversy surrounding the appropriateness of the IPO model in representing team effectiveness. In a recent review of the team literature, Mathieu and colleagues (Mathieu et al., 2008) conclude that the IPO model and its derivatives are no longer suitable for researching contemporary organizational designs. The emerging consensus in team research is that teams should not be considered as static, isolated entities, as implied by the IPO model, but rather as complex, dynamic systems, which adapt constantly to their environment.

The IPO model falls short in two specific ways for capturing the contextual and dynamic nature of teams. First, the traditional IPO framework focuses on team processes that evolve within the team. However, teams must increasingly coordinate and manage key relationships external to the team for achieving both team and organizational success (Marrone, 2010). IPO-based research has provided only limited insight into the processes that evolve across the team's boundaries, but that do affect team performance (McGrath, 1997). Second, numerous authors have emphasized that time plays a critical role in team functioning (Marks et al., 2001; Mathieu et al., 2008). This temporal dimension cannot be depicted adequately in an IPO framework, which downplays or ignores the possible performance effects of changes in team behavior over time.

In effect, two new lines of inquiry have emerged in team literature. One line of inquiry addresses relationships with actors beyond the team's boundary. This research stream can be subdivided in research on boundary spanning behavior, which focuses on actions and behavior by team members directed at others external to the team, and research applying social network analysis, in which the structure of networks around teams is investigated. The basis for research on teams' boundary spanning behavior lies in the seminal work of Ancona and Caldwell (1992a), which directed research attention toward boundary spanning behavior in the two decades that followed. Particularly in the last decade, empirical work on antecedents and consequences of such external activities have begun to appear (Choi, 2002; Marrone, Tesluk & Carson, 2007). Related to research on team external behavior are studies investigating the structure of social networks around teams. Such studies analyze the effects of network characteristics on team performance. Surprisingly, however, teams have been neglected in network

literature for a long time (Balkundi & Harrison, 2006). More recently has attention turned to team member networks' impact on team effectiveness (Cummings, 2004; Reagans, Zuckerman & McEvily, 2004; Reagans & Zuckerman, 2001). So far, team studies based on social network analysis and studies focusing on team member external behavior have followed different and isolated paths.

A second line of inquiry focuses on the role of time. Gersick (1988) pointed to the importance of temporal processes, but was followed only recently by a more substantial emergence of time issues in team research (Hackman & Wageman, 2005; Marks et al., 2001; Waller, Zellmer-Bruhn & Giambatista, 2002). Other important contributions come from Ericksen and Dyer (2004), who empirically studied different phases of team development; and from Ilgen and colleagues (Ilgen et al., 2005), who extended the temporal scope by emphasizing the cyclical nature of team performance.

These different streams have developed in parallel, but unfortunately lack an integrated perspective. Individual insights from IPO, boundary spanning, and timing research only partly address the reality of real life teams in organizations. In a recent review of the team literature, Mathieu et al. conclude: "As we move forward, we need to not only build on what we have, but be willing to take great strides and in some cases leaps to ensure that we are capturing and embracing the complexities of current team arrangements and seeking to better understand them rather than to fit them into our current frameworks" (Mathieu et al., 2008, p. 463).

In this chapter we aim to consolidate and extend these perspectives on IPO, boundary spanning, and timing in team research. We propose an integrated model that incorporates both internal and external team processes over time, introducing the concept of team embeddedness. We define team embeddedness here as the extent to which team members have constructive interactions with stakeholders in their upstream as well as their downstream networks. Team embeddedness is closely related to team boundary spanning behavior, as it entails activities directed at actors external to the team. In addition, it also includes the structure of the social network around the team and that network's influence on the team (i.e., interactions between members and external actors, rather than actions or behaviors of team members only). The nature of interactions with the upstream and downstream network is likely to change over time, as teams progress through subsequent stages. This chapter examines how team embeddedness affects internal team processes and team performance.

Using a multiple case study approach, we explore the relevance of applying the concept of team embeddedness in practice. We use data of six cases from three companies to further refine a model incorporating both internal and external processes, and to operationalize it for future studies. Recent perspectives on team functioning recommend a thorough examination of externally directed team processes, in addition to the internal team processes (Richter, West, Van Dick & Dawson, 2006). In this research, we therefore focus our attention to team embeddedness and the role of networks around teams in explaining team performance, rather than on internal team processes.

We proceed as follows. The next section presents a concise literature review and a conceptual model explaining team performance, with which we aim to integrate insights from previous models, and thereby to create a more holistic view on team functioning. Section three describes the methodology of the case studies, while their results are presented in section four. A discussion follows in section five. Finally, conclusions and limitations, and suggestions for future research are discussed in sections six and seven respectively.

4.2 Theoretical background and the Dynamic Embeddedness Model

4.2.1 IPO research

Team structures are widely considered as an effective organizational form. Generally, teams benefit from the knowledge, skills, perspectives and ideas of different members, enabling the team to accomplish tasks beyond what any individual member might achieve. Through task-related communication within the team and through coordinated efforts, teams can benefit from each team member's strengths to maximize their collective effectiveness. Therefore, teams are thought to be particularly appropriate for conducting tasks that are complex and comprised of interdependent subtasks (Eby & Dobbins, 1997). This inward perspective on team behavior is characteristic for the rich body of literature that has evolved around team processes and performance. Many researchers have attempted to understand the attributes contributing to team effectiveness. These studies most frequently are based on the popular IPO framework, in which team effectiveness is

modeled as an effect of certain input factors, classified into categories such as 'team composition' and 'organizational context', which affect team processes, thus driving team effectiveness (Campion et al., 1993; Cohen & Bailey, 1997; Gladstein, 1984; Hackman, 1987; McGrath, 1964).

4.2.2 Team embeddedness

Although insightful and valuable, the traditional IPO model is increasingly seen as insufficient for characterizing the contextual and dynamic nature of teams. The challenges facing teams in organizations have changed since the early development of the IPO model. In today's work organizations, teams are seldom independent of other parties in their environment, and rarely complete their tasks in isolation. Work structures have become flatter with less hierarchical ranks, and both tasks and organizational designs have become more complex (Mathieu et al., 2008). Under these conditions, functionally diverse team members often must coordinate actions outside the team, while coming together within the team at various times for reviewing progress. Hence, the need for organizational teams to coordinate interdependent work efforts and bridge disconnected parties by actively managing relationships external to the team has increased. This requires increased research attention for interactions among team members and others external to the team, as well as for the structure of the social network around teams.

Thompson (1967) was among the first to acknowledge that multiple teams can be interdependent for completing their task, and to offer a conceptual basis for studying relationships among teams (without incorporating relationships with external entities other than teams). Building on Thompson's work, researchers attempting to define and operationalize interdependence among teams have often measured the intensity of external activities using network analysis and communication frequencies among teams (Van de Ven & Ferry, 1980).

The foundation of today's research on externally directed behavior, however, lies in the work of Ancona and Caldwell (1992a), whose inductive investigations resulted in a taxonomy of externally directed activities, including (1) *ambassador* activities, which are oriented towards top managers and the power structure to gain support and resources; (2) *task coordinator* activities, which adjust the structure of work-flows involving other teams; and (3) *scout* activities, which

gather information from the general environment. This taxonomy attracted research attention to external activities in the two decades that followed (Choi, 2002; Marrone et al., 2007). Overall, these studies demonstrate that external behavior is a significant contributor to team performance outcomes, and also to higher level outcomes such as successful implementation of organization-wide change initiatives and company level innovation. External activities even seem to be better predictors of team performance than internal group processes for teams facing external dependence (Ancona, 1990). However, in a recent review Marrone (2010) concluded that significant gaps still exist in our understanding of the nature of external team activities, and how and when these activities should be carried out by teams.

Social network analysis offers a different approach to team contexts. Social network studies of teams typically differentiate between internal network characteristics, i.e., the structure and content of ties within teams; and external network characteristics, i.e., the structure and content of ties between teams. Most studies define connections between teams as the external network (Balkundi & Harrison, 2006), thereby excluding other important actors in the external network, such as managers and individual experts. Recent studies applying network analysis methodologies emphasize the importance of external ties for team performance (Balkundi & Harrison, 2006; Reagans et al., 2004; Reagans & Zuckerman, 2001)[10]. These studies show that the more teams are embedded in their organization, the better they perform.

Thus, whereas more traditional IPO research typically involved management actions directed at the team (e.g., providing rewards, autonomy, resources, etc.), external behavior research involves team member actions directed at management and other stakeholders outside the team, while social network analysis studies describe the connections between team members and those external stakeholders. It is remarkable that these streams of research have developed at least for the greater part in isolation from each other, and that no substantive attempts have been made to integrate the perspectives on the team level (Balkundi & Harrison, 2006).

Building on these contributions, we propose in this study a new concept, 'team embeddedness', which integrates these three elements of the contextual

[10] This type of team research draws upon the rich base of social network analysis literature (e.g. Burt, 1992; Granovetter, 1973). For reasons of brevity, we limit ourselves in this dissertation to the elements of network theory most directly relevant to team performance.

nature of teams. We propose that the network structure around teams, and the interactions that takes place with and between actors in that network, determine team embeddedness. Well-embedded teams are connected to all their key stakeholders, and have effective interactions with those stakeholders; by contrast, isolated teams lack such connections and/or suffer less effective interactions.

In assessing team embeddedness, we distinguish between an upstream and a downstream network. From the work of Ancona and Caldwell (1992a) we know that interaction with managers to gain support and resources is different from task-related interaction for gathering information and coordinating activities with non-team members. We therefore define the upstream network as the power structure formed by a team's stakeholders of a higher hierarchical level, who control resources and exercise supervisory responsibilities towards the team. Connections between the team and this upstream network thus capture what is often described as the governance role (Postrel, 2002). The downstream network, on the other hand, is made up of people in the workflow structure who possess information necessary for successful task execution. The downstream network also includes relationships with stakeholders whose activities must be coordinated by the team for successful task completion and implementation. For example, corporate sourcing teams usually depend on managers external to the team who must comply with a sourcing team's recommendations by implementing agreements with suppliers, which have been negotiated by the team. The terms upstream and downstream reflect the flow of tasks and projects, which formally originate with the support from the upstream network, and are deployed in collaboration with the downstream network. Team embeddedness involves the interactions with the upstream as well as the downstream networks. Figure 4.1 depicts the concept of team embeddedness graphically.

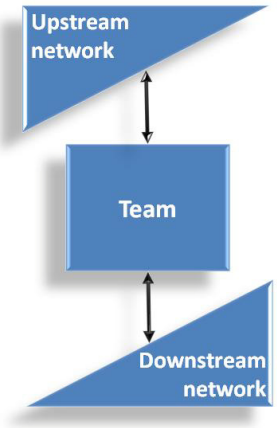


Figure 4.1: Team embeddedness; the extent to which team members have constructive interactions with stakeholders in the upstream as well as the downstream networks.

4.2.3 Timing

A second limitation of the IPO model is its emphasis on team "statics" over "dynamics," downplaying the possible performance effects of team changes over time (Marks et al., 2001). Ilgen and colleagues (2005) suggested the input-mediation-output-input (IMOI) model as a derivative of the IPO model, to capture the dynamic nature of teams. The extra input at the end of the model illustrates the cyclical feedback loop that occurs in teams. Thus, the outputs of one cycle (i.e., the completion of a project or task) serve as inputs for the next performance episode. Although this model captures the effects of one performance cycle on the next, it still reflects the static causal input-output relationships of the IPO model *within* a performance cycle.

In 1965, Tuckman synthesized existing literature on team development in a stage model, and later updated the model based on a subsequent review (Tuckman, 1965; Tuckman & Jensen, 1977). Although this model has been cited frequently, some team theorists have criticized the validity of stage models[11]. One of the most fundamental limitations is that these models say little about transitivity, the duration, and the precise number of stages, thereby providing snapshots in time, as was already pointed out by Tuckman (1965). Gersick (1988)

[11] Also outside the team literature, stage models have received criticism. For example, Fryer (1985), after reviewing studies on stages in the psychological response to unemployment, concluded that stage accounts are not recommended since most evidence seems to be seriously flawed.

did study this transitivity in her landmark study on the effects of time on team processes and performance, and showed that teams progressed in a pattern of "punctuated equilibrium," through alternating inertia and revolution in team behaviors. Although the original stages may have considerable face validity as a general sequence, empirical observations have pointed at a more complex sequence in specific teams (Rickards & Moger, 2000).

Over the last decade, more substantial research on time issues in teams has begun to emerge. A temporally based framework and taxonomy of team processes by Marks and colleagues (Marks et al., 2001) provided guidance to empirical studies that followed, including the importance of time for deadlines imposed on teams and on team leadership (Gevers & Peeters, 2009; Hackman & Wageman, 2005; Harrison, Mohammed, McGrath, Florey & Vanderstoep, 2003; Harrison, Price, Gavin & Florey, 2002; Roe, 2008; Waller et al., 2002). Without promoting specific stage models, this theoretical and longitudinal empirical research proved that team processes are dynamic rather than static, and that the effects of those processes vary, depending on when and in which sequence they take place (Mohammed, Hamilton & Lim, 2009).

After an extensive literature review, Ilgen and colleagues (Ilgen et al., 2005) concluded that team research with temporal features converges around three stages of a performance cycle: 1) the '*forming'* phase, covering the early stages of team development, 2) the '*functioning'* phase, during which the team works together on the task, and 3) the '*finishing'* phase, when the team completes its work. Also recently published empirical studies on leadership and creativity distinguish between three phases, and prove that studying these phases leads to insightful results (Farh, Lee & Farh, 2010; Wageman, Fisher & Hackman, 2009). We adopt the parsimonious and practical approach to distinguish between three stages of development, and apply the terminology forming, functioning, and finishing, because these reflect activities that take place over time, fostering a process view. This perspective on subsequent stages of team behavior is depicted in Figure 4.2.

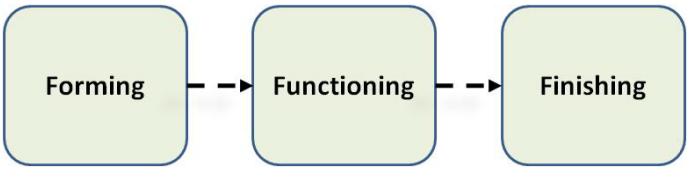


Figure 4.2: Three stages of a team performance cycle

4.2.4 The Dynamic Embeddedness Model

To the best of our knowledge, contextual and dynamic approaches have not yet been integrated. The lack of an integrated perspective limits possibilities for extending our insights by exploring the interdependencies between aspects from team internal, contextual and temporal perspectives. As others have argued: "the temporal dynamics of team task development have never been considered to date in research on team boundary spanning" (Joshi, Pandey & Han, 2009, p. 744). In this chapter we attempt to fill this gap. In doing so, we have integrated the various research streams in our Dynamic Embeddedness Model (depicted in Figure 4.3).

The structure of the team in relation to its upstream and downstream networks is captured within the building blocks of this model. The arrows represent behavioral structures between teams and their environment. Finally, the dotted lines indicate evolution as time passes in the interrelationships between previous and later network structures and behaviors. This Dynamic Embeddedness Model reflects one team performance cycle on the team level. Implicitly, it could be extended to embrace multiple cycles for enduring teams, although we do not do so here. One could 'zoom in' on the individual level and assess behaviors between individual team members and individual actors in the network around teams at each stage (see Figure 4.4). We thus acknowledge the multilevel nature of team embeddedness (Hackman, 2003; Joshi, 2006; Oh, Labianca & Chung, 2006).

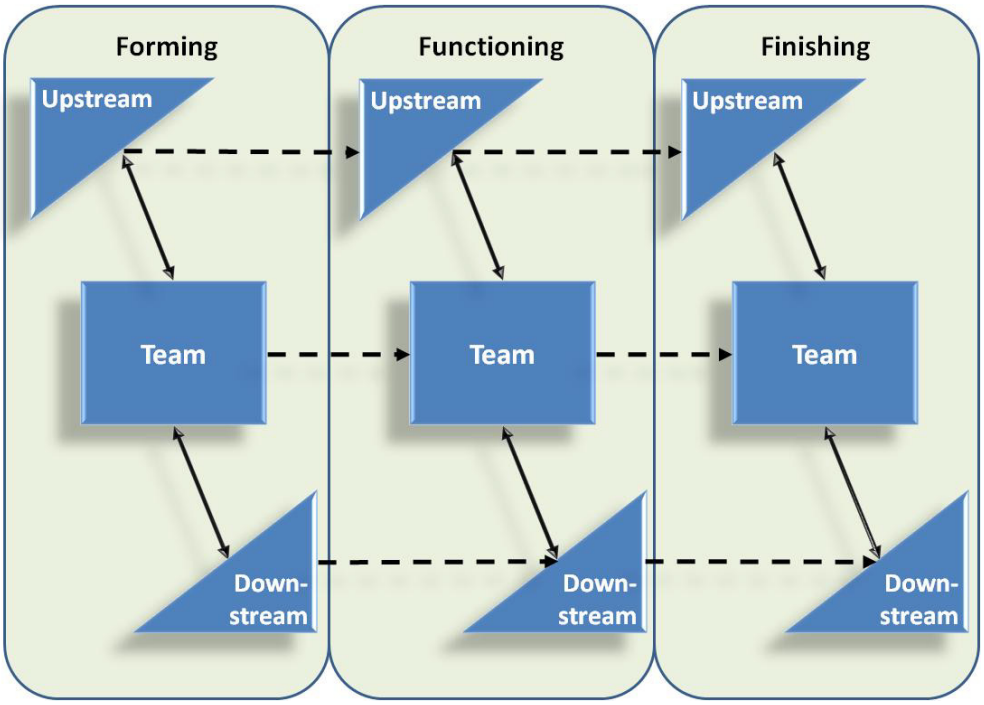


Figure 4.3: The Dynamic Embeddedness Model

Previous findings from different streams of team research can be positioned within this model. For example, consider typical IPO model inputs such as team composition and team autonomy (Campion et al., 1996; Cohen et al., 1996; Hackman, 1987). Initial team composition is captured in the 'team' block in the Dynamic Embeddedness Model, which describes the structure of the team. Team autonomy is created by behaviors imposed on the team by the network around it (mainly the upstream network): Do upstream actors try to interfere in team decisions, or do they assume a more distant role, legitimating autonomy? Internal team processes are captured by the interactions among team members, as depicted in Figure 4.4. Social network analysis variables are captured in the building blocks of the Dynamic Embeddedness Model. Team network range, for instance, is determined by the size and diversity of the upstream and downstream networks (Collins & Clark, 2003; Reagans et al., 2004). Finally, the Dynamic Embeddedness Model includes temporal features. For example, how stable is the team's composition over time (Hopkins & Hopkins, 2002)? How do relationships within upstream and downstream networks develop? And how much time is spent on the forming phase (Ericksen & Dyer, 2004)?

Although the Dynamic Embeddedness Model is designed to explain and predict team performance, team performance is not graphically included in this framework. First, performance against predetermined criteria is a static element, and thus has a different dimension than the dynamic concepts presented here. Second, although performance criteria may directly be derived from finishing activities or their outcomes (e.g., adherence to schedules), team performance in general (including elements such as team viability and organization-wide compliance with changes instigated by the team) depends on the sum of the effectiveness of the activities in all stages. We assume that the evolution of connections and interactions over time between the team and its networks sums up to overall team performance. This model thus acknowledges that team performance does not only depend on what the team characteristics (the 'inputs' such as team composition in the IPO model) are in the beginning, but also on when and how they come into place. In fact, recent research shows that getting things right in the forming stage, rather than later in the process, has a disproportionate effect on ultimate team performance (Ericksen & Dyer, 2004; Wageman et al., 2009). For example, consider a team that is at the start disconnected from a key stakeholder who holds critical information necessary for defining the team's project. This situation will compromise performance unless it is resolved. The team can, however, at least partly, compensate for this flaw in the functioning stage by incorporating this knowledge effectively and revising the project plan adequately. Ultimate performance thus also depends on recovery actions that may take place at later stages of team functioning. We use the case study results to expand on the relationships between subsequent stages and team performance later in this chapter.

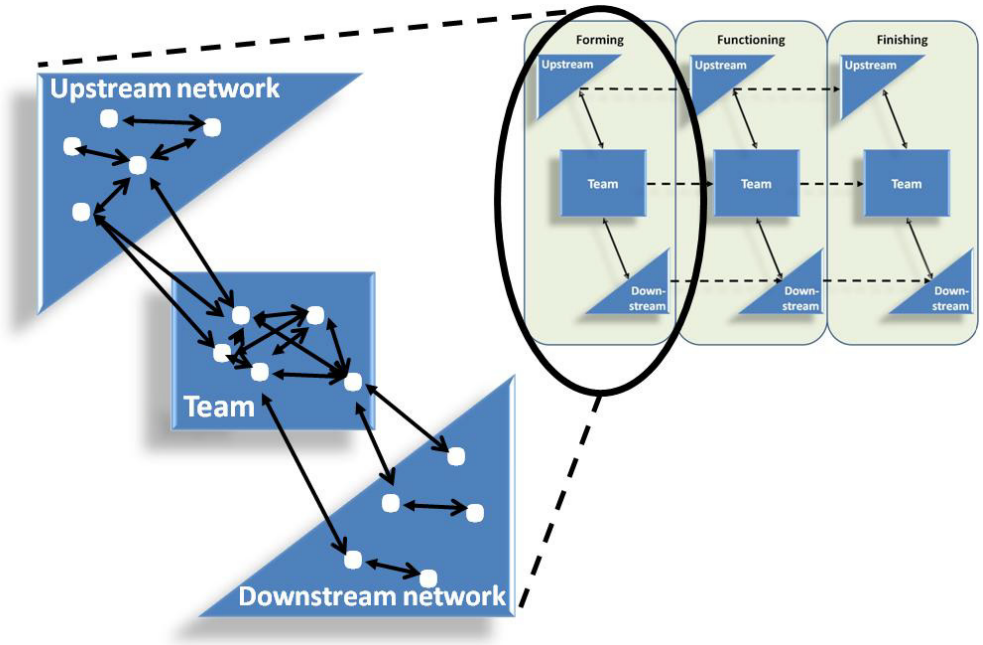


Figure 4.4: Individual level interactions

The application of the Dynamic Embeddedness Model is derived from known theoretical variables. Explorative qualitative research is necessary for empirically investigating the validity of this model, for developing the appropriate terminology and for defining the relationships between the model's concepts (Dul & Hak, 2008; Eisenhardt & Graebner, 2007). Comparative case studies provide an excellent opportunity to enhance the conceptualization and operationalization of the model proposed here. The objectives of this empirical study were twofold. First, the case studies served to explore team practices in order to confirm or disconfirm the relevance of the proposed model. Second, the case studies served to explore the concept of team embeddedness, to derive possible operationalizations of the concept for future research (Dul & Hak, 2008). Since previous research has addressed internal processes extensively, our primary interest lies in external team embeddedness. As discussed extensively before, our subject of research is corporate sourcing teams, which have become increasingly popular in large, multinational firms (Driedonks et al., 2010). Such teams seek, select, and manage suppliers on behalf of the users within a company (Trent & Monczka, 1994). As has been explained, sourcing teams are a typical example of teams whose success is to

a large extent determined by the behavior of others external to the team, by no means limited to sourcing activities. Moreover, sourcing teams are typically staffed by representatives, which come from multiple disciplines and organizational entities, making these teams an excellent example for investigating team embeddedness. However, we see corporate sourcing teams as being representative for other types of teams, such as new product development teams, customer service teams and quality teams. In the remainder of this study, we report the results of our comparative multiple case study.

4.3 Methods

4.3.1 Sample

To explore our model more in depth, we conducted empirical case research (Eisenhardt & Graebner, 2007; Yin, 1994). By studying sourcing teams in their natural settings, we aim to derive meaningful implications for theory and practice (Meredith, 1998). We elicited participation from three large multinational companies from different industries (food, electronics and retail), each with multiple divisions. These companies each centrally coordinate (part of) their purchasing, i.e., sourcing activities. In each of the companies sourcing teams are responsible for defining and executing a corporate sourcing strategy for specified categories of products and services. We deliberately selected three large companies so that commonalities and differences across the varied settings might help to outline the patterns upon which the Dynamic Embeddedness Model can be substantiated. Moreover, contrasting conditions are helpful in framing operational measures for future research, since those measures should be applicable across a variety of settings (McCutcheon & Meredith, 1993).

Sourcing teams included in this research selected and contracted key suppliers. However, they were not responsible for operational purchasing activities (a typical arrangement for sourcing teams found across different companies and industries); that is, others executed the agreements the teams negotiated. To be able to analyze differences between good and poor performing teams, we applied theoretical replication (Voss, Tsikriktsis & Frohlich, 2002), selecting at each company both a team that had a good reputation at top management, particularly with respect to cooperation within the company, and

one with a poorer reputation. Although team studies sometimes rely on objective performance measures, subjective measures are most typical. In general, this is due to the fact that companies have not succeeded in developing fair performance measures at the team level (Gibson et al., 2003). Although the companies involved in our study monitored objective performance data (mainly cost savings), such performance data did not allow for comparing performance across teams. Different projects served different objectives and represented different cost saving opportunities. Our methodology based upon theoretical replication maximizes the likelihood that existing relationships between concepts in the Dynamic Embeddedness Model are discovered (Dul & Hak, 2008). We deliberately selected sourcing teams with projects nearing their end, for two reasons. First, the team's way of working and effectiveness in operations would have sufficiently crystallized; second, in all cases the teams would still be active. We thus conducted interviews and followed teams during their functioning and finishing stages. This positively affected the validity of our research, since the risk for respondent bias was reduced when respondents were asked about recent and ongoing issues and actions. Of course, interview data are also in all cases partly retrospective, particularly regarding their forming phases. The main disadvantages of retrospective data are that respondents may not recall important events, and post-rationalization (Voss et al., 2002).

An overview of the sample is provided in Table 4.1. Yearly revenues of the companies in our study range from approximately 10 to 30 billion Euros. At the Alpha Company[12], whose various divisions represented various brands and multiple plants, we refer to the teams as the *Ingredient* and *Professionals* teams. Alpha Company's centralized purchasing department used cross-functional sourcing teams. Both teams selected at this company had a permanent character: they had ongoing responsibilities over certain key spend categories. Members were based at various departments and geographic locations, and were assigned to the team on a part-time basis, except for the team leader, who was fully dedicated to the team. One project of each team was selected as the unit of analysis.

At the Beta Company (also a pseudonym), two teams (the *Facility* and *IT* teams) were selected that manage indirect spend categories (products and services that are not incorporated in customer offerings) for all of the company's divisions. The *Facility* team, which was selected for this study, was a mono-functional team of

[12] Company and team names are pseudonyms, in keeping with confidentiality arrangements.

purchasers whose responsibilities were divided over different geographic areas. Members worked at various places over the world, but were dedicated fulltime to the team. Projects of the *Facility* team, of which one was selected, were typically executed at one location at a time. The project under study covered all sites of one division in one country and included policy changes with regard to the exploitation of facilities for employees as well as a supplier switch. This team had a permanent character. The *IT* team, in contrast, was a formal project team that disbanded after project completion. This team was staffed by one purchaser and members from various IT subdepartments, all located at the same site.

Finally, at the Gamma Company, projects were often executed by informally composed cross-functional teams, with members from different departmental backgrounds. Two of such teams were selected, namely the *Product Introduction* and the *Store Layout* team. Members of the *Product Introduction* team were located at two different locations (a business unit location and a headquarter location), while the *Store Layout* team members operated from the same location. Members of both teams worked part-time for the teams, while retaining the prior responsibilities they had in their respective departments. Although the purchasing department covered multiple divisions, each selected project was rolled out in one division only.

4.3.2 Data collection and analysis methods

Extensive interviews were the primary source of information. In total, 29 interviews were conducted. Respondents belonged to the team's upstream network (managers of team members), the team itself, and its downstream network (e.g., division directors and plant employees). Selection of the respondents was based on the context of the project. An overview of these interviews is provided in Table 4.2. Interviews lasted 1 – 2.5 hours. All interviews were recorded, reported and summarized.

Com-pany	Industry	Team	Project purpose	Core team type	Final team size	Functions repre-sented
Alpha	Food	Ingredient	Switching from Ingredient supplier	Permanent	6	4
		Professionals	Switching temporary labor providers	Permanent	4	2
Beta	Electronics	Facility	Switching employee Facility supplier and changing policies	Permanent	4	1
		IT	Change in IT infrastructure, which involved sourcing services and hardware	Project	5	5
Gamma	Retail	Product Introduction	Sourcing and introducing an existing product in the company's stores	Project	4	4
		Store Layout	Sourcing marketing materials to be used in stores	Project	4	4

Table 4.1: Case team sample characteristics

The semi-structured interviews were guided by a list of questions that referred to past and ongoing work practices by the team and its interactions with external stakeholders. Interviews thus evolved around how teams proceeded in subsequent stages, and around the role that external actors played in those stages. The aim of this research was to investigate how actual and relevant team developments in natural settings fit into the Dynamic Embeddedness Model, and how constructs might be operationalized for future research.

Research in each company was conducted over a period of two to four months, which allowed both for following developments in an individual team's work, and for discussing the end results. In interviews with managers, we solicited available management information with respect to the teams that were involved. Besides these formal interviews, the principal researcher had numerous informal

conversations with team members and stakeholders. Initial formal interviews were on occasion followed up by informal phone calls to learn about recent developments. Although data about the forming phases of the teams were based on retrospective interview data, the principal researcher was able to observe progress over time during the functioning and finishing phases. By discussing developments with team members and external actors over time, both formally and informally, we aimed to develop reliable case stories.

We started with within case analyses (Eisenhardt, 1989). In order to analyze the results, important conditions brought forward by respondents were organized in tableaux. In these overviews, we distinguished between the upstream network, the team, and downstream network; between the structure of those networks and the team; and the nature of team-network interactions. Furthermore, we also distinguished among the team stages (forming, functioning and finishing). This overview framework was helpful in structuring the research, allowing us to identify potential discrepancies between responses and aspects that warranted further investigation with other respondents or other sources of information (Voss et al., 2002). Information was finally merged and reduced to the team level. The research team analyzed the observed events to derive an overview of how the team projects developed (McCutcheon & Meredith, 1993; Yin, 1994).

Cross-case patterns were investigated by constructing an array (Voss et al., 2002). We searched for differences and similarities between teams and their upstream and downstream networks over the three stages of time.

	Upstream network	Team	Downstream network	Total nr. of interviews
1. Ingredient	2	4	1	7
2. Professionals	1	2	1	4
3. Facility	2	2	1	5
4. IT	1	3	1	5
5. Product Introduction	1	3	1	5
6. Store Layout	1	2	0*	3
Total	8	16	5	29

Note * Information regarding downstream was gained by informal discussions and objective performance reports.

Table 4.2: Overview of formal interviews

4.4 Results

4.4.1 Case analyses

Team performance Team project performance was assessed by statements from stakeholders in the upstream and downstream networks and from team reports. Four clear categories of performance surfaced. The first concerned teams that were widely considered as high performing. Those teams met project targets such as schedule and budget, and could count on a high satisfaction levels among external stakeholders. The *Professionals* and *Store Layout* teams belonged to this category.

The second performance type was characterized by good final project outcomes, which however had not been achieved within the expected time frame. The *Product Introduction* team can be classified as such: this team's project completion was delayed substantially. However, when the project was eventually completed, results were accepted and appreciated by external stakeholders.

Two teams, *Ingredient* and *IT*, were considered to be successful by the upstream network. At the same time, however, implementation issues surfaced in their finishing stage, which led to dissatisfaction among actors in the downstream network. So, the level of project success for these two teams was assessed differently by different stakeholders.

Finally, the project of the *Facility* team failed. In the finishing stage, an important part of the project's initiative was rejected by the downstream network, and the project was eventually killed. Hence, the finishing stage was never completed.

Forming To incorporate the time dimension, we first consider the forming phase of the teams, beginning with high performing teams. The *Professionals* team was established by a steering committee made up by a high level procurement manager and an HR director, who assigned procurement and HR employees to the team. As such, there was a hierarchical reporting line between the steering committee and the team members. Actors in the upstream network (the steering committee) were themselves interconnected, and played an active role in both forming the team and formulating the project. The main target of the team was to arrive at considerable cost savings through negotiating and implementing a new contract. Although the project under study –contracting a new temporary labor

supplier– was one of the first projects of the team, the team was intended to be permanent. The downstream network in this case was primarily formed by HR departments in all company divisions. The HR members in the team represented this downstream network. Moreover, the HR director in the steering committee was very influential over these functional departments throughout the company.

Gamma Company's *Store Layout* team was assigned the task of conducting a project that resulted from a higher level initiative: The company board had set an overall cost savings target. In response, a steering committee was formed of high level managers from a number of departments. Under this steering committee, a working committee was established with middle managers from the same departments. This working committee initiated and tracked individual projects, and comprised the team's upstream network. The project assigned to the team was signing and implementing a new contract for brand signs used in stores. The composition of the team was said to be straightforward; a very similar project had been successfully completed by the team recently, and they regrouped to take on the new assignment. The team was led by someone from the centralized procurement department, and staffed by three other members, from three different functional departments. The team was not officially labeled a team (none of the projects governed by the working committee were), but the members self-identified as a team, and their managers were interconnected in the working committee. Key actors for project execution and implementation were part of the team, and these team members managed a well-organized downstream organization in their daily work. Part of this downstream network was a subcontractor managed by one of the team members; another part was made up by departments with whom the team members implemented all kinds of projects.

Next, we consider the *Product Introduction* team, whose outcome was eventually successful, but which failed to meet its project schedule. The *Product Introduction* team's project was initiated by a Business Unit (BU). The project's target was to introduce a high value product in the stores, which could be obtained from the market and was already being sold by other retail chains. However, the initiative failed to gain momentum in the marketing department. A category manager working at the BU decided to take up the project. She prepared a business case, and met with the intended supplier. Based on the information and proposals from the supplier's side, the business case was approved by BU managers, the only upstream network actors involved in this phase. No official project team was formed after the approval of the business case, and BU managers did not stimulate

the team leader to do so. The team leader chose to involve two representatives from decentralized functional departments located within the BU, and they self-identified as a team. The team leader had informal contacts with employees who directly supervised and supported stores, and who were part of the downstream network. However, as will be discussed below, the team lacked ties to a number of other critical actors in the downstream network.

Thirdly, we discuss the *Ingredient* and *IT* teams, which eventually were perceived as high performing by management, although difficulties during project implementation were reported by members of the downstream network. *Ingredient* was a permanent team, formerly made up of purchasers only, but now also staffed with an R&D member. High level procurement and R&D managers had scheduled general meetings, and a high level steering committee with purchasing, division and R&D managers was in place for supervising this specific team. The team identified a cost savings potential based on supply market analysis, and initiated the project under study. The steering committee approved the project. The middle manager to whom the R&D member reported was not informed about team projects, however. Team members were connected to their downstream network, primarily consisting of the centrally organized R&D department and quality and logistics personnel at the site level. The team served the interests of over 40 sites.

The project executed by the team *IT* was initiated by IT subdepartments and approved by a permanent cross-functional board. This board installed a cross-functional steering committee, which in turn designated a cross-functional team to execute the project. The target was to implement a change in the IT infrastructure which would simplify management and maintenance of systems, and involved sourcing products and services. The team was staffed by members from various IT subdepartments and from purchasing. However, the IT subdepartment responsible for day-to-day service to end-users was not represented neither on the team nor in the steering committee. The managers of all team members were involved in the steering committee. The downstream network was centrally organized and represented in the team by the various members.

Finally, we discuss the forming stage of the *Facility* team's project, which eventually failed. Team *Facility* was staffed by a team leader and purchasing team members who each covered a different geographic area, and were located in that area. The central procurement department initiated a cost savings project, discussed it in a workshop with cross-functional representatives, and planned to roll it out in one geographic area. Purchasing managers, the only upstream

network actors in scope, approved the project initiatives. Although the *Facility* team leader was involved in the project's initiation, its team members were not. The cross-functional representatives in the workshop later turned out to have neither responsibility nor influence in the further deployment of the project. Hence, the downstream network was in no way involved or connected at the time of the project's initiation. All team members were fulltime dedicated to the purchasing department, whose managers formed the upstream network.

Functioning In the next paragraphs, the functioning phases of all teams are discussed in the same order as before, starting with the high performing teams. The team leader and team members of the *Professionals* team pushed the project together. The team prepared all project steps by collecting information within the company and by meeting with potential suppliers. The team and the steering committee engaged in close collaboration.

> *Team leader: "We meet altogether [the team and the steering committee] every three weeks. In fact, two members of the steering committee are also part of the team"*[13]

The HR director, chairman of the steering committee, in particular played a critical role in the team's functioning. For example, the team organized for a virtual meeting with 150 internal stakeholders, which was led by this HR director.

> *HR director: "My role is to convince the HR directors of the other divisions"*
>
> *Team leader: "[The HR director] presented the intended plans. I first wanted to do it myself, but that would have likely led to substantial discussions and maybe refusals. It's lots of politics, too, you know."*

The team kept the downstream network informed over the course of the project.

> *HR director: "The team had sent newsletters to HR and operations. Nobody disagreed back then. The hassle began when the contract was there, but then I could simply refer to what was agreed earlier. That ended the discussion. Period."*

[13] Quotes from interviews that did not take place in English are translated into English by the research team.

The leader of the *Store Layout* team paid significant attention to formulating and agreeing upon all project criteria with the team members, who actively represented their home departments' interests.

> *Team leader: "At some point, we observed that [a team member] was not really engaged, and gave priority to other projects. […] Since we seemed able to achieve the initial savings target, he thought we should not bother about the price anymore, and change the design [regardless of previously set specifications]. So I said: "Hold on, let's stop right here." We discussed the entire set of objectives and specifications.*
>
> *[…] [In a previous project,] I had not done that sufficiently. [Internal stakeholders] changed the specifications, after that contract was signed! Things then got a lot more expensive."*

After all members had agreed to the project's scope and decision criteria, the project ran smoothly. The working committee, which supervised the team, held regular meetings to monitor team progress.

Gamma Company's centrally organized procurement department was responsible for coordinating all sourcing activities within designated categories of products and services. The products and services that team *Product Introduction* was sourcing fell under such a category, so, based upon the advice of a BU manager, the team leader contacted this central procurement department. A new member was added to the team for negotiations to finalize the contract. Once the representative from the central procurement department was involved, he started to question the specifications that had been set by the team. During the project, there was little direct contact between the team members. Instead, the team leader primarily informed team members individually. Eventually, while the team tried to bring the negotiations with the supplier to a close, the team leader learned that another central department should be involved, since its formal approval was required and this department would play an essential role in the implementation of any supplier solution proposed by the team. When an employee of this department was eventually involved, he inserted further new requirements and restrictions on the proposed solution. Again, the specifications had to be readdressed and reformulated, significantly delaying the project so its initial time plan was not met.

> *Team member: "It's not in our culture to prepare and plan [such projects] upfront, it's more like an iterative process of*

development. […] I negotiated the price down to the desired level, but specifications changed again. […] I don't understand why it's necessary to [set certain specifications, imposed by another team member]. I'm not going to contact the supplier, before I have answers from [the team leader], about why we should change specifications again. It's becoming a commercial issue, it drives up the price."

Managers of the corporate departments involved in this team project were not informed about the project, and indeed barely aware of its existence.

Manager of purchasing team member: "He's been working here a long time. We don't discuss these things in detail. […] Yes, I heard this project is on hold. I don't know why. […] I think this is supervised by [the business unit]. I can't imagine there is no steering committee for this project… Is there not?"

Team members explained that they would only have to inform their managers if the projected end result did not comply with their respective department's regulations and requirements. Although the team leader tried to speed up the project, members showed less concern about meeting timelines. In essence, the networks around the team increased over time, and their demands twice recast the project.

The functioning phase of the *Ingredient* team exhibited implementation difficulties. During *Ingredient's* functioning phase, the upstream network, formed by the steering committee, played a distant role. The primary concern of creating cost savings, which were reported to corporate purchasing management, affected the purchasing team members only. Members were not held accountable as a team; the manager of the R&D team member was not informed at all.

Team member: "No it's not exactly on top of my priority list. Well, I mean, I put sufficient effort in the team to make it work, but I have many other responsibilities and projects. It all requires time. In reality, it's totally up to me to spend time on this sourcing team, or not."

Team member's manager: "I'm not on any distribution list [of reports]. […] I think a little more noise is necessary. I would like to know in advance what the team is planning to do, and how successful they are."

The team selected a number of potential new suppliers, whose product offerings were approved by a permanent cross-functional team, whose task it was to verify every product change. Furthermore, team members kept extensive lists of external stakeholders; a new supplier contract should be implemented at 40 to 50 sites, but procedures, roles and responsibilities were not well-defined for change processes at the sites. Although sites had to confirm the quality and usability of new ingredients, little communication took place between team members and site representatives to assure operational follow up.

> *Team member: "[The team leader] joins negotiations with suppliers, which is very helpful, but it is not his job to get involved in internal businesses; that's what I should do. […] I don't have the time to pay much attention to business stakeholders. We have a lot of paperwork. […] In fact, I should spend more time on analyzing the supply market. […] I don't like all that coordination with plants, it distracts from the commercial work. That's [i.e., the commercial work] my job."*

The *IT* team's functioning phase proceeded according to a very structured project methodology, in which the steering committee could monitor how much time was spent by the team members on the project, and how much progress was made.

> *Support staff worker: "Team members report the time they spend on this project on an hourly basis."*

The team started by organizing workshops with user representatives, and developed a new IT solution. The aim of the workshops was twofold. First, for getting commitment, and second, for making plans, identifying issues, risks, all those things. No significant problems or delays occurred during this process, in which commitment was sought at management levels. Operational implementation issues, which eventually had to be dealt with by downstream network actors, were not raised in this phase.

Finally, we consider the troubled *Facility* team at the Beta Company. Initially, the team leader tried to implement the project immediately. However, the initiative hit division managers by surprise. They claimed that the project was based on incorrect information about their business, and could not be executed.

> *Division manager: "I received a phone call… that the project had to be implemented in a week. I was flabbergasted. [...] The information was incorrect and incomplete. Nobody had*

> *consulted any of us. […] The team didn't understand the baseline; financial data were retrieved from the supplier, and were not validated with business controllers. […] No, I am not aware of any workshop prior to the project's launch and sign off. […] No idea who signed off this project."*

In response, a representative from the area where the project was to be implemented was involved as a team member. She teamed up with actors in the downstream network, and succeeded in implementing part of the project. However, she concluded with the business owners that a substantial part of the project was not viable. Purchasing managers had noted the delay, but so far had awaited further actions, and were not apparently aware of this conclusion.

Finishing We now turn to reports of the finishing phases of the teams. Eventually, the high performing *Professionals* team brought its negotiations with suppliers to a close. Given the financial impact of the contract, the required high level sign-off by the top management team was provided. The steering committee, whose members' ties reached to the top management team, guided this process. Generally, the outcomes were also accepted and appreciated in the downstream network. The newsletters had set out the decision criteria, providing downstream actors possibilities for input, and thus precluded opportunity for disagreeing with supplier selections afterwards. Again, the chairman of the steering committee played a key role by mediating in a case where one downstream actor refused to commit. The team provided detailed transition instructions to the sites. In total, 18 sites needed to change suppliers. The team leader and members were able to support this number of sites in their transition processes.

> *Plant manager: "[One of the team members] has explained the implications of this project for us. With our management team, we've put our heads together. We had to install a team for the transition on this site. […] So it was a multidisciplinary team, in which the current and the new supplier participated. I was the chairman. […] The transition went without a hitch."*

After team *Store Layout* had signed a new supplier contract, no internal obstacles surfaced during implementation. Team members were responsible for rolling out the contract, which was to be used by a subcontractor, servicing the company's stores. These members previously held regular meetings with both internal users and the subcontractor to monitor supplier performance, and this procedure was equally followed for the current project.

> *Team member: "Implementation is the responsibility of the team. I receive maintenance reports and monitor the supplier's performance. Issues must be solved by the team."*

Results were communicated to the working committee, and included in communications further up the upstream network.

Although *Product Introduction* team's project was significantly delayed, its outcome was eventually successfully implemented during the finishing phase. Implementation was led by the team leader, who managed the actions of logistics and store service employees. Results were not formally reported to managers outside the BU. Hence, actors in the upstream network were not equally informed.

> *Team leader: "The product is a real success. I now promote this idea in other business units, to see if managers are interested."*

The finishing phase of the *Ingredient* team saw negotiations with a new supplier successfully brought to a close and confirmations obtained from sites regarding the quality of the ingredients. However, when the contract was actually implemented, some operational problems surfaced. Deliveries could not be made on all sites, and the former supplier appeared to control part of the supply process, which now had to be managed by the site again.

> *Plant worker: "We could not process the deliveries of the new supplier. The connections were different, and the truck drivers could not help us out. […][Eventually, after those problems are solved:] Our current supplier monitors the silo and refills autonomously. Suddenly they noted that a different supplier had delivered… […] The team didn't know that [the supplier managed our inventory]."*

Although these issues were resolved, the downstream network was not satisfied with the team's work. Savings reported to the steering team and purchasing managers, however, were in line with cost savings targets. Hence, the upstream network considered the team successful.

> *Division manager: "Saving reports disappear in the crypts of the purchasing organization. Eventually, figures show up in one of our business meetings. Most operating companies don't really recognize those figures. Our figures are different. And that's it. […] This is what you call a fox who guards the chickens."*

Team *IT*'s project was formally completed when the team finished all preparations for implementing a new IT solution, which included the procurement of hardware and services, and implementation instructions. The team leader reported the team's final outputs to the steering committee. Team members were not involved in this evaluation. Although the project was formally finished and the team and steering team disbanded, the team leader still led the implementation process. This process was delayed, partly because the supplier's stock levels were insufficient, but primarily because organizing internally for transition processes proved troublesome. Appointments had to be made with hundreds of sites for installing hard- and software. This appeared to be a fulltime task, which however was assigned to a single support employee, who found it difficult to locate the right people on all sites to make these arrangements. As a result, schedules were not met.

> *Team leader: "For every site [in order to implement the changes], we need to collect addresses, contact persons, contact details, you name it. Imagine doing that for hundreds of sites. Sometimes we can't even locate someone to open the door for our supplier on a site."*

The *Facility* team, finally, failed to bring its project to a close. Efforts by the team leader and the team member, who eventually collaborated intensively with business owners, resulted in partial project implementation. The team member and the stakeholders she collaborated with concluded, however, that another part should not be implemented in the interests of the business.

> *Division manager: "We've had a telephone meeting with procurement and our sites. We've decided not to do it. […] It's cancelled."*

At this point, the purchasing managers got involved for a meeting with responsible downstream actors. The outcome remained unchanged and that part of the project was dropped. No formal project evaluation ever took place.

4.4.2 Comparative analyses

Team embeddedness The six case stories above exemplify the impact of team embeddedness. Teams' upstream networks differed from their downstream networks, and relationships and assessments reached by these networks over time

shaped and comprised team success. The high performing teams built on well-connected upstream and downstream networks, which enabled them to assure appropriate information for their projects and their assessment. Team behaviors directed at the upstream network included what Ancona and Caldwell (1992a) described as ambassador activities, aimed at influencing managers. The upstream network also influenced the team's outcome. The upstream network's role included encouraging all members implicitly and explicitly to contribute to the team task, and providing project support. Members of the *Professionals* and *Store Layout* teams both pushed the team forward as a result of a well-structured upstream network. The *Professionals* team clearly showed how project support by higher level management impacted downstream deployment: Steering committee members used their network and position to command support from prime stakeholders. By contrast, the *Product Introduction* and *Ingredient* team members' managers were disconnected and uninformed about project progress or difficulties. Some members of these teams showed a reactive rather than proactive attitude, which didn't benefit the projects they were working on. The *Facility* team serves as an example in which the team could not rely on effective support from the upstream network to resolve downstream issues, since the upstream network was disconnected from the downstream network.

In our interviews, we noted that often only limited attention is given to the structure of the downstream network. At the same time, however, the majority of the teams appeared to experience issues arising from downstream network characteristics at some point. Team activities directed at the downstream network include the task coordinator and scout activities from Ancona and Caldwell's (1992a) taxonomy. The *Facility* team had not involved the downstream network in defining the project. However, downstream network actors could ultimately choose whether to follow the team's recommendations or not. Failure to engage the downstream network in the early stages eventually led to project failure. Similar issues occurred in the *Product Introduction* team, which was repeatedly delayed by new requirements brought in by new team members, as downstream network connectedness belatedly expanded. The *Ingredient* team also had to deal with implementation issues resulting from requirements that had not been considered earlier, due to limited downstream involvement. Finally, the *IT* project was delayed by the lack of formal structure in its large downstream network. In most cases, connecting with the downstream network at the point where the team started to consider it necessary proved in fact to be too late, requiring recovery

actions. By contrast, the *Professionals* and *Store Layout* teams avoided such recovery actions, because each team's composition was stable over time, ensuring timely interactions with key stakeholders in downstream networks. In the forming stage, specifications discussions of both teams were broader and multifunctional. For example, members of the *Store Layout* team could represent downstream stakeholders well, knew their concerns (for example: layout requirements) and anticipated implementation issues (for example: mounting the materials in the stores).

We see several relevant dimensions of team embeddedness, which warrant a closer examination. We defined team embeddedness as the extent to which team members have constructive interactions with all key stakeholders. Based on the case study results, we propose to operationalize this construct along three dimensions. The first dimension concerns the extent to which all team members' managers are informed about project objectives, progress and performance. The second dimension involves the extent to which the team is connected to key actors for executing and implementing a project, i.e., those who hold critical information for project definition and deployment, and whose behavior determines ultimate project success. Finally, we define the third dimension as the influence of the upstream network over the downstream network, allowing the team to benefit from higher level management support for project execution.

Teams with a high level of team embeddedness thus have higher chances on success. In our study, respondents were better aware of the structure of teams' upstream networks than of teams' downstream networks. This focus on the upstream network seems to be reflected in literature, both in the areas of team leadership (e.g. Elkins & Keller, 2008), as well as in project management (e.g. Meredith & Mantel, 2010). Establishing connections outside the team is often considered to be a key task of the team leader (Druskat & Wheeler, 2003; Elkins & Keller, 2008; Hirst & Mann, 2004; Meredith & Mantel, 2010). Our data suggest that, apart from the team leader, also managers and team members play a key role in creating linkages between the team and outside stakeholders. For example, the steering committee of the *IT* team deliberately composed the team in such a way that stakeholder groups were represented in the team, and it was a member of the *Facility* team who reached out to division managers.

Ensuring a high level of team embeddedness certainly took more effort for some teams than for others. Joshi and colleagues (Joshi et al., 2009) suggested that team members' organizational tenure as well as their tenure diversity positively

predicts task coordinator and ambassador activities. Indeed, the initial team members of the *Product Introduction* team had no experience outside their own departments within the organization, and spent much time on forming the final team capable of conducting external activities as necessary, whereas for the experienced *Store Layout* team, it was just a matter of regrouping and relying on ties that were already in place.

The temporal impact of team embeddedness The accounts offered so far suggest the evolutionary character of team embeddedness –and its potential impact on team composition and project definition. Clearly, these aspects of teams seem central to performance. Whereas previous research on team development focused on internal processes (e.g. Janz, Colquitt & Noe, 1997), we here address the development of external interactions. A phase-by-phase comparison of the high performing and the other teams uncovered two quite different paths, here referred to as the "disconnected path", and the "connected path".

The disconnected path The teams whose team embeddedness showed gaps took the disconnected path. For example, consider the initial composition of the *Product Introduction* team, which prevented it from connecting to some key stakeholders whose inputs and formal approval were necessary for successful project completion. Team performance research has uniformly asserted the importance of team composition, which is typically (but not always) determined during the forming stage. Representation of key stakeholder groups seems most essential during the forming stage. Later changes in team composition, essentially restarted the usual process sequence here: even though the team was initially formed, its functioning was delayed and the team pulled back to square one by new members, whose views and perspectives had to be integrated. The team was thrown back from the functioning phase into the forming phase. The unexpectedly lengthy, iterative forming stage was thus further dragged out. These findings are in line with Ericksen and Dyer's (2004) observations. They found that the formative phase of team development is a surprisingly time consuming period, with critical implications for how teams subsequently develop and perform. Interestingly, a footnote in Ericksen and Dyer's (2004) article also reports that two of the three low performing teams in their study added a team member late in the process. Also, they report about information reaching teams late in the process, putting team performance under pressure.

Another observation was that structural holes within teams, that is, disconnections among members in a team (Burt, 1992), seem to relate to

suboptimal team embeddedness. Cummings and Cross (2003) found that structural holes bridged by leaders within teams were negatively associated with performance; teams with dense internal networks performed better than teams whose members were interrelated through the team leader, but lacked direct ties between all members. The teams in our study in which most information flowed through the team leader, including the *Facility* and *Product Introduction* teams, did not discuss collectively who should be involved in the forming phase. Hence, structural holes within teams may be associated with less proactive team behaviors for forming and shaping the external networks.

Subsequently, low team embeddedness affected teams' performance in the functioning phase. Although the *Facility* team had simply planned to prepare rollout of their project, they ran into a range of roadblocks raised by site managers who would have to work with newly developed supply solutions. Such issues did not occur in teams that had a high level of team embeddedness at the time project definitions were determined. Our data also indicate that the managers of members who are added later to the team tend to remain excluded from the rest of the upstream network in the functioning and finishing phases, which was what happened during *Product Introduction* team's changes and the recent participation by the R&D employee in the *Ingredient* team.

Interestingly, interviewees of the *Ingredient* and *Facility* team stated that deadline pressure imposed by the upstream network led them to spend more time on communicating to the upstream network to defend and explain project progress, i.e., ambassador activities, reducing communication with the downstream network, i.e. task coordinator and scouting activities. Joshi, Pandey and Han (2009) proposed that teams engaged in actions related to goal accomplishment (occurring in the functioning and finishing phases) display the highest levels of task coordinator activities, whereas teams reflecting upon past performance (part of the finishing phase) display the highest levels of ambassador activities. Our empirical evidence generally supports this proposition, but also suggests that pressure on team members' time efficiency risks teams to develop an inward orientation with reduced task coordinator activities in the functioning phase, since there is always the possibility that looking outward leads to new insights that require further changes, and hence, delays.

Low team embeddedness in earlier phases may be hard to recover in the finishing phase. The *Ingredient* team could resolve operational issues not dealt with in the functioning phase. The *Facility* team, however, failed to implement part of its

project. Its downstream network remained unwilling or unable to comply with proposed solutions. The *IT* team faced another difficulty, as it struggled with a lack of structure in its downstream network, resulting in delays. At this phase, it is also interesting to observe that gaps in the upstream network caused team members' managers to be uninformed about actual project performance. For instance, *IT* team's steering committee disbanded after the supply solution was selected, while implementation processes were still running. Also, *Product Introduction* team's project was not evaluated, except for appraisal given by the team leader's manager for achieving the end result. Neither team members nor their managers discussed the project's process afterwards to prevent the problematic progress from occurring in the future.

A disconnected path is graphically depicted in Figure 4.5. Gaps may occur on various places in the framework, which this figure exemplifies. The figure depicts a situation in which the team is not connected to its downstream network until the finishing stage. The team makes iterative steps between the phases, i.e., is pulled back from the functioning phase into the forming phase, and from the finishing phase into the functioning phase. Team members are added to the team, but their managers are not connected to other upstream network actors. Hence, part of the upstream network is disconnected during the functioning and finishing phases.

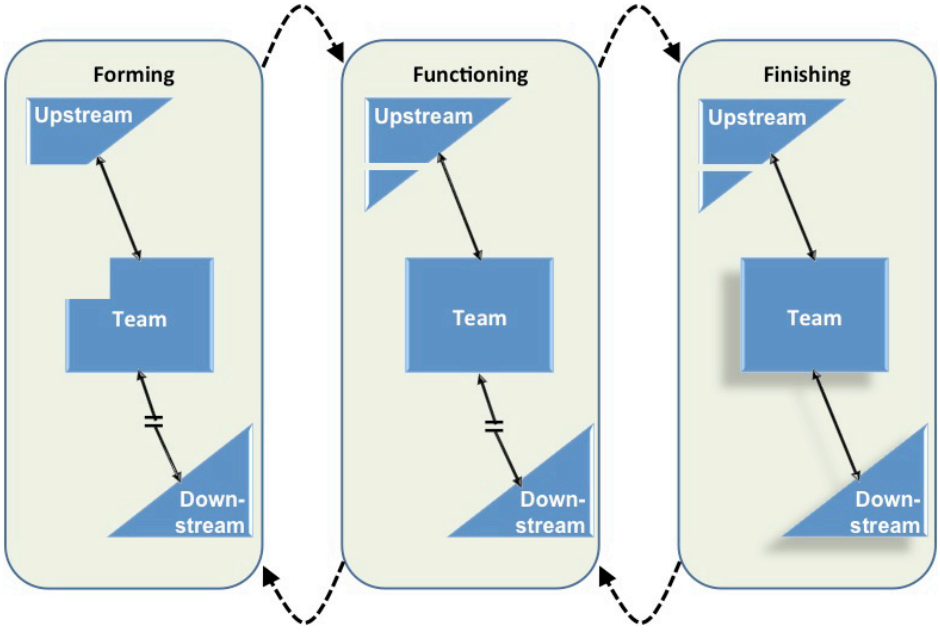


Figure 4.5: The disconnected path

The connected path Whereas the disconnected path is characterized by an iterative process towards the end result, the connected path follows a much more linear sequence. The *Professionals* and *Store Layout* teams took this path. In both cases, managers were actively involved in forming the team, and were familiar with team objectives and plans. The responsible managers had a sufficiently large network to determine who should be involved in the project. The downstream network was represented in the teams in the forming phase when project objectives were defined.

The team compositions remained stable over time, and were monitored by a cross-functional steering committee. Interviewees claimed that much work was 'front-loaded'; much time was spent in the functioning phase on developing project criteria, and to agree on them. For example, one team member in the *Store Layout* team disagreed with certain criteria, because they seemed contradictory to her home department's objectives. She opposed to the proposed criteria immediately, and the team leader arranged for an extra meeting to solve the issue. If this issue would not have been risen early in the process, it would have led to rework and recovery actions in later stages, and her manager would have noticed the cause of the delay. Hence, it is likely that the interconnected structure of the upstream network and recognition structures motivated these adequate internal processes.

The connected path led to successful project completions in the finishing phase. The *Professionals* team had informed its downstream network over the course of the project, and prepared implementation procedures. Its upstream network was well informed about project success, including the efficiency of implementation processes. Moreover, the team could call its upstream network for support as necessary, since the upstream network possessed task-relevant knowledge and a task-relevant network over which it had considerable influence.

In terms of Ancona and Caldwell's (1992a) typology, the case examples described here suggest that scout activities were mainly carried out in the forming and early functioning stages, to prevent the team from running into unforeseen roadblocks in later phases. Task coordinator activities became more apparent in the later functioning and finishing stages, during which the teams rolled out their projects. Teams engaged in ambassador activities in all phases, with peaks in the forming phase for getting management approval, and in finishing phases to report performance outcomes.

The cases show a clear distinction between teams that had to 'discover' its ultimate external networks, like the *Product Introduction* team, and those who could rely on a well-developed and predefined network, like the *Store Layout* team. Informal social networks seem especially crucial to projects with a high level of newness. As teams run multiple projects with the same stakeholders over time, roles become clearer, mitigating the importance of informal ties. Balkundi and Harisson (2006) found a similar effect *within* teams. They suggested that team members develop a shared understanding of their task requirements when team members spend time with one another working on similar tasks. Resulting clarity may even substitute for actual interactions (Weick & Roberts, 1993). We suggest that the same occurs with external networks; the longer team members have collaborated with external network actors, the more efficient the interactions become between teams and external networks, and the smaller the chances are that key stakeholders are overlooked. Figure 4.6 depicts the ideal connected path, without any gaps or iterations between phases.

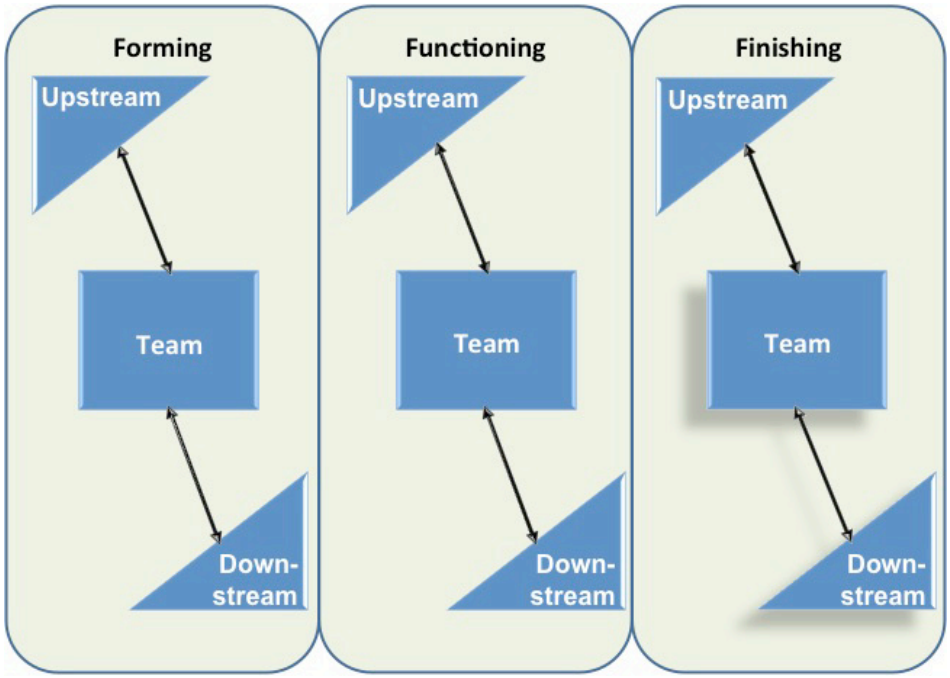


Figure 4.6: The linear path

4.5 Discussion

We now turn our attention to the overall model, which covers a team's contextual (vertically depicted in the model) and dynamic (horizontally depicted) nature. The multiple case study served to explore and refine our model based on real teams in organizations. In assessing teams' contexts, we derived three distinct dimensions of team embeddedness: 1) the extent to which the upstream network is connected and informed, 2) the connectedness between the team and the downstream network, and 3) the influence of the upstream network over the downstream network.

Over time, teams went down different paths. Teams that followed the disconnected path showed that teams may not go through the three phases of forming, functioning and finishing in an orderly sequence. Teams with low team embeddedness risk to be pulled back to the previous phase when it tries to push the project further. We include this phenomenon in the Dynamic Embeddedness Model by adding iterative loops between the phases, see Figure 4.7.

Ultimate team performance is an outcome of the internal and external processes that evolve over time. The cases show how performance in the forming phase impacts performance in the functioning phase, in turn impacting performance in the finishing phase. Upon project completion, performance on preset criteria can be determined. Ultimate performance on certain criteria thus is the product of dynamic performance in respective domains in each phase. We add this development of performance to the Dynamic Embeddedness Model. Performance domains may include time or budget, but also viability and organization-wide commitment. The gradual buildup of performance shows that failing to get things right at the start makes it difficult to compensate in later stages. As such, the Dynamic Embeddedness Model formally captures what Hackman (1990, p. 481) refers to as the 'self-fueling spiral', which over time makes 'the rich richer and the poor poorer': performance flaws in the forming phase require effective recovery actions in later stages, which may pose a significant challenge on the team.

The case studies confirm the explanatory power of the Dynamic Embeddedness Model, distinguishing between the upstream and downstream network in the forming, functioning and finishing phases. The Dynamic Embeddedness Model is more complex than the IPO model. However, static team characteristics as applied in IPO models could not have explained the observed

performance differences in this study, neither would an internal perspective have revealed the main causes for performance deviations. Although simplicity is preferred over complexity, theory falls short when observed outcomes cannot be explained. We therefore suggest that teams' contextual and dynamic characteristics need to be included in useful models for team performance.

Whereas static team frameworks are applicable to teams, the Dynamic Embeddedness Model's level of application is at a team's performance cycle. A team may be perfectly embedded for one project, but at the same time insufficiently capable for completing another. In fact, one successful team in the present study failed in multiple other projects for reasons of low embeddedness.

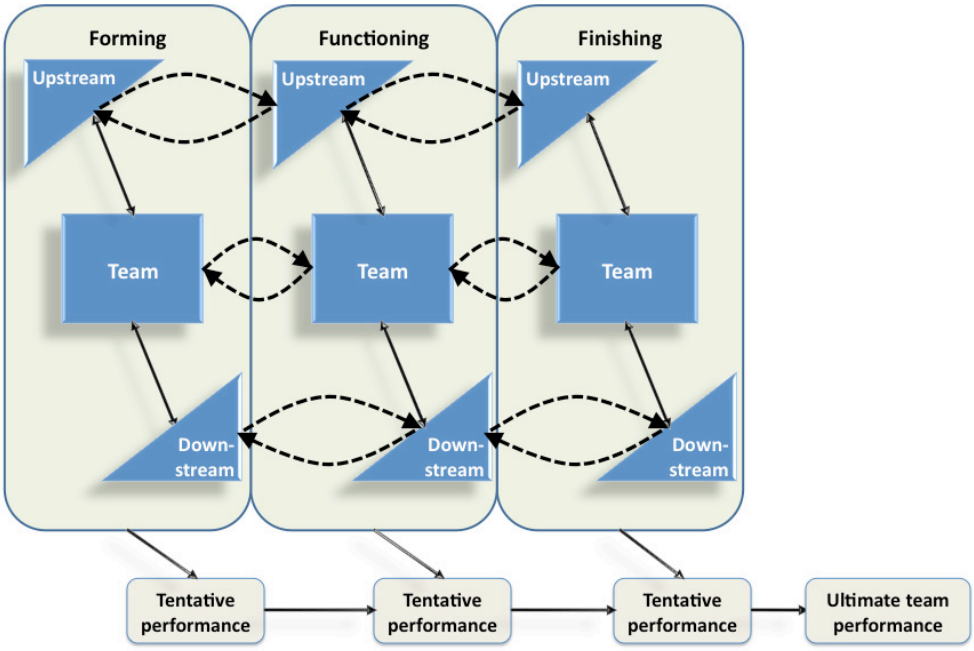


Figure 4.7: The revised Dynamic Embeddedness Model

4.6 Limitations and future research

Despite the merits of this explorative study, it has a number of limitations. For the purposes of this study, we selected six sourcing teams. Although we selected teams with varying tasks, contexts and histories in three different companies, our study provides limited insight into the Dynamic Embeddedness

Model's applicability for other sorts of teams. Our aim was to develop generalizable and robust theory. Future research on other sorts of teams, like new product development teams, service teams and key account teams, should therefore further validate and explore the role of team embeddedness in explaining team success.

The Dynamic Embeddedness Model is different from 'static' team performance models in that it focuses on team performance cycles. In practice, many teams in organizations work on distinct tasks with a start and an end, like the sourcing teams in this study, even though teams may have a permanent character. For example, new product development teams work from design to design, whereas service teams often move from one major client to another. The applicability of the Dynamic Embeddedness Model is thus not limited to project teams, but is easily applicable to any team for which performance loops can be identified. Work teams with more steady output, like production teams, operate typically in the functioning phase, with occasional iterative steps to the forming phase when team compositions change, or tasks are redefined. Studying team embeddedness over time in all such teams may be a prospect for future research.

Second, in our attempt to develop a parsimonious model, the Dynamic Embeddedness Model distinguishes between three phases, which, as this and other studies show, appears to be insightful in empirical research. However, the Dynamic Embeddedness Model says little about the complexities of transitivity, and whether in fact there are more phases underlying the ones presented here. As such, the model is in line with the practical approach adopted in recent empirical work (Farh et al., 2010; Ilgen et al., 2005; Wageman et al., 2009), but does not resolve some of the earlier mentioned criticisms.

Third, our study was limited to multinational corporations. Team embeddedness is a particularly challenging subject in large organizations, where it often is hard to oversee the entire company and to identify key actors in upstream and downstream networks. In small and medium sized enterprises (SMEs), in contrast, social networks are likely to be denser. Although team embeddedness may play an equally important role in such organizations, it is probably easier to establish external connections timely and efficiently. Future research may further investigate team embeddedness in SMEs, and point at the differences with larger corporations.

Fourth, this study was limited to within-company investigations. Teams may also have crucial connections outside the company. Obviously, sourcing

teams deal with suppliers. In the cases analyzed in this study, those ties were straightforward, having no evident discriminative impact on performance. Moreover, previous research has often focused on buyer-supplier relationships (Terpend, Tyler, Krause & Handfield, 2008), while it's the internal alignment that often proves to be the hardest challenge for sourcing teams (Senior & Swailes, 2007). We therefore focused on within company team operations. Nevertheless, analyzing ties that go beyond the organization's boundary could extend future studies. A particularly interesting avenue for further research may be cross-company teams, i.e., teams formed by members from multiple organizations, as is for instance done for innovation projects (Jelinek, 2008). Team embeddedness is likely to be particularly challenging and crucial for these types of teams.

Finally, this qualitative research is intended to be a prelude to future theory testing research. We encourage scholars to operationalize team embeddedness for using it as a construct in quantitative research. Further analysis of relationships between dimensions of team embeddedness and internal team processes would be particularly interesting. Also, research opportunities include addressing relationships between dimensions of team embeddedness and performance in each subsequent phase, and the relationships between performance in each phase and ultimate performance on preset criteria.

4.7 Conclusion

This research was driven by a desire to develop a model that embraces the complexities of modern day team arrangements (Mathieu et al., 2008). Existing models fall short for doing so: "There is really no comprehensive theory about the interplay of networks, team processes, and team outcomes over time" (Balkundi & Harrison, 2006). In an attempt to fill this gap, we propose the Dynamic Embeddedness Model as a model for framing both internal and external team processes over time. In this chapter, we developed new terminology that could serve future studies incorporating the contextual and dynamic nature of teams. We introduced the distinction between the upstream and downstream network and identified three distinct dimensions of the newly developed and explored construct of team embeddedness. Six case studies pointed at the disproportionate impact of the development of teams' externals connections over time on team performance.

Acknowledging these dynamic and contextual complexities in future team research and management may be a promising perspective.

Chapter 5

Conclusion

This final chapter reflects on this dissertation's three empirical studies. First, the results of the individual studies are discussed, after which the overall research question is answered. Next, this chapter presents a cohesive, integrative perspective on team management: the 3C model. We use this model to frame this dissertation's managerial implications. Sections 5.3 and 5.4, which report the 3C model and the managerial implications, can be read independently from the rest of this chapter. Subsequently, we discuss the theoretical implications of our research, and the strengths, limitations and avenues for future research that follow from this dissertation

5.1 Synopsis

Many large companies have adopted team structures for organizing purchasing and supply management operations. However, observations from practice revealed that many sourcing teams find it difficult to live up to expectations. Rigorous research on sourcing teams promises better insight into what constitutes effectively organizing purchasing and supply management. Sourcing teams often represent complex team arrangements, characterized by part-time memberships, functional and geographic diversity and a strong interdependence between the team and the wider organization –team characteristics that are becoming more and more typical in contemporary organizations (Jelinek & Wilson, 2005; Mathieu et al., 2008). Research on sourcing teams provides an opportunity for contributing to team literature by focusing on teams with such increasingly complex, but little studied team structures. Thus effective management of sourcing teams warranted further investigation. Our leading question was: How to improve sourcing team success?

We reviewed the literature and designed three empirical studies in order to extend our understanding of sourcing team dynamics and to derive practical implications. First, we focused on success factors for sourcing teams. Building on the large amount of team research that has applied input-process-output (IPO) models, we developed a research framework and derived hypotheses for identifying success factors (chapter 2). Based on survey results of 58 sourcing teams, we explored how different factors affect team processes, in turn impacting distinctive dimensions of sourcing team effectiveness. This first study pointed at two aspects which seemed to play a central role in evaluating team performance, and which required further investigation: differing views on the appropriateness of functional diversity in the eyes of team members and managers, and a team's "embeddedness" in its wider organization.

The second study focused on team members' and managers' perceptions with regard to the appropriateness of a team's functional diversity, which in turn determine future team motivation and managerial interventions (chapter 3). Adopting the recently proposed input-mediation-output-input model (IMOI) and applying attribution theory, we investigated how perceptions result from past performance and teamwork behavior. Survey results covering 48 sourcing teams provided insights into how team members and their managers assess functional

diversity appropriateness differently. This discrepancy in perceptions causes a risk for ineffective managerial actions and decreased team viability, which may be prevented.

Finally, we went beyond existing models for team performance in the third study (chapter 4). The first study concluded that team performance depends on a team's ability to cooperate with stakeholders outside the team effectively. In order to capture collaborations over time between team members and stakeholders outside the team in an explanatory framework, we developed the Dynamic Embeddedness Model. This model integrates insights from different team research streams concerning internal, external and temporal dynamics in team work processes. We explored the relevance of this model by means of six in-depth case studies. These case studies illustrate the importance for team management of assessing both internal and external processes, as well as the timing of these processes. The Dynamic Embeddedness Model shows potency in explaining variance in team performance.

In this final chapter, we reflect on the main conclusions of the three studies. The conclusions of the three studies lead to an answer to our overall research question, which is discussed in the next section. Although sourcing teams were the subject of study, the relevance of these implications is not limited to managers working in purchasing and supply management. Instead, we present a general, integrative perspective in this final chapter, which provides a cohesive overview of the key elements of team management in organizations. Our research has important implications for practitioners. The sections 'An integrative perspective: The 3C model' and 'Managerial implications' are aimed at those managers who face the challenge to lead diverse teams in large organizations to success. To serve not only the academic, but also the practitioner world, these sections can be read independent from the rest of this chapter. The theoretical implications of our research follow in the section on 'Theoretical contributions'. Here, we reflect on the insights of the three studies for team performance theory, and for purchasing and supply management. Finally, we discuss the overall strengths and limitations of this dissertation, indicate promising avenues for future research, and conclude with some closing comments.

5.2 Main conclusions

5.2.1 Main findings and implications of chapter 2

Chapter 2 presented the results of a large-scale field survey study addressing the effectiveness of sourcing teams. The study translated implications from prior team effectiveness research with other types of teams as the subject of study, including new product development and sales teams, into hypotheses for sourcing teams in order to identify critical success factors. Next, the study provided insight into the relationships between these factors, team processes, and key dimensions of sourcing team performance. This research framework acknowledged that different success factors drive different team outcomes (Scott-Young & Samson, 2008).

Based on an extensive, cross-disciplinary literature review, we suggested a number of potential success factors for sourcing teams, grouped under three categories. The first, "Employee involvement context", included factors that aim to enable and create a sense of ownership and control by team members, (e.g., rewards and authority). The second category, labeled "organizational context", involved factors that provide teams with guidance regarding task execution (e.g., team leadership and formalization). The third category, labeled "team composition", referred to the team's staff (e.g., functional diversity). We hypothesized that the effects of these factors on sourcing team effectiveness were mediated by "team processes" (effort and communication). Furthermore, we distinguished between two dimensions of sourcing team effectiveness. The first dimension, general overall team effectiveness, covered general elements of team effectiveness, like quality and quantity of work, efficiency, planning, and overall performance (e.g. Cohen & Bailey, 1997). The second dimension, supply base management effectiveness, covered aspects such as improved quality of purchased items, improved supply base responsiveness, relationship management, and support for innovation (Trent & Monczka, 1994). Our research model drew on Hackman's (1987) input-process-output (IPO) model of group effectiveness[14]. This model was tested by means of a cross-sectional survey among members, leaders and managers of sourcing teams. The study reached an overall response rate of 70.2 %, investigating 58 sourcing teams at 12 multinational companies.

[14] See research model on p. 31.

Empirical findings indicated that sourcing team effectiveness is a three-dimensional construct, rather than the two-dimensional construct we anticipated. The ability of sourcing teams to cooperate effectively with internal stakeholders appeared to be a discrete and critical dimension of sourcing team effectiveness, separate from general overall team effectiveness and from supply base management effectiveness. Therefore, we labeled this third dimension external cooperation effectiveness. These findings suggested a need for including external cooperation effectiveness as a separate factor in future team effectiveness studies.

The three dimensions of sourcing team effectiveness served as points of departure in crafting managerial interventions to improve sourcing team performance. For every effectiveness dimension, we showed how certain input factors enhance performance. For example, assuring that all team members, coming from relevant internal departments, are rewarded and recognized for their contributions to sourcing teams appears to be difficult in practice. However, success in doing so significantly improves a team's external cooperation effectiveness, since it leads to more involvement of team members' home departments. Overall, results pointed to team internal authority as the most important success factor. So, managers should provide sourcing teams with a license to act, i.e. a clear mandate to develop and execute a sourcing strategy. The findings with respect to the relationship between team composition and external cooperation effectiveness were notable. A negative relationship between functional diversity and management ratings of external cooperation effectiveness indicated that, according to management, the representation of more functional backgrounds in a sourcing team decreases its ability to cooperate effectively with others external to the team, whereas team members themselves associate functional diversity with higher performance. Thus the outcomes of the study in chapter 2 provide purchasing managers with detailed insights for assessing and improving the performance of their sourcing teams.

5.2.2 Main findings and implications of chapter 3

The study presented in chapter 3 focused on the notably different perceptions of team members and managers with regard to the effectiveness of functional diversity in teams, to determine how team members and managers value functional diversity in sourcing teams. We investigated whether team

members and managers consider a cross-functional sourcing team composition beneficial for company performance. Their perceptions are important because these ultimately determine the extent to which team members feel motivated to work in cross-functional teams, as well as whether managers will continue to work with cross-functional teams or, rather, will steer toward a more mono-functional approach.

This study's research framework was based on the input-mediation-output-input (IMOI) model, which suggests that the outputs of one performance cycle serve as inputs for the next episode (Ilgen et al., 2005). We investigated how team members' and team managers' perceptions of team performance (defined as achieved cost savings) and teamwork quality affected their perceptions regarding the appropriateness of the team's cross-functional composition. We hypothesized that managers base their judgments of functional diversity appropriateness primarily on team performance. Team members, in contrast, were anticipated to also include the quality of teamwork in their judgments on functional diversity appropriateness. Teamwork behavior was further assumed to depend upon organizational context factors such as rewards and autonomy. The framework was tested by means of a cross-sectional survey study, covering 48 sourcing teams from eleven companies. Respondents included both the purchasing managers and members of sourcing teams. The overall response rate reached 66.8%.

Our empirical results confirmed that perceptions of functional diversity appropriateness differ between team members and managers. This discrepancy may lead to situations where managers intervene in team structures to reduce cross-functionality. Such an action may be perceived by team members, as our results show, to be a step backwards –undermining long term team effectiveness– rather than a step toward improvement. Similarly, our results also showed that when current performance meets management expectations, managers will most likely not intervene in the team composition, even if poor teamwork behavior has jeopardized team members' faith in the appropriateness of the team's composition. Differences in perceptions between respondents appeared to originate from the fact that team members, unlike managers, include the quality of teamwork behavior when evaluating the appropriateness of their team's diversity. Managers' perceptions of functional diversity appropriateness were largely explained by the financial outcomes of a team's work. Managers did not include teamwork behavior in their judgments, likely because managers have little insight into these actual behaviors.

Some unexpected findings surfaced in this study. In our analyses, we controlled for the *actual* level of functional diversity in teams, i.e., how many business disciplines are represented in a team. Team members themselves appreciated a more diverse team composition, while purchasing managers who participated in our research did not. Purchasing managers seem more reluctant to move to more formal cross-functional collaborations in purchasing and supply management than the people who actually have to do the job.

Another unexpected finding was that the teams with the poorest perceptions of functional diversity appropriateness were not poorly performing teams, but in fact better performing teams. When the level of teamwork quality in a cross-functional sourcing team was low, team members' belief that the right functional backgrounds were represented in the team was low, even with higher cost savings. Possibly, high performance of these teams may have been achieved at the cost of high personal sacrifice and team disputes, all of which may negatively affect chances for future team success. At the same time, managers considered the diversity of these teams to be good when achieved cost savings were high. In further analyses, we compared the moderating effect of teamwork behavior in mono-functional teams with cross-functional teams. The results showed that the negative effects of performance on perceived functional diversity appropriateness, which manifested in teams with poor teamwork quality, only surfaced in cross-functional teams, and not in mono-functional teams, which suggests that this may be due to goal incongruence among cross functional team members. Members from different functional backgrounds may have different objectives and different priorities (Rauniar et al., 2008). If one functional goal (e.g., cost savings) strongly prevails over other functional objectives and preconditions, than this might bring team members to doubt the functional diversity appropriateness of the team, thereby damaging the team's long term viability and performance potential.

Overall, this study indicated that under conditions of poor performance, managers should first focus on improving teamwork behavior. Moreover, managers should not be misled by current performance alone; high performance may have been achieved at the cost of a team's motivation to address future challenges in their current composition.

5.2.3 Main findings and implications of chapter 4

Whereas the studies reported in the second and third chapter built on existing team performance models, the aim of the fourth chapter was to develop a new theoretical framework. The majority of the team studies published during the last half century have been based on the input-process-output (IPO) model (Salas et al., 2009), as was the first study reported in this dissertation. A team's ability to develop effective external collaborations emerged as a discrete and critical dimension of team effectiveness, warranting further study. The IPO model's internal team focus renders it inadequate for studying external processes. Previous research addressing relationships with actors beyond the team's boundary has adopted different perspectives (social network analysis, boundary spanning behavior by team members), which seemed important to include in our assessment of sourcing teams (Marrone, 2010).

Another aspect impacting team performance, which the IPO model doesn't capture, is the role of time. In chapter 3, we used a derivative of the IPO model for our research: the IMOI model. In that particular study, we focused on the potential effects of one performance cycle on the next one by assessing how teams and managers create perceptions about functional diversity appropriateness. Whereas the impact of performance in one cycle on team processes during the next cycle have been little studied previously, team research has increasingly addressed the role of time within one performance cycle, that is, how team processes evolve during a project (Marks et al., 2001).

These different theoretical streams in team research have developed in parallel, and lack an integrated perspective. Insights from IPO, boundary spanning, and timing research only partly address the reality of real life teams in organizations, which strongly depend on external interactions and go through different stages of development over time. Chapter 4's study sought to develop a model that embraces the characteristics of contemporary team arrangements (Mathieu et al., 2008). In this study we aimed to consolidate and extend these perspectives on IPO, boundary spanning, and time in team research and proposed an integrated model: the Dynamic Embeddedness Model.

As part of this model, we proposed a new concept, 'team embeddedness', defined as the extent to which team members effectively interact with all key stakeholders surrounding them. We grouped stakeholders into an upstream and a downstream network. The upstream network was defined as the power structure

formed by a team's stakeholders at higher hierarchical levels, who control resources, and supervise team activities. The downstream network, on the other hand, relates to people in the workflow structure who possess necessary information, or who must implement sourcing team recommendations. The downstream network also includes relationships with stakeholders whose activities must be coordinated by the team for successful task completion and implementation.

A second part of the Dynamic Embeddedness Model concerns time. We suggested that teams go through three sequential stages of team behavior: 1) the '*forming'* phase, covering the early stages of team development, 2) the '*functioning'* phase, during which the team works together on the task, and 3) the '*finishing'* phase, when the team completes its work. These three stages in the model refer explicitly to activities that take place over time, fostering a process view. The Dynamic Embeddedness Model reflects a single team performance cycle at the team level, and as such describes the process from project initiation to completion. Using a multiple case study approach, we validated the Dynamic Embeddedness Model in practice. We used data of six cases from three companies to further refine the model, and to operationalize it for future studies. Each case represented a single project of a single team, which we studied through interviews and other data sources at various stages in the project.

First, based on the empirical results, we derived three distinct dimensions of team embeddedness: 1) the extent to which the upstream network is connected and informed, 2) the connectedness between the team and the downstream network, and 3) how the upstream network influences the downstream network.

Second, the case studies showed that teams may not go through the three phases of forming, functioning and finishing in an orderly sequence. Teams with low team embeddedness appeared to be pulled back to a previous phase when they tried to advance their project. We included this phenomenon in the Dynamic Embeddedness Model by adding iterative, recursive loops between the phases.

Furthermore, ultimate performance was identified as the product of performance in earlier phases. Outcomes of the forming phase affect outcomes in the functioning phase, in turn affecting the outcomes of the finishing phase, after which performance on preset criteria can be determined. The apparent gradual buildup of performance shows that failing to get things right at the start makes it difficult to compensate in later stages. Unlike previous team performance models,

we explicitly included team performance as a product of performance in each stage in the Dynamic Embeddedness Model.

Static team characteristics as applied in IPO models could not have explained the observed performance differences in this study, nor would an internal perspective have revealed the main causes for performance deviations. The case studies confirmed the explanatory power of the Dynamic Embeddedness Model, supporting the distinction between the upstream and downstream network in the forming, functioning and finishing phases.

5.2.4 Overall answer to the research question

The central research question of this dissertation was: How to improve sourcing team success? Three empirical studies contributed to answering this overall research question by addressing sourcing team effectiveness differently.

The studies presented here indicate that, in order to improve sourcing team success, managers should acknowledge that there are three discrete dimensions to sourcing team effectiveness: general overall team effectiveness, supply base management effectiveness and external cooperation effectiveness. For improving sourcing team effectiveness, it makes sense to review performance on each of these dimensions to determine which performance area needs improvement. Chapter 2 provided an overview of the factors (e.g. leadership styles, functional diversity and formalization) to which managers should turn their attention to enhance performance on respective dimensions of sourcing team effectiveness.

Second, this dissertation points at a risk in managing sourcing teams without considering collaborative processes. Although immediate cost savings may be satisfactory, team motivation of members from different backgrounds for subsequent rounds may suffer. Team members generally perceive a cross-functional approach a necessity for future performance, and may have different viewpoints about the appropriateness of functional diversity in teams than managers. The cause for this perceptual discrepancy lies in the quality of teamwork behavior. Managers should be careful when intervening in a team's composition, since such interventions may not reach at the heart of the problem – or may even erode prospects for improvement. It is important for managers to develop a sharp eye for teamwork processes, and to stimulate effective teamwork

behavior –not by micromanaging the team, but by ensuring adequate reward structures and by ensuring sufficient team autonomy.

Finally, our research showed that just focusing on what happens within the team is not sufficient for sourcing team success. A team's embeddedness in its upstream and downstream network highly impacts ultimate success. Effective sourcing team management involves considering a team's embeddedness when composing a team and when managing the team's activities as well as the context it works in. Moreover, team embeddedness should be assessed in the early stages of any performance cycle, to prevent the team from running into roadblocks in later stages.

In the next section, these findings are consolidated in a model that provides an integrative perspective on team management. Subsequently, we frame the managerial implications of this research around the elements in this model. Although our studies involved sourcing teams, we see sourcing teams as being representative of other types of teams, which share typical characteristics such as cross-functional composition, part-time membership and high interdependence with other stakeholders in an organization for eventual task execution. Examples of such teams include new product development teams and top management teams, among others. Therefore, the answer to our research question has implications that can be generalized beyond sourcing teams.

5.3 An integrative perspective: The 3C model

"Coming together is a beginning. Keeping together is progress. Working together is success." This quote by Henry Ford reflects a common view on team performance. Team management is all about putting the right individuals together, and about getting those people to work together effectively. "If everyone is moving forward together, then success takes care of itself," to quote the same iconic leader again. Most obviously, 'everyone' refers in this sense to all team members involved. In our academic research, however, we questioned this: While necessary, are coming, keeping and working together as a team also sufficient conditions for team success?

For anyone working in business, it probably is not hard to recall a cohesive team with high ambitions, but which nevertheless failed to meet its objectives because its plans were not followed up by others in the organization. For example,

top management teams suffer from the so-called 'execution gap' when their well thought-out strategies are not carried out by subordinates (Sull, 2007). A new product development team may have carefully designed a highly innovative product, which the marketing department is unwilling to promote, or which production departments are unable to produce in a cost-efficient manner. Or consider a sourcing team that contracts a supplier on behalf of a multi-business unit corporation, after which individual business units ignore the new contract to stick to their own suppliers. Whether a team's task concerns a large IT project or a small logistical change, teams can stumble over a lack of cooperation by people outside the team in many ways.

Although such performance flaws are widely recognized, research on team performance has paid limited attention to the effects of what happens *external* to teams. Over the past decades, team research has converged around factors that enhance the team processes within teams, leading to high performance. In line with the quotes above, these studies adopted an outside-in view and focused on internal team processes (Salas et al., 2009). This is also how teams are generally managed. Managers seem primarily concerned with staffing the team with talented people: when a team underperforms, a lack of competence and skills among team members often is the usual suspect (Hollenbeck et al., 2004). More successful team managers have also developed a sharp eye for the teamwork that develops within teams, and manage the organizational context in such a way that proper teamwork is promoted (Tasa et al., 2007).

In this dissertation, we recognized that management is not at all limited to deciding about a team's composition and trying to steer internal team dynamics. Team members' interactions with people *outside* the team, and activities that evolve over time beyond the team boundary have a crucial impact on team achievement. Teams in companies are not static, isolated units: their interaction with other actors in the organization changes over time and determines the extent to which the team is able to contribute to company performance. Building on recent academic studies, we investigated the role of team members' external contacts extensively.

An external focus in team management is increasingly important, since one of the most prominent objectives of forming teams today is to create more effective collaboration across functional and geographic borders (Zolin, Hinds, Fruchter & Levitt, 2004). Team arrangements have become far more complex than they used to be (Mathieu et al., 2008). Fulltime, dedicated teams with unambiguously measurable output are getting rarer, whereas part-time, temporary, virtual, cross-

functional, cross-business and even cross-company arrangements are more and more common. However, in a 2005 survey, McKinsey (2006) found that while nearly 80% of the senior executives surveyed said that cooperation across departments and units is crucial for growth, only 25% of the respondents described their organizations as effective in these tasks. A revision of our team management practices thus seems warranted.

It no longer makes sense to manage teams as if they were isolated units. Given the complexity and temporary nature of team arrangements in contemporary organizations, it becomes increasingly important to explicitly manage a team's external relationships and behaviors, rather than to assume implicitly that these will develop automatically. Although recent academic research has increasingly acknowledged the importance of a team's external relationships, this area of research is still in its infancy, and few insights have leaked through to the professional literature and to management practice.[15]

We conducted quantitative and qualitative investigations of over a hundred teams from 20 multinational companies to integrate the latest developments in team research in a meaningful way for professionals engaged in team management. Over the course of our research project, which consisted of two large-scale surveys and multiple in-depth case studies, we extensively discussed the outcomes with professionals from the field. We followed our research up by roundtable meetings and workshops for further participant input. The implications of our research center around three essential aspects of team management. We here present the 3C model, which provides an intuitive overview of those three elements, being: 1) Who should be on the team (Composition), 2) How to foster teamwork (Collaboration), and 3) How to effectively embed the team in the wider organization (Contacts). These three Cs reflect three possible levels of analysis in team research: the individuals within the team, the team itself, and the team in its organizational setting. Finally, the 3C model acknowledges that teams are dynamic, and that the composition, internal collaborations and external contacts change over time.

[15] Recently, scholars have advocated a 'network' view in which managers should administer large-scale surveys in their organizations to unravel all information flows among team members, and between team members and others (Cross, Ehrlich, Dawson & Helferich, 2008). Although we certainly agree that network analyses leads to highly interesting insights, we believe that conducting such analyses in a meaningful way is too time consuming to be a useful tool in practice. Moreover, team management entails more than understanding the structure of networks alone; the quality of relationships is also key.

In the next section, we discuss some important managerial guidelines represented by the 3C model. We briefly outline the major advancements within the model's distinctive areas, and highlight the remarkable insights from our recent studies. As we will see, a team's composition, collaboration and contacts are interrelated and reinforce each other.

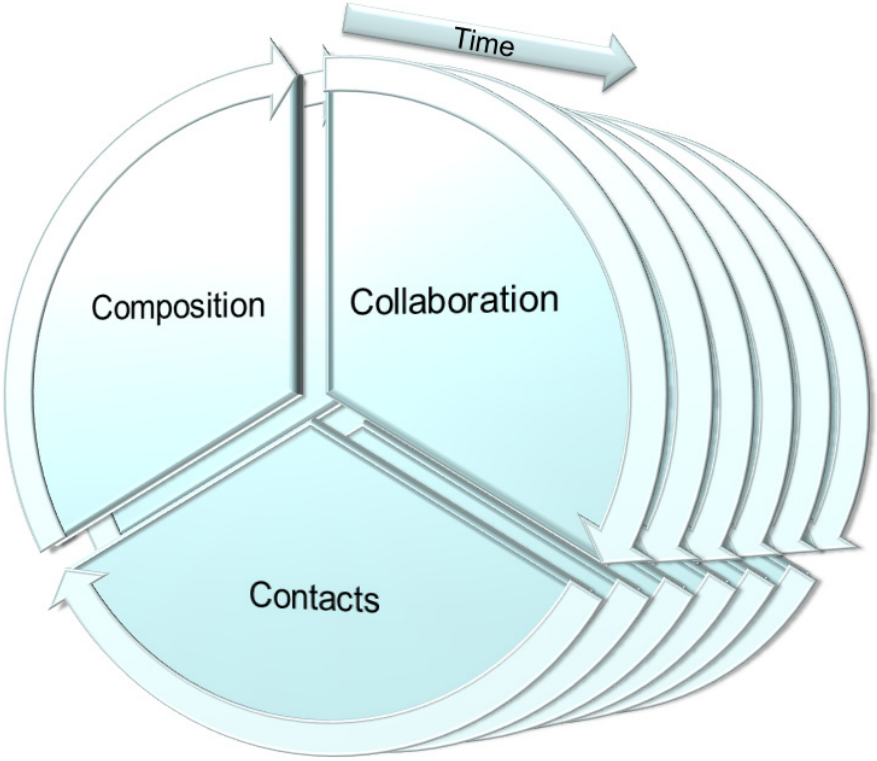


Figure 5.1: 3C team management model

5.4 Managerial implications: taking the blinkers off

A rich research literature encompasses a wide range of insights for team management. These studies refer to characteristics of individuals who together form the team, to how those individuals work together in a team, and to a team's context, and can as such be positioned under "Composition", "Collaboration" and "Contacts". What new light does our 3C perspective shed on managing teams'

composition, internal collaboration and external contacts? Answers to this question follow here.

5.4.1 Composition

Staffing teams with the right people has long been a primary concern for managers. Competence and skills of individuals are among the first things that come to mind when addressing a team's composition, and receive much attention in research and practice alike. For example, many consultancy firms have developed tools from scientific models for assessing individuals' profiles in a team context.

A more task-related element of adequate team composition concerns the functional background of team members. Many teams require knowledge from different functional areas. Companies that don't move beyond disciplinary silos towards cross-functional operations risk falling behind in today's competitive game (Denison et al., 1996). Cross-functional team composition has demonstrated benefits for all sorts of team outcomes, but at the same time might put internal collaboration, at least initially, under pressure (Gratton, Voigt & Erickson, 2007). Functionally diverse members have different thought worlds and speak different languages, which may cause tensions and collaboration difficulties (Homburg & Jensen, 2007; Keller, 2001). Hence, the 3C model's elements composition and collaboration are interrelated. Cross-functional teams are often more fit for purpose, but also require more effort by management and team leaders to foster effective teamwork.

So much was already known about cross-functional teams. Our research, however, indicates a different matter of concern when deciding upon how many and which functions to involve in a team. Not only did we investigate the effects of functional diversity on performance, we also examined the perceptions of team members and managers with regard to the appropriateness of cross-functional compositions, i.e., whether team members and managers believe that the right functions are represented. In our research, team members who are involved in the team's work on a day-to-day basis indicated that a cross-functional approach is a necessity for future performance, whereas managers were more inclined toward mono-functional approaches. These divergent opinions appeared to result from different ways of assessing the appropriateness of functional diversity in teams.

Managers more often base their opinion on past team performance on preset criteria, while team members also consider the processes that led to those final team outcomes. Such perceptual discrepancies between team members and their managers may endanger the effectiveness of management interventions. Team members who consider wider intra-organizational team collaboration crucial may thus first have to overcome management's reservations. Engaging in evaluating the process that led to the final team outcomes is a powerful, but too-rarely applied managerial tool for developing a shared understanding of what composition is actually most adequate (Mohamed, Stankosky & Murray, 2004).

Finally, another largely ignored aspect in composing teams is prospective members' social capital, which can also enhance team performance (Reagans et al., 2004). Each team member brings a unique set of external contacts to the team. So, by deciding upon the team composition, managers also determine the initial external contacts of the team as a whole. In our research, we specified the role of external relationships in more detail. Teams require a proper level of team embeddedness, that is, the extent of team members' constructive relationships with stakeholders needed to finish tasks successfully. Composing teams is not only about the knowledge and skills members bring to the team, but also about their contacts for gaining information, creating external commitment and coordinating actions beyond the team. Team members may thus be selected for representing a wider stakeholder group. The stakeholders with whom a team needs to connect may vary from project to project. Cross-business unit and cross-departmental teams are intended to overcome organizational boundaries, but our in-depth case studies at three leading companies showed that 'random' selection of individuals from relevant units is not sufficient for creating proper team embeddedness. The questions managers should ask right at the start is: "How can these team members contribute to setting up effective collaborations with the key stakeholders for the team's objective?"

5.4.2 Collaboration

Internal team collaboration is the area most widely discussed in academic and professional journals. Research has focused on managerial practices that enhance teamwork within teams in general, and in specific contexts (e.g. new

product development, sales, purchasing) in particular. Implications relate amongst others to training, empowerment and task design.

Although such best practices are generally understood, practice often shows that the organizational context in which teams perform is suboptimal at best, and hardly supports the development of effective internal processes (Coutu, 2009). To explain this observation, Hackman pointed at the focus on the individual of many HR systems and managerial interventions, rather than group processes (see Coutu, 2009). Our research highlighted another factor. As today's team arrangements become more complex, the challenge to apply team management best practices also increases. With people collaborating across the boundaries of functions, regions and businesses, it may be hard to align team management in terms of, for instance, reward structures, travel budgets of individual members and team authority. A situation that we often encountered during our studies was that team members' dedication to team tasks was restricted by their line managers, who wanted those members to prioritize tasks in the line organization over responsibilities related to their part-time team membership. In such situations, getting these things right is beyond the direct span of control of individual team managers. They must go the extra mile in collaborating with their counterparts in other parts of the organization to enable and motivate team performance. Teams most in need of effective team management–becaus e they are virtual, functionally diverse, and span different departments, divisions or even companies– are, paradoxically, those for which effective management is most difficult.

Previous team research has revealed a range of factors that impact internal team processes for different types of teams (e.g. Salas et al., 2009). We choose sourcing teams as our subject of study, a type of team that received little empirical research attention. The teams under study were characterized by a cross-functional and/or cross-business nature. We concluded that for such teams at least three factors are crucial for the development of effective internal team processes. First, since team members have different backgrounds, teams need a clear briefing, outlining the objectives, expectations and boundaries between which the task can be executed. After that, teams need a 'license to act'. Teams whose work impacts multiple departments or units may face numerous attempts by a range of managers to influence the team's decision making, thereby infringing on a team's license to act. Undue management intervention interferes in how a team addresses its tasks, and is detrimental to both team motivation and effort, undermining success. Finally, different interests and knowledge bases among team members put

high demands on the team leader, whose capabilities to coach, inspire and motivate team members are key drivers for effective internal team processes, whereas their ability to structure activities clearly enhances their effectiveness in working with managers outside the team.

The elements in the 3C model are interrelated. Team composition and external contacts affect internal collaboration in various ways. For example, team diversity may initially put internal collaboration under pressure, whereas good individual teamwork skills and leadership capabilities may improve internal processes. These aspects result from the team's composition. Also external contacts can influence internal team processes. The managers of individual team members, for example, may or may not acknowledge and support a member's efforts for the team. In conclusion, also these aspects resulting from a team's composition and contacts should be considered when evaluating the quality of internal collaboration. We turn next to contacts.

5.4.3 Contacts

Although team research in the areas of composition and collaboration is abundant, research on teams' external contacts is much more scarce. In practice, we observe a similar distribution of management attention. Whereas managers are widely concerned with teams' composition and collaboration, few managers actually examine teams' interactions with people outside the team.

Companies rely heavily on all sorts of cross-functional teams, including top management teams, new product development teams, sourcing teams, project teams, and improvement teams. The output of any such team is a product of how team members worked with the wider organization, and the ultimate performance of all such teams depends on how outputs (e.g. decisions, designs, framework agreements with suppliers, recommendations and change initiatives) are followed up by the wider organization. Our research indicates that considering a team's external contacts is a key element in team management.

Past research investigated different boundary spanning behaviors by team members, and networks around teams (Ancona & Caldwell, 1992a; Balkundi & Harrison, 2006; Marrone, 2010). We built on the notion that both the behaviors of team members, as well as the structure of the network around teams may impact performance. Consequently, we developed the concept of "team embeddedness".

Well embedded teams are connected to all their key stakeholders, and have effective interactions with those stakeholders, as opposed to isolated teams, which lack such connections or suffer less effective interactions. Not all such interactions are of the same nature. Interaction with managers to gain support and resources is different from task-related interaction for gathering information and coordinating others' actions (Ancona & Caldwell, 1992a). Team embeddedness therefore distinguishes between an upstream and a downstream network. The upstream network is made up by the power structure formed by a team's stakeholders of a higher hierarchical level, who control resources and exercise supervisory responsibilities towards the team. The downstream network, on the other hand, is made up of people in the workflow structure who possess information necessary for successful task execution or whose activities must be coordinated by the team for successful task completion and implementation.

In one of our studies, we followed a team at a major company that wanted to expand the current product range with a special, high value product. The team clearly underestimated the importance of external contacts. The initial team members were highly motivated, started making plans and went ahead. After a while, they noted that they had to involve Procurement to finish their task. A procurement professional then joined the team and proposed some changes and renegotiated the contract. Then, when the team thought the project was almost finished, they realized they had failed to request approval of the IT department, which was responsible to ensure the security of the products in stores. Since IT had not approved their already worked-out ideas, the team had yet again to redo its work. Finally, when this hurdle was overcome, the team discovered that the Control Department now required changes in order to be able to be able to extract specific data. This late involvement of critical stakeholders exemplifies a low level of embeddedness in the downstream network. Moreover, embeddedness in the upstream network was low, too: the direct bosses of the team members from all different departments were not informed about the project at all. As a result, team members put the team's job low on their priority list. The result was a lengthy, iterative process, in which the team repeatedly had to revisit previous decisions in order to adapt plans to unforeseen requirements. By contrast, other teams which we observed showed high team embeddedness. They were connected to all key stakeholders right at the start, and enjoyed a smooth process without significant unpleasant surprises. We also found that managers in the upstream network can effectively support teams by exerting influence over the downstream network,

promoting constructive cooperation between team members and non-team members who must provide information or execute team decisions. Team embeddedness proved to be a differentiator between good performance and poor performance –especially when "performance" includes actual execution of decisions, versus articulation of contract terms alone.

What does the need for team embeddedness mean for team management? It means that it is just not sufficient to compose a team and instruct members to collaborate well. Managers should take the next step by asking questions such as: "How is the team's task anchored at higher levels of management?", "Are the managers of all team members equally informed?", "Is this team well connected to those key stakeholders that ultimately have to accept or approve the team's output?", and "Is the team collaborating effectively with those who have to work with the teams output?" Of course, staffing a team with members who can easily bridge gaps with stakeholders is one critical step for creating team embeddedness. Second, in setting the terms of assessment, managers should include the team leader's responsibility for managing these external relationships. Finally, when a team is launched or a new project is initiated, a clear briefing and active managerial support in identifying and connecting to the upstream and downstream networks can set the team off to a good start. Our research also shows that when diverse team members form a coherent team, the team is more likely to explicitly discuss the need for involving stakeholders. The biggest pitfall in this perspective may lie in performance assessments. Most teams are requested to self-report their results straight after task completion. The extent to which a team's objective is achieved, which often depends on external commitment and follow-up actions, is often not very distinct at this point.

Table 5.1 provides a summary of this perspective's managerial implications, framed in the 3C model's components composition, collaboration and contacts.

3C Model's Implications for Managers		
Composition	**Collaboration**	**Contacts**
• Sourcing teams benefit from cross-functional members, particularly in terms of "supply base management effectiveness". • Base managerial interventions in teams' functional diversity on an assessment of the processes that led to final performance, rather than on final performance alone. This avoids undermining long-term team viability. • Select leaders with high transformational leadership skills as well as the ability to initiate structure well. Transformational leadership enhances internal teamwork. Clear task structures make team activities and objectives easy to understand for non-team members. • Consider potential team members' social capital when composing the team. Does the intended team composition provide connections with all key external stakeholders, or are they able and likely to establish those connections?	• Sourcing teams' internal collaboration benefits from a clear briefing and clear procedures. Formalizing key milestones also increases transparency for external stakeholders. • With a clear task identified, sourcing teams need a 'license to act'. Empowerment is critical for sourcing team success. Guard against undue external interference in team processes. • Ensure that all team members are acknowledged for their team contributions, regardless of their departmental background. This supports cross-functional and cross-business involvement. • Train team members both in teamwork skills and in sourcing methods and strategies, including non-procurement team members. • Don't avoid these (and other) team management best practices when the team task requires coordination across functional and business boundaries: failing to do so jeopardizes any cross-functional and cross-business unit initiative.	• Point out the responsibility (possibly in the initial briefing session) for an early identification of key stakeholders who play a role in current as well as future task phases. • Ensure that the upstream network is informed about team progress and assure that team members with various backgrounds receive recognition for their team contributions from their line managers. • Involve managers in the upstream network who can exert influence over people in the downstream network. • Assist in assuring goal congruence between individual members in diverse teams. Failing to do so may jeopardize teamwork behavior, cross-functional involvement and long term team success. • Encourage teams to develop distinct stakeholder management strategies for the upstream and the downstream network. • When teams' recommendations must be implemented by others external to the team, assess follow-up activities beyond the team's boundaries and include this assessment in performance evaluations.

Table 5.1: Managerial implications framed in the 3C model.

5.4.4 Timing

We argued that enhancing team management requires considering collaborative processes as well as performance outcomes, and considering a team's external tactics more explicitly. Managers should be aware, though, that teams develop over time; compositions often change, teamwork evolves and external contacts intensify and diminish. This has important implications for team management. Therefore, time itself is a final, overarching dimension in the 3C model to address.

Various studies have provided insights into how internal team processes develop over time, and, for instance, at what moment certain leadership behaviors are most effective (Marks et al., 2001; Wageman et al., 2009). Some authors emphasize that getting things right at the start is crucial, and that when the team's launch has been unsuccessful, it is particularly difficult to get things right in later stages (Coutu, 2009; Ericksen & Dyer, 2004). Based on our in-depth research, we argue that this phenomenon is not at all limited to a team's internal processes, but just as much to a team's composition and contacts. Failing to address all three Cs at the start may launch teams into a downward spiral, as the earlier example shows.

Ensuring a high level of team embeddedness is a matter that cannot be addressed too early. Teams that only gradually develop their external ties risk going down an iterative path: every time the team connects to new stakeholders it must readdress its prior decisions and choices, perhaps at great cost. Teams, whose composition and early efforts facilitated a high level of embeddedness from the early stages benefit from a reduced risk of running into unanticipated roadblocks at later stages. Whereas managers may be inclined to start considering a team's external activities when the team is close to completing its task, truly effective team management includes addressing these matters from the start.

Our empirical studies also showed that time pressure on teams can result in unanticipated changes in team behavior. Chapter 2 showed that external cooperation effectiveness suffers more from a lack of human resources than other success dimensions. The case analyses in chapter 4 and workshops with professionals from the field learned that teams under high time pressure spend more time on communication to their managers (the upstream network) to defend and explain project progress, at the cost of communication with others in the organization (the downstream network) to gather information, coordinate tasks and create commitment. Pressure on team members' time efficiency risks teams to

develop an inward orientation, since there is always the possibility that looking outward leads to new insights that require further changes, and hence, delays. It is recommendable for managers to guard against the development of an inward orientation under deadline pressure. The actual contribution to company performance through alignment with the wider organization should be assessed at all times.

We live in an era in which companies increasingly replace their functional silos by cross-functional, and cross-business teamwork. This trend carries consequences. Managers responsible for managing teams must take the blinders off, to recognize that team management is not limited to assessing compositions and monitoring internal collaboration. It is as much about addressing dynamic processes external to the team, which over time determine ultimate results beyond the team's boundary. "Teams are not ends in themselves; they are a means by which to achieve other organizational goals" (Wellins, Byham & Wilson, 1991, p. 83). The 3C model aims to capture that holistic view on team performance that is necessary for actually contributing to company performance.

5.5 Theoretical contributions

Although team research has witnessed great advances over the years, rigorous research on teams has been limited in the field of purchasing and supply management. This dissertation brings diverse research findings from other fields to bear in the purchasing and supply management field, and seeks to go beyond existing team theories. We applied different research designs, all grounded in existing research (much of it in other fields), to derive implications for team management in a purchasing context. Sourcing teams offer exemplars for other types of teams, allowing for generalizing our theoretical contributions to other fields where teams –especially cross functional, cross divisional, or even cross-firm teams– play a crucial role. The contributions of this dissertation thus reside both in introducing rigorous team research into the field of purchasing and supply management, and in advancing existing team research more generally.

We can distinguish at least three theoretical contributions of this dissertation to the team literature, pointing to the need for modeling the contextual and dynamic nature of contemporary teams. First, we introduced a new dimension of team effectiveness: external cooperation effectiveness. This effectiveness

dimension extends existing IPO research models by acknowledging the role of non-team members to team success in the frequent situations where cross-disciplinary teams make recommendations or negotiate contracts (or design products, programs or policies) that others must execute. Moreover, we provided more in-depth insights into how different input factors affect this and other performance dimensions.

Second, this dissertation is among the first to apply the IMOI model. We investigated how outcomes from one performance cycle are subsequently related to inputs for the next. Whereas previous studies have not investigated potential perceptual differences between team members and managers with regard to those inputs, we focused on potential discrepancies between team members' and managers' perceptions about the appropriateness of the team's functional diversity. This led to some unexpected findings that shed light on how and why perceptions between team members and managers may differ. Teamwork behavior appeared to be not only an antecedent to team performance, but also appeared to act as a moderator in the relationship between team performance and perceptions of functional diversity appropriateness. The insights provide a theoretical explanation for why team members and managers see different needs for ensuring future team performance, and why this divergence might cause teams to lose momentum in the long run.

Finally, the Dynamic Embeddedness Model is a first attempt to combine and extend existing team theories into a new, more holistic theoretical framework for team performance. We introduced the theoretical concept of team embeddedness, and theorized on the relationships between team embeddedness, task progress over time and team performance. Acknowledging both broader contexts and the evolution of contextual relationship over time enables actionable responses to facts on the ground, enhancing the likelihood of sourcing team success.

5.6 Strengths, limitations & avenues for future research

This dissertation extends our knowledge about sourcing team processes, performance and management in a number of ways, but also takes sourcing teams as representative for other types of teams, allowing us to make a contribution to the general team literature. The basic principle of "engaged scholarship" guided us

in designing and conducting our research (Van de Ven, 2007). We recognized it as our distinct responsibility to serve the goal of relevance by engaging with the "real world". Our research covered the operations of more than a hundred sourcing teams from 20 multinational companies. All research objectives and findings have been discussed with field experts extensively. Our mixed-methods approach, including participation in sourcing teams[16], quantitative and qualitative data analyses and a variety of information sources, allowed for a thorough understanding of how sourcing teams work in practice. This dissertation builds on rich empirical data, advanced statistical methods as well as grounding in today's theoretical knowledge. Overall, our work was directed at achieving relevance for science and practice alike.

The preceding chapters individually reflected on specific limitations and directions for future research. Nevertheless, the set-up of this entire research invites further discussion of the overall limitations and on future research avenues that could complement, refine and further validate the outcomes of this dissertation.

The cross-sectional design of the survey studies limited our ability to determine causal directions. Over the course of this research, we have not succeeded in setting up meaningful longitudinal studies spanning multiple performance cycles, due to teams' short life spans (at least with any particular team member make-up) and frequent staff changes. Although this is a limitation from a research point of view, this observation exemplifies the complexity and temporary character of team arrangements in contemporary organizations, as discussed in this dissertation. This complexity was discussed in chapter 4. The case studies in this chapter were of a semi-longitudinal nature, allowing us to look at changes over time during the later stages of team performance, establish causal relationships and to reduce the effects of hindsight bias. Nevertheless, it would be particularly interesting to study relationships between subsequent team performance cycles in large scale longitudinal research. Chapter 3 discussed how outputs of one performance cycle set the scene for future work. Longitudinal research is for instance required to investigate how team member and management perceptions impact future interventions and performance, as such closing an output-input-mediation-output cycle.

[16] Not included in the studies reported in this dissertation.

A second limitation of the research design applied in this dissertation concerns the outcome measures. We relied on perceptual rather than objective measures, although perceptions of both team members and managers were used, and we relied on multiple sources of information in our qualitative studies. We have not succeeded in developing objective measures in collaboration with the managers involved. Although all companies in our studies measure cost savings achieved by sourcing teams, those figures could not be used to compare teams, since the internal and market conditions which teams face differ. Moreover, there is a difference between "team outcomes" such as decisions or recommendations, and "performance outcomes" for the organization, that is, the actual, implemented outcomes of sourcing decisions (or, in case of other types of teams, outcomes like new product designs or strategy recommendations). This "real" performance often relies on subsequent actions by non-team members. Reliably measuring the performance of all kinds of teams, including sourcing teams, remains to be a challenge in future research. Using our research outcomes in a setting where team performance can be measured more objectively may represent an interesting research opportunity.

In our studies, we explicitly focused on within company collaborations. Whereas many previous studies addressed relationships between buyers and suppliers, we primarily focused on the relationships of those buyers within their organization. This focus led to the development of the concept team embeddedness. However, there are numerous examples of sourcing and other types of teams for which team embeddedness refers not only to relationships with stakeholders in one organization, but in fact must include relationships "embedded" in multiple organizations (e.g., departments other than purchasing; divisions beyond the nominal "home" of the team's manager; or even within other firms). For example, innovation increasingly depends on the shared efforts of multiple companies (Hagel III, Brown & Jelinek, 2010; Jelinek & Bean, 2010). The embeddedness required of teams representing multiple companies which operate within such innovation networks of organizations goes beyond the boundaries of one organization. Also, contemporary companies outsource increasingly complex business services (Tate, Ellram, Bais, Hartmann & van der Valk, 2010), which should form a perfect match with the buying companies' processes. Those responsible for managing the relationship between the buyer and the service provider need ties in both organizations. Our findings provide a point of departure

for studying teams that represent –and must be embedded in– multiple organizations.

Finally, the nature of our research has primarily been explanatory. The outcomes extend our knowledge base on how teams function, and clearly suggest managerial implications. An interesting avenue for future studies in the field of team performance is to direct more research attention to testing the effects of managerial interventions in practice. We therefore encourage team researchers to engage in design science research to arrive at field-tested design propositions. This requires more intervention research, investigating the effectiveness of specific interventions to improve the functioning of existing teams (Van Aken & Romme, 2009).

5.7 Closing comments

This dissertation's starting question was: How to improve sourcing team success? We approached sourcing team effectiveness in three different ways. Central elements examined included functional diversity, the dynamic nature of teams and teams' ability to collaborate effectively with other stakeholders in the organization.

Our findings pointed at three distinct dimensions of sourcing team effectiveness, and indicated areas to which managers should direct their attention to improve team success. Our research showed that team members and managers may hold different opinions about the appropriateness of cross-functional team compositions. We found a clarification for this discrepancy in the quality of teamwork behavior within teams, which plays a pivotal role in long-term team performance –but is mostly invisible to managers. Furthermore, we integrated dynamic and contextual perspectives on team performance in one theoretical framework, the Dynamic Embeddedness Model, and showed how external processes over time contribute to ultimate team performance. Finally, we grouped this dissertation's managerial implications comprehensively in the 3C model, which covers a team's composition, internal team collaboration and external contacts.

In conclusion, in today's business context where teams are installed to achieve functional and cross-business integration, team management best-practices

change. Older team performance models need replacement in order to capture the extended richness and complexity of contemporary team arrangements and tasks. This dissertation aims to be a step in that direction.

References

The McKinsey global survey of business executives: Business and Society, 2006. McKinsey Quarterly(2), 33-39.

Alchian, A. A. & Demsetz, H., 1972. Production, information costs, and economic organization. The American Economic Review 62 (5), 777-795.

Alge, B. J., Wiethoff, C., & Klein, H. J., 2003. When does the medium matter? Knowledge-building experiences and opportunities in decision-making teams. Organizational Behavior and Human Decision Processes 91 (1), 26-37.

Ancona, D. G., 1990. Outward bound: Strategies for team survival in an organization. Academy of Management Journal 33 (2), 334-365.

Ancona, D. G. & Caldwell, D. F., 1992a. Bridging the boundary: External activity and performance in organizational teams. Administrative Science Quarterly 37 (4), 634-665.

Ancona, D. G. & Caldwell, D. F., 1992b. Demography and design: Predictors of new product team performance. Organization Science 3 (3), 321-341.

Andrews, K. Z., 1995. Strategic decision-making - it's all in the process. Harvard Business Review 73 (5), 10-11.

Armstrong, J. S. & Overton, T. S., 1977. Estimating nonresponse bias in mail surveys. Journal of Marketing Research 14 (3), 396-402.

Arnold, U., 1999. Organization of global sourcing: ways towards an optimal degree of centralization - The Stars On the Horizon. European Journal of Purchasing and Supply Management 5 (3), 167-174.

Arnold, U., Cox, A., Debruyne, M., De Rijcke, J., Hendrick, T., Iyongun, P., Liouville, J., Laurier, W., Schuman, R., and Vorosmarty, G. A multi-country

study of strategic topics in purchasing and supply management. 1999. CAPS Research.

Baker, D. F., 2001. The development of collective efficacy in small task groups. Small Group Research 32 (4), 451-474.

Balkundi, P. & Harrison, D. A., 2006. Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance. Academy of Management Journal 49 (1), 49-68.

Barrick, M. R., Stewart, G. J., Neubert, M. J., & Mount, M. K., 1998. Relating member ability and personality to work-team processes and team effectiveness. Journal of Applied Psychology 83 (3), 377-391.

Baruch, Y., 1999. Response rate in academic studies - a comparative analysis. Human Relations 52 (4), 421-438.

Bass, B. M., 1985. Leadership and performance beyond expectations. Free Press, New York.

Baugh, S. G. & George, B. G., 1997. Effects of team gender and racial composition on perceptions of team performance in cross-functional teams. Group & Organization Management 22 (3), 366-383.

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L., 2003. Cohesion and performance in groups: A meta-analytic clarification of construct relations. Journal of Applied Psychology 88 (6), 989-1004.

Berry, L. L., Parasuraman, A., Zeithaml, V., & Adsit, D., 1994. Improving service quality in America: Lessons learned; executive commentary. The Academy of Management Executive 8 (2), 32-53.

Brown, S. & Cousins, P. D., 2004. Supply and Operations: Parallel Paths and Integrated Strategies. British Journal of Management 15 (4), 303-320.

Bryceson, K. P. & Slaughter, G., 2010. Alignment of performance metrics in a multi-enterprise agribusiness: Achieving integrated autonomy? International Journal of Productivity and Performance Management 59 (4), 325-350.

Bryde, D. J., 2005. Methods for managing different perspectives of project success. British Journal of Management 16 (2), 119-131.

Burt, R. S., 1992. Structural holes: The social structure of competition. Harvard University Press, Cambridge, MA.

Campion, M. A., Medsker, G. J., & Higgs, A. C., 1993. Relations between work group characteristics and effectiveness: Implications for designing effective work groups. Personnel Psychology 46 (4), 823-850.

Campion, M. A., Papper, E. M., & Medsker, G. J., 1996. Relations between work team characteristics and effectiveness: a replication and extension. Personnel Psychology 49 (2), 429-453.

Carr, A. S. & Pearson, J. N., 2002. The impact of purchasing and supplier involvement on strategic purchasing and its impact on firm's performance. International Journal of Operations & Production Management 22 (9/10), 1032-1053.

Carter, J. R. & Narasimhan, R., 1996. Purchasing and supply management: Future directions and trends. International Journal of Purchasing and Materials Management 32 (4), 2-12.

Carter, P. L., Carter, J. R., Monczka, R. M., Slaight, T. H., & Swan, A. J., 2000. The future of purchasing and supply: A ten-year forecast. Journal of Supply Chain Management 36 (1), 14-26.

Chan, K. W. & Mauborgne, R., 2003. Fair process: managing in the knowledge economy. Harvard Business Review 81 (1), 127-136.

Chen, I. J., Paulraj, A., & Lado, A. A., 2004. Strategic purchasing, supply management, and firm performance. Journal of Operations Management 22 (5), 505-523.

Chi, N., Huang, Y., & Lin, S., 2009. A double-edged sword? Exploring the curvilinear relationship between organizational tenure diversity and team Innovation: The moderating role of team-oriented HR practices. Group & Organization Management 34 (6), 698-726.

Chin, W. W., Marcolin, B. L., & Newsted, P. R., 2003. A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion / adoption study. Information Systems Research 14 (2), 189-217.

Choi, J. N., 2002. External activities and team effectiveness: Review and theoretical development. Small Group Research 33 (2), 181-208.

Cohen, S. G. & Bailey, D. E., 1997. What makes teams work: group effectiveness research from the shop floor to the executive suite. Journal of Management 23 (3), 239-290.

Cohen, S. G. & Ledford, G. E. J., 1994. The effectiveness of self-managing teams: A quasi-experiment. Human Relations 47 (1), 13-43.

Cohen, S. G., Ledford, G. E. J., & Spreitzer, G. M., 1996. A predictive model of self-managing work team effectiveness. Human Relations 49 (5), 643-677.

Collins, C. J. & Clark, K. D., 2003. Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. The Academy of Management Journal 46 (6), 740-751.

Cook, C., Heath, F., & Thompson, R. L., 2000. A meta-analysis of response rates in web- or Internet-based surveys. Educational and Psychological Measurement 60 (6), 821-836.

Cording, M., Christmann, P., & King, D., 2008. Reducing causal ambiguity in acquisition integration: Intermediate goals as mediators of integration decisions and acquisition performance. Academy of Management Journal 51 (4), 744-767.

Cousins, P. D. & Spekman, R., 2003. Strategic supply and the management of inter- and intra-organisational relationships. Journal of Purchasing and Supply Management 9 (1), 19-29.

Coutu, D., 2009. Why teams don't work: An interview with J. Richard Hackman. Harvard Business Review 87 (5), 98-105.

Cross, R., Ehrlich, K., Dawson, R., & Helferich, J., 2008. Managing collaboration: Improving team effectiveness through a network perspective. California Management Review 50 (4), 74-98.

Cummings, J. N., 2004. Work groups, structural diversity, and knowledge sharing in a global organization. Management Science 50 (3), 352-364.

Cummings, J. N. & Cross, R., 2003. Structural properties of work groups and their consequences for performance. Social Networks 25 (3), 197-210.

Danserau, F. & Yammarino, F. J., 2000. Within and between analysis: the variant paradigm as an underlying approach to theory building and testing. In K. J. Klein & S. W. J. Kozlowski (Eds.), Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions. San Francisco, pp. 425-466.

De Jong, A., De Ruyter, K., & Lemmink, J., 2004. Antecedents and consequences of the service climate in boundary-spanning self-managing service teams. Journal of Marketing 68 (2), 18-35.

De Jong, A., De Ruyter, K., Streukens, S., & Ouwersloot, H., 2001. Perceived uncertainty in self-managed service teams: an empirical assessment. International Journal of Service Industry Management 12 (2), 158-183.

Denison, D. R., Hart, S. L., & Kahn, J. A., 1996. From chimneys to cross-functional teams: Developing and validating a diagnostic model. The Academy of Management Journal 39 (4), 1005-1023.

Driedonks, B. A., Gevers, J. M. P., & van Weele, A. J., 2010. Managing sourcing team effectiveness: The need for a team perspective in purchasing organizations. Journal of Purchasing and Supply Management 16 (2), 109-117.

Druskat, V. U. & Wheeler, J. V., 2003. Managing from the boundary: The effective leadership of self-managing work teams. Academy of Management Journal 46 (4), 435-457.

Duffy, R. J. Operational excellence in procurement. 2006. CAPS Research.

Dul, J. & Hak, T., 2008. Case study research methodology in business research. Butterworth-Heinemann/Elsevier, Oxford.

Eby, L. T. & Dobbins, G. H., 1997. Collectivistic orientation in teams: an individual and group-level analysis. Journal of Organizational Behavior (1986-1998) 18 (3), 275-295.

Eisenhardt, K. M., 1989. Building theories from case study research. The Academy of Management Review 14 (4), 532-550.

Eisenhardt, K. M. & Graebner, M. E., 2007. Theory building from cases: opportunities and challenges. Academy of Management Journal 50 (1), 25-32.

Elkins, T. & Keller, R. T., 2008. Leadership in research and development organizations: A literature review and conceptual framework. The Leadership Quarterly 14 (4-5), 587-606.

Ellram, L. M. & Pearson, J. N., 1993. The role of the purchasing function: toward team participation. International Journal of Purchasing and Materials Management 29 (3), 3-10.

Englyst, L., Jorgensen, F., Johansen, J., & Mikkelsen, O. S., 2008. Commodity team motivation and performance. Journal of Purchasing and Supply Management 14 (1), 15-27.

Ericksen, J. & Dyer, L., 2004. Right from the start: Exploring the effects of early team events on subsequent project team development and performance. Administrative Science Quarterly 49 (3), 438-471.

Eylon, D. & Au, K. Y., 1999. Exploring empowerment cross-cultural differences along the power distance dimension. International Journal of Intercultural Relations 23 (3), 373-385.

Farh, J. L., Lee, C., & Farh, C. I. C., 2010. Task conflict and team creativity: A question of how much and when. Journal of Applied Psychology 95 (6), 1173-1180.

Farris, G. F. & Cordero, R., 2002. Leading your scientists and engineers. Research Technology Management 45 (6), 13-25.

Feltz, D. L. & Lirgg, C. D., 1998. Perceived team and player efficacy in hockey. Journal of Applied Psychology 83 (4), 557-564.

Ferrell, O. C. & Skinner, S. J., 1988. Ethical behavior and bureaucratic structure in marketing research organizations. Journal of Marketing Research 25 (1), 103-109.

Fields, D. L., 2002. Taking the measure of work: a guide to validated scales for organizational research and diagnosis. Sage, Thousand Oaks, CA.

Foo, M. D., Sin, H. P., & Yiong, L. P., 2006. Effects of team inputs and intrateam processes on perceptions of team viability and member satisfaction in nascent ventures. Strategic Management Journal 27 (4), 389-399.

Fornell, C. & Larcker, D. F., 1981. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research 18 (1), 39-50.

Fryer, D., 1985. Stages in the psychological response to unemployment: A (dis)integrative review. Current Psychology 4 (3), 257-273.

Gelderman, C. J. & Van Weele, A. J., 2005. Purchasing portfolio models: A critique and update. Journal of Supply Chain Management 41 (3), 19-28.

Gersick, C. J. G., 1988. Time and transition in work teams: Toward a new model of group development. The Academy of Management Journal 31 (1), 9-41.

Gevers, J. M. P. & Peeters, M., 2009. A pleasure working together? The effects of dissimilarity in team member conscientiousness on team temporal processes and individual satisfaction. Journal of Organizational Behavior 30 (3), 379-400.

Gibson, C. B., Cooper, C. D., & Conger, J. A., 2009. Do you see what we see? The complex effects of perceptual distance between leaders and teams. Journal of Applied Psychology 94 (1), 62-76.

Gibson, C. B., Zellmer-Bruhn, M. E., & Schwab, D. P., 2003. Team effectiveness in multinational organizations: Evaluation across contexts. Group & Organization Management 28 (4), 444-474.

Giunipero, L. C. and Carter, P. L. The role of optimization in strategic sourcing. 2009. CAPS Research.

Giunipero, L. C., Handfield, R. B., & Eltantawy, R., 2006. Supply management's evolution: key skill sets for the supply manager of the future. International Journal of Operations & Production Management 26 (7), 822-844.

Giunipero, L. C. & Vogt, J. F., 1997. Empowering the purchasing function: Moving to team decisions. International Journal of Purchasing and Materials Management 33 (1), 8-15.

Gladstein, D. L., 1984. Groups in context: A model of task group effectiveness. Administrative Science Quarterly 29 (4), 499.

Granovetter, M. S., 1973. The strength of weak ties. The American Journal of Sociology 78 (6), 1360-1380.

Gratton, L., Voigt, A., & Erickson, T., 2007. Bridging faultlines in diverse teams. MIT Sloan Management Review 48 (4), 22-29.

Greene, C. N., 1972. Relationships among role accuracy, compliance, performance evaluation, and satisfaction within managerial dyads. The Academy of Management Journal 15 (2), 205-215.

Groth, M., Hennig-Thurau, T., & Walsh, G., 2009. Customer reactions to emotional labor: The roles of employee acting strategies and customer detection accuracy. Academy of Management Journal 52 (5), 958-974.

Gully, S. M., Joshi, A., Incalcaterra, K. A., & Beaubien, J. M., 2002. A meta-analysis of team-efficacy, potency, and performance: Interdependence and level of analysis as moderators of observed relationships. Journal of Applied Psychology 87 (5), 819-832.

Hackman, J. R., 1987. The design of work teams. In J. L. Lorsch (Ed.), Handbook of Organizational Behavior. Englewood Cliffs, NJ, pp. 315-342.

Hackman, J. R., 2003. Learning more by crossing levels: Evidence from airplanes, hospitals, and orchestras. Journal of Organizational Behavior 24 (8), 905-922.

Hackman, J. R., 1990. Conclusion: creating more effective work groups in organizations. In J. R. Hackman (Ed.), Groups that work and those that don't. San Francisco, pp. 479-504.

Hackman, J. R. & Wageman, R., 2005. A theory on team coaching. The Academy of Management Review 30 (2), 269-287.

Hagel III, J., Brown, J. S., & Jelinek, M., 2010. Relational networks, strategic advantage: New challenges for collaborative control. In S. B. Sitkin, L. B. Cardinal, & K. Bijlsma-Frankema (Eds.), Control in organizations: New directions in theory and research. Cambridge, UK.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., Tatham, R. L., 2006. Multivariate data analysis. Prentice-Hall, Englewood Cliffs, NJ.

Handfield, R., Petersen, K., Cousins, P., & Lawson, B., 2009. An organizational entrepreneurship model of supply management integration and performance outcomes. International Journal of Operations & Production Management 29 (2), 100-126.

Hardt, C. W., Reinecke, N., & Spiller, P., 2007. Inventing the 21st-century purchasing organization. The McKinsey Quarterly(4), 114-124.

Harrison, D. A., Mohammed, S., McGrath, J. E., Florey, A. T., & Vanderstoep, S. W., 2003. Time matters in team performance: efffectsof member familiarity, entrainment, and task discontinuity on speed and quality. Personnel Psychology 56 (3), 633-669.

Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T., 2002. Time, teams, and task performance: Changing effects of surface- and deep-level diversity on group functioning. The Academy of Management Journal 45 (5), 1029-1045.

Harvey, M. G. & Richey, R. G., 2001. Global supply chain management: The selection of globally competent managers. Journal of International Management 7 (2), 105-128.

Hensley, R., Irani, Z. J., & Satpathy, A., 2003. Better purchasing for auto suppliers. The McKinsey Quarterly(3), 24-27.

Hirst, G. & Mann, L., 2004. A model of R&D leadership and team communication: the relationship with project performance. R&D Management 34 (2), 147-160.

Hoegl, M. & Gemuenden, H. G., 2001. Teamwork quality and the success of innovative projects: a theoretical concept and empirical evidence. Organization Science 12 (4), 435-449.

Hoegl, M., Weinkauf, K., & Gemuenden, H. G., 2004. Interteam coordination, project commitment, and teamwork in multiteam R&D projects: a longitudinal study. Organization Science 15 (1), 38-55.

Hofstede, G., 1982. Intercultural co-operation in organisations. Management Decision 20 (5), 53-67.

Holland, S., Gaston, K., & Gomes, J., 2000. Critical success factors for cross-functional teamwork in new product development. International Journal of Management Reviews 2 (3), 231-259.

Hollenbeck, J. R., DeRue, D. S., & Guzzo, R., 2004. Bridging the gap between I/O research and HR practice: Improving team composition, team training, and team task design. Human Resource Management 43 (4), 353-366.

Homburg, C. & Jensen, O., 2007. The thought worlds of marketing and sales: Which differences make a difference? Journal of Marketing 71 (3), 124-142.

Hopkins, W. E. & Hopkins, S. A., 2002. Effects of cultural recomposition on group interaction processes. The Academy of Management Review 27 (4), 541-553.

Howell, J. M. & Shea, C. M., 2006. Effects of champion behavior, team potency, and external communication activities on predicting team performance. Group & Organization Management 31 (2), 180-211.

Hu, L. & Bentler, P. M., 1999. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural Equation Modeling 6 (1), 1-55.

Hulland, J., 1999. Use of partial least squares (PLS) in strategic management research: a review of four recent studies. Strategic Management Journal 20 (2), 195-204.

Hult, G. T. & Ferrell, O. C., 1997. Global organizational learning capacity in purchasing: Construct and measurement. Journal of Business Research 40 (2), 97-111.

Hutt, M. D., Walker, B. A., & Frankwick, G. L., 1995. Hurdle the cross-functional barriers to strategic change. Sloan Management Review 36 (3), 22-30.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D., 2005. Teams in organizations: From Input-Process-Output models to IMOI models. Annual Review of Psychology 56 (1), 517-543.

Ivens, B. S., Pardo, C., & Tunisini, A., 2009. Organizing and integrating marketing and purchasing in business markets: An introduction to the special issue, issues and implications. Industrial Marketing Management 38 (8), 851-856.

Jacobides, M. G., 2005. Industry change through vertical disintegration: How and why markets emerged in mortgage banking. Academy of Management Journal 48 (3), 465-498.

James, L. R., 1982. Aggregation bias in estimates of perceptual agreement. Journal of Applied Psychology 67 (2), 219-229.

James, L. R., Demaree, R. G., & Wolf, G., 1984. Estimating within-group interrater reliability with and without response bias. Journal of Applied Psychology 69 (1), 85-98.

Janz, B. D., Colquitt, J. A., & Noe, R. A., 1997. Knowledge worker team effectiveness: The role of autonomy, interdependence, team development, and contextual support variables. Personnel Psychology 50 (4), 877-904.

Jassawalla, A. R. & Sashittal, H. C., 2000. Strategies of effective new product team leaders. California Management Review 42 (2), 34-51.

Jelinek, M., 2008. Comments on Yammarino's "Levels of analysis and the US Constitution": Organization theory beyond "the firm". International Journal of Organizational Analysis 16 (3), 194-197.

Jelinek, M. & Bean, A., 2010. New innovation architectures will shape R&D "lab" of the future. Research Technology Management 53 (2), 2-4.

Jelinek, M. & Wilson, J., 2005. Macro influences on multicultural teams: A multi-level view. In D. L. Shapiro, M. A. V. Glinow, & J. L. J. Cheng (Eds.), Managing multinational teams: Global perspectives. New York, pp. 209-231.

Jensen, M. C. & Meckling, W. H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3 (4), 305-360.

Johnson, P. F. and Leenders, M. R. Supply's organizational roles and responsibilities. 2004. CAPS Research.

Johnson, P. F., Robert, D. K., Michiel, R. L., & Fearon, H. E., 2002. Determinants of purchasing team usage in the supply chain. Journal of Operations Management 20 (1), 77-89.

Johnson, P. F., Robert, D. K., Michiel, R. L., & Amrou, A., 2007. Utilizing e-business technologies in supply chains: the impact of firm characteristics and teams. Journal of Operations Management 25 (6), 1255-1274.

Joshi, A., 2006. The influence of organizational demography on the external networking behavior of teams. Academy of Management.The Academy of Management Review 31 (3), 583-595.

Joshi, A., Pandey, N., & Han, G., 2009. Bracketing team boundary spanning: An examination of task-based, team-level, and contextual antecedents. Journal of Organizational Behavior 30 (6), 731-759.

Kakabadse, A. & Kakabadse, N., 2002. Trends in outsourcing: contrasting USA and Europe. European Management Journal 20 (2), 189-198.

Karakowsky, L., McBey, K., & Chuang, Y.-T., 2004. Perceptions of team performance: The impact of group composition and task-based cues. Journal of Managerial Psychology 19 (5), 506-525.

Karjalainen, K., Kemppainen, K., & van Raaij, E., 2009. Non-compliant work behaviour in purchasing: An exploration of reasons behind maverick buying. Journal of Business Ethics 85 (2), 245-261.

Katz-Navon, T. Y. & Erez, M., 2005. When collective- and self-efficacy affect team performance: The role of task interdependence. Small Group Research 36 (4), 437-465.

Kayworth, T. R. & Leidner, D. E., 2001. Leadership effectiveness in global virtual teams. Journal of Management Information Systems 18 (3), 7-40.

Keller, R. T., 2006. Transformational leadership, initiating structure, and substitutes for leadership: a longitudinal study of research and development project team performance. Journal of Applied Psychology 91 (1), 202-210.

Keller, R. T., 2001. Cross-functional project groups in research and new product development: diversity, communications, job stress, and outcomes. Academy of Management Journal 44 (3), 547-555.

Kenny, D. A. & McCoach, B. D., 2003. Effect of the number of variables on measures of fit in structural equation modeling. Structural Equation Modeling 10 (3), 333-351.

Kirkman, B. L. & Rosen, B., 2000. Powering up teams. Organizational Dynamics 28 (3), 48-66.

Kirkman, B. L. & Rosen, B., 1999. Beyond self-management: Antecedents and consequences of team empowerment. Academy of Management Journal 42 (1), 58-74.

Kirkman, B. L., Rosen, B., Tesluk, P. E., & Gibson, C. B., 2004. The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. Academy of Management Journal 47 (2), 175-192.

Kirkman, B. L., Tesluk, P. E., & Rosen, B., 2004. The impact of demographic heterogeneity and team leader-team member demographic fit on team empowerment and effectiveness. Group & Organization Management 29 (3), 334-368.

Kirkman, B. L., Tesluk, P. E., & Rosen, B., 2001. Assessing the incremental validity of team consensus ratings over aggregation of individual-level data in predicting team effectiveness. Personnel Psychology 54 (3), 645-667.

Kozlowski, S. W. J. & Bell, B. S., 2003. Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), Handbook of psychology: Industrial and organizational psychology. London, pp. 333-375.

Lahiri, S. & Kedia, B. L., 2009. The effects of internal resources and partnership quality on firm performance: An examination of Indian BPO providers. Journal of International Management 15 (2), 209-224.

Lambert, D. M. & Cooper, M. C., 2000. Issues in supply chain management. Industrial Marketing Management 29 (1), 65-83.

Lovelace, K., Shapiro, D. L., & Weingart, L. R., 2001. Maximizing cross-functional new product teams' innovativeness and constraint adherence: A conflict communications perspective. The Academy of Management Journal 44 (4), 779-793.

Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N., 1996. Effectiveness correlates of transformational and transactional leadership: a meta-analytic review of the mlq literature. The Leadership Quarterly 7 (3), 385-425.

Markland, D., 2007. The golden rule is that there are no golden rules: a commentary on Paul Barrett's recommendations for reporting model fit in structural equation modelling. Personality and Individual Differences 42 (5), 851-858.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J., 2001. A temporally based framework and taxonomy of team processes. The Academy of Management Review 26 (3), 356-376.

Marrone, J. A., 2010. Team boundary spanning: A multilevel review of past research and proposals for the future. Journal of Management 36 (4), 911-940.

Marrone, J. A., Tesluk, P. E., & Carson, J. B., 2007. A multilevel investigation of antecedents and consequences of team member boundary-spanning behavior. Academy of Management Journal 50 (6), 1423-1439.

Martinko, M. J., Harvey, P., & Dasborough, M. T., 2011. Attribution theory in the organizational sciences: A case of unrealized potential. Journal of Organizational Behavior 32 (1), 144-149.

Mathieu, J., Maynard, M., Rapp, T., & Gibson, L., 2008. Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. Journal of Management 34 (3), 410-476.

Mathieu, J. E. & Taylor, S. R., 2006. Clarifying conditions and decision points for mediational type inferences in organizational behavior. Journal of Organizational Behavior 27 (8), 1031-1056.

McCutcheon, D. M. & Meredith, J. R., 1993. Conducting case study research in operations management. Journal of Operations Management 11 (3), 239-256.

McGrath, J. E., 1964. Social psychology: A brief introduction. Holt, Binehart and Winston, New York.

McGrath, J. E., 1997. Small group research, that once and future field: An interpretation of the past with an eye to the future. Group Dynamics 1 (1), 7-27.

McGrath, J. E., Arrow, H., & Berdahl, J. L., 2000. The study of groups: Past, present, and future. Personality and Social Psychology Review 4 (1), 95-105.

Meredith, J., 1998. Building operations management theory through case and field research. Journal of Operations Management 16 (4), 441-454.

Meredith, J. R. & Mantel, S. J., 2010. Project management: A managerial approach. John Wiley & Sons, Hoboken.

Miles, S. J. & Mangold, G., 2002. The impact of team leader performance on team member satisfaction: the subordinate's perspective. Team Performance Management 8 (5/6), 113-121.

Mohamed, M., Stankosky, M., & Murray, A., 2004. Applying knowledge management principles to enhance cross-functional team performance. Journal of Knowledge Management 8 (3), 127-142.

Mohammed, S., Hamilton, K., & Lim, A., 2009. The incorporation o ftime in team research: Past, current, and future. In E. Salas, G. Goodwin, & C. S. Burke (Eds.), Team effectiveness in complex organizations: Cross-disciplinary perspectives and approaches. New York, pp. 321-348.

Monczka, R. M. and Petersen, K. J. Supply strategy implementation: Current state and future opportunities. 2008. CAPS Research.

Monczka, R. M., Trent, R. J., and Petersen, K. J. Effective global sourcing and supply for superior results. 2006. CAPS Research.

Murphy, D. J. & Heberling, M. E., 1996. A framework for purchasing and integrated product teams. International Journal of Purchasing and Materials Management 32 (3), 11-19.

Nunnally, J. C. & Bernstein, I. H., 1994. Psychometric theory. McGraw-Hill, New York.

Oh, H., Labianca, G., & Chung, M., 2006. A multilevel model of group social capital. Academy of Management.The Academy of Management Review 31 (3), 569-582.

Parker, G. M., 1994. Cross-functional teams: Working with allies, enemies, and other strangers. Jossey Bass Publishers, San Francisco.

Peters, L. & Karren, R., 2009. An examination of the roles of trust and functional diversity on virtual team performance ratings. Group & Organization Management 34 (4), 479-504.

Pinto, M. B., Pinto, J. K., & Prescott, J. E., 1993. Antecedents and consequences of project team cross-functional cooperation. Management Science 39 (10), 1281-1297.

Plank, R. E. & Ferrin, B. G., 2002. How manufacturers value purchase offerings: An exploratory study. Industrial Marketing Management 31 (5), 457-465.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology 88 (5), 879-903.

Postrel, S., 2002. Islands of shared knowledge: Specialization and mutual understanding in problem-solving teams. Organization Science 13 (3), 303-320.

Preacher, K. J. & Hayes, A. F., 2008. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods 40 (3), 879-891.

Rauniar, R., Doll, W., Rawski, G., & Hong, P., 2008. The role of heavyweight product manager in new product development. International Journal of Operations & Production Management 28 (2), 130-154.

Reagans, R., Zuckerman, E., & McEvily, B., 2004. How to make the team: Social networks vs. demography as criteria for designing effective teams. Administrative Science Quarterly 49 (1), 101-133.

Reagans, R. & Zuckerman, E. W., 2001. Networks, diversity, and productivity: The social capital of corporate R&D teams. Organization Science 12 (4), 502-517.

Reinecke, N., Spiller, P., & Ungerman, D., 2007. The talent factor in purchasing. The McKinsey Quarterly(1), 6-9.

Richter, A. W., West, M., Van Dick, R., & Dawson, J. F., 2006. Boundary spanners' identification, intergroup contact, and effective intergroup relations. Academy of Management Journal 49 (6), 1252-1269.

Rickards, T. & Moger, S., 2000. Creative leadership processes in project team development: An alternative to tuckman's stage model. British Journal of Management 11 (4), 273-283.

Riketta, M. & Nienaber, S., 2007. Multiple identities and work motivation: The role of perceived compatibility between nested organizational units*. British Journal of Management 18 (s1), S61-S71.

Robbins, H. & Finley, M., 1995. Why teams don't work: What went wrong and how to make it right. Peterson's/Pacesetter Books, Princeton, N.J..

Robinson, J. P., Shaver, P. R., Wrightsman, L. S., 1991. Measures of social psychological attitudes. Academic Press, San Diego.

Roe, R. A., 2008. Time in applied psychology: Studying what happens rather than what is. The European Psychologist 13 (1), 37-52.

Salas, E., Goodwin, G. F., Burke, C. S., 2009. Team effectiveness in complex organizations: cross-disciplinary perspectives and approaches. Psychology Press, London.

Samli, A. C., Browning, J. M., & Busbia, C., 1998. The status of global sourcing as a critical tool of strategic planning: Opportunistic versus strategic dichotomy. Journal of Business Research 43 (3), 177-187.

Sarin, S. & Mahajan, V., 2001. The effect of reward structures on the performance of cross-functional product development teams. Journal of Marketing 65 (2), 35-53.

Schiele, H., Horn, P., & Vos, B., 2011. Estimating cost-saving potential from international sourcing and other sourcing levers: Relative importance and trade-offs. International Journal of Phsysical Distribution & Logistics Management 41 (3), 315-336.

Scott-Young, C. & Samson, D., 2008. Project success and project team management: evidence from capital projects in the process industries. Journal of Operations Management 26 (6), 749-766.

Senior, B. & Swailes, S., 2007. Inside management teams: Developing a teamwork survey instrument. British Journal of Management 18 (2), 138-153.

Sosik, J. J., Kahai, S. S., & Piovoso, M. J., 2009. Silver bullet or voodoo statistics?: A primer for using the partial least squares data analytic technique in group and organization research. Group & Organization Management 34 (1), 5-36.

Spreitzer, G. M., Cohen, S. G., & Ledford Jr, G. E., 1999. Developing effective self-managing work teams in service organizations. Group & Organization Management 24 (3), 340-366.

Stogdill, R. M., 1963. Manual for the leader behavior description questionnaire-form XII. Bureau of Business Research, Ohio State University, Columbus.

Sull, D. N., 2007. Closing the gap between strategy and execution. MIT Sloan Management Review 48 (4), 30-38.

Svahn, S. & Westerlund, M., 2009. Purchasing strategies in supply relationships. Journal of Business & Industrial Marketing 24 (3/4), 173-181.

Tasa, K., Taggar, S., & Seijts, G. H., 2007. The development of collective efficacy in teams: A multilevel and longitudinal perspective. Journal of Applied Psychology 92 (1), 17-27.

Tate, W., Ellram, L., Bais, L., Hartmann, E., & van der Valk, W., 2010. An agency theory perspective on the purchase of marketing services. Industrial Marketing Management 39 (5), 806-819.

Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., & Lauro, C., 2005. PLS path modeling. Computational Statistics & Data Analysis 48 (1), 159-205.

Terpend, R., Tyler, B., Krause, D., & Handfield, R., 2008. Buyer-supplier relationships: derived value over two decades. Journal of Supply Chain Management 44 (2), 28-55.

Thompson, J., 1967. Organizations in action: Social science bases of administration theory. McGraw-Hill, New York.

Trautmann, G., Bals, L., & Hartmann, E., 2009. Global sourcing in integrated network structures: The case of hybrid purchasing organizations. Journal of International Management 15 (2), 194-208.

Trent, R. J., 1998. Individual and collective team effort: a vital part of sourcing team success. International Journal of Purchasing and Materials Management 34 (4), 46-54.

Trent, R. J., 1996. Understanding and evaluating cross-functional sourcing team leadership. International Journal of Purchasing and Materials Management 32 (4), 29-36.

Trent, R. J. & Monczka, R. M., 1994. Effective cross-functional sourcing teams: critical success factors. International Journal of Purchasing and Materials Management 30 (4), 3-12.

Trent, R. J. & Monczka, R. M., 1998. Purchasing and supply management: trends and changes throughout the 1990s. International Journal of Purchasing and Materials Management 34 (4), 2-11.

Trent, R. J. & Monczka, R. M., 2003b. International purchasing and global sourcing - what are the differences? Journal of Supply Chain Management 39 (4), 26-37.

Trent, R. J. & Monczka, R. M., 2003a. Understanding integrated global sourcing. International Journal of Physical Distribution & Logistics Management 33 (7), 607-629.

Tuckman, B. W., 1965. Developmental sequence in small groups. Psychological Bulletin 63 (6), 384-399.

Tuckman, B. W. & Jensen, M. A., 1977. Stages of small-group development revisited. Group & Organization Management 2 (4), 419-427.

Van Aken, J. & Romme, G., 2009. Reinventing the future: Adding design science to the repertoire of organization and management studies. Organization Management Journal 6 (1), 5-12.

Van de Ven, A. & Ferry, D. L., 1980. Measuring and assessing organizations. John Wiley, New York.

Van de Ven, A. H., 2007. Engaged scholarship. Oxford University Press, New York.

Van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C., 2004. Work group diversity and group performance: An integrative model and research agenda. Journal of Applied Psychology 89 (6), 1008-1022.

Van Weele, A. J., 2010. Purchasing and supply chain management: Analysis, planning and practice. Thomson International, London.

Van Weele, A. J. & Rozemeijer, F. A., 1996. Revolution in purchasing: Building competitive power through proactive purchasing. European Journal of Purchasing & Supply Management 2 (4), 153-160.

Voss, C., Tsikriktsis, N., & Frohlich, M., 2002. Case research in operations management. International Journal of Operations & Production Management 22 (2), 195-219.

Wageman, R., Fisher, C., & Hackman, J., 2009. Leading teams when the time is right: Finding the best moments to act. Organizational Dynamics 38 (3), 192-203.

Wageman, R., Hackman, J. R., & Lehman, E., 2005. Team diagnostic survey: Development of an instrument. The Journal of Applied Behavioral Science 41 (4), 373-398.

Waller, M. J., Zellmer-Bruhn, M. E., & Giambatista, R. C., 2002. Watching the clock: Group pacing behavior under dynamic deadlines. The Academy of Management Journal 45 (5), 1046-1055.

Weick, K. E. & Roberts, K. H., 1993. Collective mind in organizations: Heedful interrelating on flight decks. Administrative Science Quarterly 38 (3), 357-381.

Weiner, B., 1985. An attributional theory of achievement motivation and emotion. Psychological Review 92 (4), 548-573.

Weitz, B. A. & Bradford, K. D., 1999. Personal selling and sales management: A relationship marketing perspective. Journal of the Academy of Marketing Science 27 (2), 241-254.

Wellins, R. S., Byham, W. C., Wilson, J. W., 1991. Empowered teams: Creating self-directed work groups that improve quality, productivity, and participation. Jossey-Bass, San Francisco.

Wetzels, M., Odekerken-Schroder, G., & van Oppen, C., 2009. Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. MIS Quarterly 33 (1), 177-195.

Wexley, K. N., Alexander, R. A., Greenawalt, J. P., & Couch, M. A., 1980. Attitudinal congruence and similarity as related to interpersonal evaluations in manager-subordinate dyads. The Academy of Management Journal 23 (2), 320-330.

Wold, H., 1985. Systems analysis by partial least squares. In P. Nijkamp, H. Leitner, & N. Wrigley (Eds.), Measuring the unmeasurable. Dordrecht, The Netherlands, pp. 211-252.

Workman, M., 2005. Virtual team culture and the amplification of team boundary permeability on performance. Human Resource Development Quarterly 16 (4), 435-458.

Yin, R., 1994. Case study research. Sage Publications, Beverly Hills.

Zheng, J., Knight, L., Harland, C., Humby, S., & James, K., 2007. An analysis of research into the future of purchasing and supply management. Journal of Purchasing and Supply Management 13 (1), 69-83.

Zolin, R., Hinds, P. J., Fruchter, R., & Levitt, R. E., 2004. Interpersonal trust in cross-functional, geographically distributed work: A longitudinal study. Information and Organization 14 (1), 1-26.

Appendices

Appendix A:
Questionnaire "Success factors for effective sourcing teams"; chapter 2.

Appendix B:
Questionnaire "Management's blind spot"; chapter 3.

Appendix A: Questionnaire chapter 3

Employee involvement context
Member rewards (scale developed for present study) 1. All team members are rewarded for their work on the team. 2. There are no team members on our team that are not rewarded/recognized for their work on the team.
Equal rewards (scale adapted from Sarin and Mahajan, 2001) 1. The best performers on our team receive extra rewards. [R] 2. The rewards team members receive for working on this team are proportional to their contributions to the team's performance. [R] 3. Members who perform well on our team are individually rewarded/recognized in the team for their work. [R]
Internal authority (scale adapted from Kirkman, Tesluk and Rosen, 2004) 1. My team can select different ways to do the team's work. 2. My team determines as a team how things are done in the team.
External authority (scale adapted from Trent and Monczka, 1994) 1. My team is able to make sourcing decisions without the approval of others external to the team.
Organizational context
Transformational leadership (scale adapted from Keller, 2006) 1. Our team leader commands respect from everyone. 2. Our team leader is a model for me to follow. 3. In my mind, our team leader is a symbol of success and accomplishment. 4. Our team leader has provided me with new ways of looking at things which used to be a puzzle for me. 5. Our team leader is an inspiration to us. 6. Our team leader makes me proud to be associated with him/her. 7. Our team leader has a special gift of seeing what it is that really is important for me to consider. 8. Our team leader's ideas have forced me to rethink some of my own ideas which I had never questioned before. 9. Our team leader enables me to think about old problems in new ways. 10. Our team leader excites us with his/her visions of what we may be able to accomplish if we work together. 11. Our team leader has a sense of mission which he/she transmits to me. 12. Our team leader makes everyone around him/her enthusiastic about assignments.
Initiating structure (scale adapted from Keller, 2006) 1. Our team leader asks that team members follow standard rules and regulations. 2. Our team leader encourages the use of uniform procedures. 3. Our team leader schedules the work to be done. 4. Our team leader decides what shall be done and how it shall be done.
Formalization (scale adapted from De Jong et al., 2001) 1. Clear and planned goals and objectives are set for sourcing team performance by upper management. 2. Sourcing performance rules and procedures are laid down in clear and understandable written agreements.
Team composition
Functional diversity (scale developed for present study) 1. The number of functional backgrounds (e.g. purchasing, marketing, finance, engineering etc.) that are represented by the team members is equal to:

Team processes
Effort (scale adapted from Hoegl and Gemuenden, 2001) 1. Every team member fully pushes the team's work. 2. Every team member makes the team their highest priority.
Internal communication (scale adapted from Keller, 2001) 1. The amount of task-related communication within our team is high.
External communication (scale adapted from Keller, 2001) 1. The amount of task-related communication outside our team but within our purchasing organization is high. 2. The amount of task-related communication outside the purchasing organization but within the company is high. 3. The amount of task-related communication outside the company is high.
Sourcing team effectiveness
General overall team effectiveness (scale adapted from Trent and Monczka, 1994) 1. The team has produced a large quantity or high amount of work. 2. The team has produced high quality or high accuracy of work. 3. The team's reputation for work excellence is high. 4. The efficiency of the team's operations is high. 5. The team's ability to meet timing and task schedule targets is high. 6. The team's ability to meet executive management's performance expectations is good.
Supply base management effectiveness (scale adapted from Trent and Monczka, 1994) 1. The team's ability to improve purchased item quality is good. 2. The team's ability to support the increased use of supplier technical abilities is good. 3. The team's ability to provide access to new product and process technology before competitors have access to the technology is good. 4. The team's ability to develop supplier performance capabilities is good. 5. The team's ability to support early sourcing and supplier participation during product design is good. 6. The team's ability to foster development of new technology by suppliers for company use is good. 7. The team's ability to establish strategic relationships with suppliers is good.
External cooperation effectiveness (items adapted from Trent and Monczka, 1994) 1. The team's ability to communicate and coordinate activities across functional boundaries is good. 2. The team's ability to work with others outside the team is good. 3. The team's ability to develop procurement strategies that directly support business unit strategies is good.

Appendix B: Questionnaire chapter 4

Performance (scale adapted for present study)

1. The team's ability to reduce purchased item costs is good.
2. The team's ability to achieve best-in-class supplier selection is good.
3. The team's ability to reduce total costs within a certain category of products or services is good.

Functional diversity appropriateness (scale adapted from Wageman et al., 2005)

1. This team has a nearly ideal "mix" of members-a diverse set of people who bring different functional perspectives and experiences to the work.
2. Members of this team are too dissimilar to work together well.[R]
3. This team does not have a broad enough range of experiences and perspectives to accomplish its purposes. [R]

Teamwork behavior (scale adapted from Tasa et al., 2007)

1. Our team is able to take steps to ensure everyone participates in group discussions.
2. Our team members are able to take the group's ideas and develop specific plans of action.
3. Our team can make correct judgments about connections in complex situations.
4. All team members participate in developing strategies to achieve team goals.
5. Our team addresses conflict immediately by raising it for discussion.
6. Team members try to calm down other team members that are in conflict.

Rewards (scale developed for present study)

1. All team members are rewarded for their work on the team.
2. There are no team members on our team that are not rewarded/recognized for their work on the team.
3. Contributions to the team task by members are acknowledged in their reward structures.

Autonomy (scale adapted from Kirkman, Tesluk and Rosen, 2004)

1. My team can select different ways to do the team's work.
2. My team determines as a team how things are done in the team.
3. My team makes its own choices without being told by management.
4. My team feels a sense of freedom in what it did.

Summary (English)

Sourcing team success: Team studies in a purchasing and supply management context

Sourcing teams have become an increasingly important form of organization in purchasing and supply management. Sourcing teams, also referred to as category or commodity teams, are assigned the task of finding, selecting, and managing suppliers for a category of products or services across businesses, functions and disciplines. Typically, sourcing teams are staffed by people from different business units, and with different functional backgrounds. Sourcing teams have a boundary-spanning role in dealing with a wide range of internal and external stakeholders. Despite high expectations, however, many companies find decreased levels of ambition on sourcing teams within months after start-up, as members' motivation and cohesiveness flag. Yet there is little rigorous empirical research to provide managers with meaningful insights for increasing the chances of sourcing team success. Sourcing teams' activities are conducted across functional and divisional borders, making them an exemplar for cross-functional, cross-business teams. Thus investigating sourcing teams contributes to literature by providing deeper insights into team processes and success, which can be applicable to other teams that share their multifunctional and cross-business characteristics. The central research question of this dissertation therefore is: *How to improve sourcing team success?*

Three empirical studies in this dissertation address this overall question; each serves a different objective. The first study aims to identify the critical success factors for sourcing teams. The second study's objective is to investigate team members' and managers' perspectives on cross-functional sourcing team composition and its contribution to team success. Finally, the third study focuses on the collaboration between team members and other stakeholders, and aims to integrate teams' internal and external processes over time into a single model. The first two studies build on data from two cross-sectional surveys; the third study is a qualitative multiple case study.

Study 1: Success factors for sourcing teams

Chapter 2 presents the results of a large-scale field survey addressing the effectiveness of sourcing teams. The study translates implications from prior team effectiveness research with other types of teams into hypotheses for sourcing teams in order to identify critical success factors. Next, the study provides insight into the relationships between these factors, team processes, and key dimensions of sourcing team performance. The research framework, based on the input-process-output (IPO) model, acknowledged that different success factors drive different team outcomes. The study achieved an overall response rate of 70.2 %, investigating 58 sourcing teams at 12 multinational companies.

These empirical findings revealed a new dimension of sourcing team effectiveness: the ability of sourcing teams to cooperate effectively with internal stakeholders. This new dimension appeared to be a distinct and critical dimension of sourcing team effectiveness. This new dimension, labeled 'external cooperation effectiveness', is distinct from two other dimensions of sourcing team effectiveness, the first being 'general overall team effectiveness', which refers to quality and quantity of work, efficiency, planning and overall performance, and the second being 'supply base management effectiveness', which covers aspects such as improved quality of purchased items, improved supply base responsiveness, relationship management, and support for innovation. These three dimensions of sourcing team effectiveness served as points of departure in crafting managerial interventions to improve sourcing team performance. For each effectiveness dimension, we showed how certain input factors enhance performance. Overall, our research results point to team internal authority as the most important success factor. A notable finding, which we investigated in the second study, was that team members associate functional diversity with higher performance, whereas management ratings associated diversity with decreased performance. Thus, the outcomes of this study provide purchasing managers with detailed insights on dimensions relevant to the performance of their sourcing teams.

Study 2: Management's blind spot

The aim of the second study, reported in chapter 3, was to determine how team members and managers value functional diversity in sourcing teams. This study's research framework was based on the input-mediation-output-input (IMOI) model, which suggests that the outputs of one performance cycle serve as inputs for the next episode. We investigated how team members' and team

managers' perceptions of team performance (defined as achieved cost savings) and teamwork quality affected perceptions of each group of respondents regarding the appropriateness of the team's cross-functional composition, i.e., whether both team members and managers believe that functional diversity is helpful. The framework was tested by means of a cross-sectional survey study, covering 48 sourcing teams from eleven companies, reaching a response rate of 66.8%.

The empirical results showed that perceptions of functional diversity appropriateness differ between team members and managers, a discrepancy that may lead to situations where managers intervene in team structures to reduce cross-functionality. Our results suggest that such an action may be perceived by team members as a step back rather than forward, undermining team performance. Similarly, our results also showed that when current performance does meet management expectations, managers are satisfied with the existing team composition, even if poor teamwork behavior has jeopardized team members' faith in the appropriateness of the team's composition. Differences in perceptions between members and managers appeared to originate from the fact that team members take the quality of teamwork behavior into consideration when evaluating the appropriateness of their team's diversity, whereas managers do not. Managers' perceptions of functional diversity appropriateness were almost solely based on the financial outcomes of a team's work. Managers did not include teamwork behavior in their judgments, most likely because managers have little insight into these behaviors.

Some notable and unexpected findings surfaced in this study. First, purchasing managers appeared to be more reluctant to move to more formal cross-functional collaborations in purchasing and supply management than the team members who actually have to do the job. Second, the team members with the poorest perceptions of functional diversity appropriateness were not from poorly performing teams, but were in fact from well performing teams. Additional analyses suggested that this may be due to goal incongruence among cross-functional team members. Overall, this study indicated that under conditions of poor performance, managers should first focus on improving teamwork behavior. Moreover, managers should not be misled by current performance alone; high performance may have been achieved at the cost of a team's motivation to address future challenges in their current composition.

Study 3: Towards a holistic view on team performance

In the last study, we explicitly include the interactions between team members and others outside the team in our research on sourcing teams. Whereas the studies reported in the second and third chapter built on existing team performance models, the aim in the fourth chapter was to develop a new theoretical framework. Different theoretical streams in team research have developed in parallel, and, unfortunately, lack an integrated perspective. Insights from IPO, boundary spanning, and timing research only partly address the complexities of contemporary team arrangements, in which diverse teams with changing part-time members strongly depend on external interactions and evolve through different stages of development over time. In this study, we aimed to consolidate and extend these multiple perspectives into an integrated model: the Dynamic Embeddedness Model.

As part of the combined model, we proposed a new concept, 'team embeddedness', i.e., the extent to which team members effectively interact with all key stakeholders that surround them. We grouped stakeholders into an upstream and a downstream network. The upstream network was defined as the power structure formed by a team's stakeholders of a higher hierarchical level, who control resources and supervise team activities. The downstream network, on the other hand, relates to people in the workflow structure who possess information necessary for successful task execution by the team. The downstream network also includes relationships with stakeholders whose activities must be coordinated by the team for successful task completion and eventual implementation of team recommendations. A second part of the Dynamic Embeddedness Model concerns time. We suggested that teams go through three subsequent stages of team behavior: 1) the '*forming*' phase, 2) the '*functioning*' phase, and 3) the '*finishing*' phase. Interactions with the upstream and downstream network change when teams move from one stage to the other.

Using a multiple case study approach, we validated the Dynamic Embeddedness Model in practice by examining six teams from three multinational companies. First, based upon the empirical results, we derived three distinct dimensions of team embeddedness: 1) the extent to which the upstream network is connected and informed; 2) the connectedness between the team and the downstream network; and 3) the extent to which the upstream network influences the downstream network. Second, the case studies showed that teams may not go through the three phases of forming, functioning and finishing in an orderly

sequence. Teams with low team embeddedness appeared to be pulled back to the previous phase when they tried to push their project further: some threshold seems essential for progress. We included this phenomenon in the Dynamic Embeddedness Model by adding iterative loops between the phases. Third, the apparent gradual buildup of performance shows that failing to get things right at the start makes it difficult to compensate in later stages. Unlike previous team performance models, we explicitly derive team performance as a product of performance in each stage in the Dynamic Embeddedness Model.

General outcomes

The three empirical studies contribute to answering the overall research question: *How to improve sourcing team success?* First, in order to improve sourcing team success, managers should acknowledge that there are three distinct dimensions to sourcing team effectiveness: general overall team effectiveness, supply base management effectiveness and external cooperation effectiveness. For improving sourcing team effectiveness, it makes sense to review performance on each of these dimensions and to determine which performance area needs improvement. Chapter 2 provides an overview of the factors (e.g. leadership styles, functional diversity and formalization) to which managers should turn their attention in order to enhance performance on respective dimensions of sourcing team effectiveness.

Second, this dissertation points at a risk in sourcing teams where collaborative processes are insufficiently recognized. Although immediate cost savings may seem satisfactory, these results may be obtained at the detriment of team motivation of members from different backgrounds for subsequent rounds, which may make subsequent staffing difficult and may undercut the cooperation of departments. Team members generally perceive a cross-functional approach to be a necessity for future performance, and seem to have different views about the appropriateness of functional diversity in teams than managers. The cause for this perceptual discrepancy lies in the quality of teamwork behavior. Intervening in a team's functional composition based on performance outcomes only may not improve team success, and may not reach at the heart of the problem. Rather, it is important for managers to develop a sharp eye for teamwork processes, and to stimulate effective teamwork behavior by ensuring adequate reward structures and sufficient team autonomy.

Finally, our research showed that just focusing on what happens within the team is not sufficient for sourcing team success. A team's embeddedness in its upstream and downstream networks highly impacts team success. Effective sourcing team management thus involves considering a team's embeddedness when composing a team, managing the team's external activities, and managing the context within which the team must operate. Moreover, team embeddedness should be assessed in the early stages of any performance loop, to prevent the team from running into unanticipated roadblocks at later stages.

Contributions to academic research

The contributions of this dissertation reside both in introducing rigorous team research into the field of purchasing and supply management, and in advancing existing team theories. Cross-functional, cross-business teams are increasingly important in the field of purchasing and supply management and beyond. Implementing sourcing strategies means that non-procurement departments have to enact team outcomes, but also, for instance, key account teams must align strategic and operational issues over the borders of internal departments, and developing increasingly complex products requires the integration of expertise from different functions, departments and even companies. We can distinguish at least three theoretical contributions of this dissertation to the team literature, which suggest important additions for modeling the contextual and dynamic nature of sourcing and other teams.

First, we introduced a new dimension of team effectiveness: external cooperation effectiveness. This effectiveness dimension extends existing IPO research models by acknowledging an important part of team success where others implement the results of team deliberations. Moreover, we provided more in-depth insights into how different input factors affect this and other performance dimensions.

Second, this dissertation is among the first team studies to apply the IMOI model. We applied attribution theory to investigate how outcomes from one performance cycle are subsequently related to inputs for the next. Teamwork behavior appeared to be not only an antecedent to team performance, but also appeared to act as a moderator in the relationship between team performance and perceived functional diversity appropriateness. This implies that the perceived viability of a team's functional composition remains low as long as teamwork behavior has been poor, regardless of actual performance. The insights provide a

theoretical explanation for why team members and managers see different needs for ensuring future team performance.

Finally, the Dynamic Embeddedness Model combined and extended existing team theories into a new, more holistic theoretical framework for team performance. We introduced the theoretical concept of team embeddedness, and theorized the relationships between team embeddedness, task progress over time and team performance.

Implications for practitioners

The implications of our research center around three essential aspects of team management. The 3C model, which is presented in chapter 5, provides an intuitive overview of those three elements, being: 1) Who should be on the team (Composition), 2) How to foster teamwork (Collaboration), and 3) How to embed the team in the wider organization (Contacts). These three Cs reflect three possible levels of analysis in team research: the individuals within the team, the team itself, and the organization within which the team operates. A team's composition, collaboration and contacts are interrelated and reinforce each other. In chapter 5, we frame this dissertation's managerial implications in the 3C model.

In terms of *Composition*, functional diversity proves to enhance sourcing team success, but team members who consider wider intra-organizational team collaboration crucial may first have to overcome management's reservations (similar observations might be made about New Product Development and other cross-functional teams). Evaluating the process that led to the final team outcomes is a powerful managerial tool for developing a shared understanding of what composition actually is most likely to foster success. Secondly, managers should consider team members' social capital in their decisions on team composition. Cross-business unit and cross-departmental teams are intended to overcome organizational boundaries. Team members who can readily build bridges with key stakeholders should be selected to ensure a high level of team embeddedness.

As today's team arrangements become more complex, the challenge to effectively manage internal *Collaboration* also increases. Teams most in need of effective team management –because they are virtual, functionally diverse, and span different departments, divisions or even companies– are, paradoxically, those for which effective management is most difficult. To align team management in terms of, for instance, reward structures and team authority, is typically beyond the direct span of control of individual team managers, and even individual

members' managers. We concluded that for sourcing teams at least three factors are crucial for the development of effective internal collaboration. First, since team members have different backgrounds, teams need a clear briefing, outlining the objectives, expectations and boundaries for task execution. After that, teams need a 'license to act'. Finally, different interests and knowledge bases among team members put high demands on the team leader, whose capabilities to coach, inspire and motivate team members are key drivers for effective internal team processes, whereas the leader's ability to structure activities clearly enhances their effectiveness in working with managers outside the team.

Finally, a team's external *Contacts* must be managed effectively to ensure a high level of team embeddedness in its upstream and downstream network. Of course, staffing a team with members who can easily bridge gaps with stakeholders is one critical step for creating team embeddedness. Second, in setting the terms of assessment, managers should include the team leader's responsibility for managing these external relationships. Finally, when a team is launched or a new project is initiated, a clear briefing and active managerial support in identifying and connecting to the upstream and downstream network can set the team off to a good start. Our research shows that when diverse team members form a coherent team, the team is more likely to explicitly discuss the need for involving stakeholders. A pitfall in this perspective may lie in performance assessments. Most teams are requested to self-report their results right after task completion, but the extent to which a team's objective is actually achieved may not be very distinct at this point, as performance often depends on external commitment and follow-up actions by non-team members after the team has finished its primary tasks.

In conclusion, in today's business context, teams are increasingly used to achieve functional and cross-business integration for superior results in complex multinational organizations. Sourcing teams are a typical example of such teams. This dissertation aimed to provide deeper theoretical insight into sourcing team success, and extends and consolidates best practices for improving team management and, hence, team success.

Samenvatting (Nederlands)

Inkoopteam succes: Team studies in een inkoopcontext

Inkoopteams spelen een steeds belangrijkere rol in het organiseren van de inkoopfunctie. Inkoopteams, ook wel "category" of "commodity" teams genoemd, zijn verantwoordelijk voor het strategische deel van het inkoopproces. Hun taak is het identificeren, selecteren en managen van leveranciers binnen een bepaalde categorie van producten of diensten. Activiteiten van inkoopteams binnen grote bedrijven zijn van invloed op meerdere bedrijfsonderdelen en disciplines. Inkoopteams bestaan daarom veelal uit leden afkomstig uit verschillende bedrijfsonderdelen, en met verschillende functionele achtergronden. In het afstemmen van interne behoeften met externe leveranciers hebben inkoopteams met een grote diversiteit aan interne en externe belanghebbenden te maken. Hoewel inkoopteams vaak met hoge verwachtingen in het leven worden geroepen, blijkt het ambitie niveau binnen dergelijke teams vaak al binnen enkele maanden af te nemen, evenals de onderlinge samenhang. Er is echter weinig empirisch onderzoek gedaan dat praktische inzicht biedt in hoe het succes van inkoopteams in hedendaagse organisaties verbeterd kan worden. Dit onderzoek naar inkoopteams draagt bij aan de literatuur door beter inzicht te verschaffen in het functioneren en het succes van inkoopteams. De centrale onderzoeksvraag in dit proefschrift is: *Hoe het succes van inkoopteams te verbeteren?*

In dit proefschrift wordt de onderzoeksvraag door middel van drie empirische studies beantwoord. De eerste studie is erop gericht kritische succes factoren voor inkoopteams te identificeren. Het doel van de tweede studie is om te onderzoeken of teamleden en managers multidisciplinaire teamsamenstellingen bevorderlijk achten voor het succes van inkoopteams. Ten slotte richt de derde studie zich op de samenwerking tussen teamleden en andere belanghebbenden. Deze studie heeft als doel om het interne functioneren van inkoopteams en de interacties met anderen buiten het team gedurende de tijd in één model te integreren. De eerste twee studies zijn gebaseerd op data van vragenlijstonderzoek. De derde studie betreft kwalitatief onderzoek waarin meerdere cases worden geanalyseerd.

Studie 1: Succes factoren voor inkoopteams

Hoofdstuk 2 beschrijft de resultaten van een grootschalig vragenlijstonderzoek naar de effectiviteit van inkoopteams. In de wetenschap is er van oudsher veel aandacht naar het functioneren van teams uitgegaan. Daarbij zijn verschillende typen teams onderzocht, zoals service teams en productontwikkelingsteams. Op basis van deze studies worden in hoofdstuk 2 hypothesen opgesteld voor wat precies succesfactoren voor inkoopteams zijn. Vervolgens biedt de studie inzicht in de relaties tussen deze factoren, team processen en de voornaamste dimensies van inkoopteam succes. Het onderzoeksmodel, dat gebaseerd is op het input-process-output (IPO) model, onderkent dat verschillende succes factoren verschillende uitkomsten bewerkstelligen. In de studie namen 58 inkoopteams uit 12 internationale bedrijven deel.

De empirische bevindingen brengen een nieuwe dimensie van inkoopteam effectiviteit aan het licht. Het bereiken van een effectieve samenwerking met interne belanghebbenden bleek een aparte en kritische dimensie van inkoopteam effectiviteit die niet eerder als zodanig was onderkend in team onderzoek. Naast deze dimensie van effectiviteit, welke we 'external cooperation effectiveness' noemen, zijn er twee andere dimensies te onderkennen. De eerste hiervan is 'general overall team effectiveness', wat betrekking heeft op de kwaliteit en efficiency van het werk, planning, en algehele prestatie. De andere dimensie, 'supply base management effectiveness', omvat aspecten zoals de verbeterde kwaliteit van ingekochte producten, flexibiliteit van het leveranciersbestand, relatiemanagement en de bijdragen van leveranciers aan innovaties. Deze drie dimensies van inkoopteam effectiviteit kunnen dienen als vertrekpunt bij het bepalen van managementinterventies gericht op prestatieverbeteringen. Voor elke dimensie van effectiviteit laten we zien welke input factoren de effectiviteit verhogen. Het totaal beeld wijst uit dat autonomie de belangrijkste succes factor is. Een opvallende bevinding, die we nader onderzoeken in de tweede studie, was dat teamleden functionele diversiteit associëren met betere prestaties, terwijl managers juist lagere prestaties indiceerden. Concluderend bieden de uitkomsten van deze studie inkoopmanagers gedetailleerde inzichten voor het evalueren en verbeteren van de prestatie van hun inkoopteams.

Studie 2: Managements blinde vlek

Het doel van de tweede studie, waarvan verslag wordt gedaan in hoofdstuk 3, was om te bepalen hoe teamleden en managers functionele diversiteit in inkoopteams waarderen. Het gehanteerde onderzoeksmodel is gebaseerd op het input-mediation-output-input (IMOI) model. Een kenmerk van dit model is dat de uitkomsten van één prestatiecyclus van een team het vertrekpunt vormen voor de volgende cyclus. We onderzoeken hoe behaalde teamprestaties (gedefinieerd als behaalde kostenbesparingen) en teamwork van invloed zijn op hoe geschikt men de multidisciplinaire samenstelling van het team vindt, oftewel of men gelooft dat de juiste functies in het team vertegenwoordigd zijn. In deze studie maken we onderscheid tussen teamleden en managers, en onderzoeken we of zij dezelfde mening hebben over de effectiviteit van multidisciplinaire teams. Het onderzoeksmodel is getest met behulp van een vragenlijstonderzoek. In totaal werden 48 inkoopteams afkomstig uit elf bedrijven onderzocht.

De empirische resultaten laten zien dat teamleden en team managers verschillend denken over de effectiviteit van functionele diversiteit in teams. Deze discrepantie kan tot situaties leiden waarin managers interveniëren in de teamsamenstelling en het aantal vertegenwoordigde functies terugbrengen, terwijl dit door teamleden opgevat wordt als een stap terug, in plaats van vooruit. Dit heeft negatieve gevolgen op de motivatie van het team, doordat teamleden zich slechter in staat achten om toekomstige taken goed uit te voeren. Op eenzelfde wijze laten onze resultaten zien dat managers tevreden zijn over de teamsamenstelling zolang de huidige kostenbesparingen van een team voldoen aan de verwachtingen, zelfs als slecht teamwork schade heeft toegebracht aan de fiducie die teamleden nog in de teamsamenstelling hebben. De verschillen in percepties tussen teamleden en managers blijken te ontstaan doordat teamleden de kwaliteit van teamwork meewegen in hun evaluatie van de teamsamenstelling. Managers baseren zich daarentegen voornamelijk op de financiële resultaten van het team. Managers blijken teamwork niet mee te nemen in hun oordeel over de multidisciplinaire samenstelling, doordat zij beperkt inzicht hebben in de kwaliteit van het teamwork binnen een team.

Enkele onverwachte bevindingen kwamen uit de onderzoeksresultaten naar voren. Inkoopmanagers bleken terughoudender te zijn richting meer multidisciplinaire samenwerking in inkoop dan de teamleden die het werk daadwerkelijk uitvoeren. Daarnaast bleken teamleden met de laagste waardering voor de functionele samenstelling van het team niet afkomstig uit slecht

presterende teams, maar juist uit goed presterende teams. Additionele analyses suggereerden dat dit het resultaat zou kunnen zijn van incongruentie in de doelen die teamleden met verschillende functionele achtergronden hebben. Samengevat laat deze studie zien dat in geval van matig team presteren, managers zich eerst moeten richten op het verbeteren van het teamwork. Bovendien moeten managers zich niet laten misleiden door alleen de huidige prestaties; hoge prestaties kunnen zijn bereikt ten koste van de motivatie van een team om toekomstige uitdagingen in de huidige samenstelling aan te gaan.

Studie 3: Naar een holistisch beeld op team presteren

In de laatste studie van ons onderzoek naar inkoopteams kijken we expliciet naar de interacties tussen teamleden en anderen buiten het team. Waar de eerste twee studies, waarvan verslag wordt gedaan in hoofdstukken 2 en 3, gebaseerd waren op bestaande modellen, is het doel in de derde studie om een nieuw theoretisch raamwerk te ontwikkelen. Verschillende theoretische stromen in team onderzoek hebben zich parallel ontwikkeld, en missen helaas een geïntegreerd perspectief. Deze onderzoekstromen waren gericht op interne samenwerking, op activiteiten buiten de grenzen van het team en op hoe teams zich ontwikkelen gedurende de tijd. Deze verschillende perspectieven beschouwen alle slechts gedeeltelijk de complexiteit van hedendaagse teamstructuren, waarin teams bestaan uit leden met diverse achtergronden, waarin teams in sterke mate afhankelijk zijn van interacties buiten het team, en waarbij teams gedurende de tijd door verschillende stadia gaan. In deze studie richten we ons erop deze verschillende theoretische perspectieven te consolideren in een geïntegreerd model: het Dynamic Embeddedness Model.

Als onderdeel van dit model introduceren we een nieuw concept, “team embeddedness”. Team embeddedness verwijst naar de mate waarin een team ingebed is in de organisatie, en in hoeverre het team in contact staat met alle hoofdbelanghebbenden rondom het team. We groeperen deze belanghebbenden in een “upstream” netwerk en een “downstream” netwerk. Het upstream netwerk is gedefinieerd als de beïnvloedingsstructuur gevormd door hiërarchisch hogere belanghebbenden, die resources beheren en toezien op team activiteiten. Het downstream netwerk aan de andere kant bestaat uit mensen uit de werkstroomstructuur die over informatie beschikken die noodzakelijk is voor het succesvol volbrengen van de team taak. Het downstream netwerk omvat ook de relaties met belanghebbenden wiens activiteiten het team moet coördineren voor

een uiteindelijk succesvolle implementatie. Een tweede onderdeel van het Dynamic Embeddedness Model heeft betrekking op tijd. We suggereren dat teams door drie achtereenvolgende stadia van ontwikkeling gaan: 1) de "forming" fase, 2) de "functioning" fase, en 3) de "finishing" fase. Interacties met het upstream en downstream netwerk veranderen als teams in een volgende fase aanlanden.

Aan de hand van verschillende case studies, waarin zes teams uit drie internationale bedrijven betrokken waren, hebben we het Dynamic Embeddedness Model gevalideerd in de praktijk. Ten eerste hebben we uit de empirische resultaten drie afzonderlijke dimensies van team embeddedness afgeleid: 1) de mate waarin het upstream netwerk onderling in verbinding staat en over het team geïnformeerd is, 2) de verbondenheid tussen het team en het downstream netwerk, en 3) de mate waarin het upstream netwerk invloed kan uitoefenen over het downstream netwerk. Ten tweede lieten de case studies zien dat teams de fases forming, functioning en finishing niet noodzakelijkerwijs in die geordende volgorde doorlopen. Teams met een lage team embeddedness riskeren teruggeworpen te worden in de voorgaande fase als ze vorderingen in het project proberen te maken. We nemen dit fenomeen op in het Dynamic Embeddedness Model door middel van iteratieve loops tussen de verschillende stadia. Ten derde laat de geleidelijke totstandkoming van de uiteindelijke team prestatie zien dat indien team embeddedness vroeg in een project niet voldoende gewaarborgd is, het zeer moeilijk kan zijn om dit te compenseren in latere stadia. In tegenstelling tot eerdere team prestatie modellen nemen we team presteren expliciet op in het Dynamic Embeddedness Model als een product van de prestaties in elke fase.

Algemene bevindingen

De drie empirische studies bieden elk een bijdrage aan de beantwoording van de vraag: *Hoe het succes van inkoopteams te verbeteren?* Om het succes van inkoopteams te verbeteren zouden managers onderscheid moeten maken tussen drie unieke dimensies van inkoopteam effectiviteit: 'general overall team effectiveness', 'supply base management effectiveness' en 'external cooperation effectiveness'. Voor het verbeteren van inkoopteam succes is het van belang om de prestaties op elk van deze dimensies te beoordelen en om vast te stellen op welk vlak prestatieverbeteringen noodzakelijk zijn. Hoofdstuk 2 voorziet in een overzicht van factoren (bijvoorbeeld leiderschapsstijlen, functionele diversiteit en formalisering) waarop managers zich zouden moeten richten om prestaties op specifieke dimensies te verhogen.

Vervolgens wijst dit proefschrift op een risico dat ontstaat wanneer managers de kwaliteit van de samenwerking binnen een team onvoldoende herkennen. Hoewel korte termijn kostenbesparingen bevredigend mogen zijn, kan het zo zijn dat dergelijke resultaten zijn behaald ten koste van een teams motivatie voor toekomstig werk. Teamleden beschouwen een multidisciplinaire aanpak noodzakelijker voor het leveren van prestaties in de toekomst dan de managers aan wie zij rapporteren. Slecht team functioneren kan goede resultaten in de weg staan, ondanks dat de juiste functies vertegenwoordigd zijn in het team. Ingrijpen in de multidisciplinaire teamsamenstelling bij tegenvallende resultaten raakt de kern van het probleem in dat geval niet. In plaats van meningsvorming omtrent de functionele samenstelling uitsluitend te baseren op behaalde resultaten is het belangrijk voor managers om ook de kwaliteit van de samenwerking binnen het team te bezien, en deze te stimuleren door zorg te dragen voor adequate beloningsstructuren en voldoende autonomie.

Ten slotte laat ons onderzoek zien dat –naast de teamsamenstelling en teamwork binnen een team–, ook de samenwerking met belanghebbenden buiten het team van grote invloed is op team succes. Teams die voor een succesvol eindresultaat in grote mate afhankelijk zijn van samenwerking met anderen buiten het team, moeten goed ingebed zijn in de organisatie. Effectief team management kan dit stimuleren, onder meer door teamleden te selecteren met een breed netwerk in de organisatie, en die gemakkelijk in contact kunnen treden met belanghebbenden. Daarnaast kunnen managers team leiders op hun verantwoordelijkheid wijzen om belanghebbenden vroegtijdig in kaart te brengen, en kunnen managers teams sturen en beoordelen op hun samenwerking binnen de organisatie.

Bijdrage aan het wetenschappelijk debat

De bijdrage van dit proefschrift is zowel het introduceren van nauwgezet team onderzoek binnen het inkoopvakgebied als het verder ontwikkelen van bestaande team theorieën. Multidisciplinaire teams die over afzonderlijke bedrijfseenheden heen opereren zijn van toenemend belang binnen het inkoop vakgebied, maar ook daarbuiten. Het implementeren van inkoopstrategieën vereist dat niet-inkoop afdelingen opvolging moeten geven aan teamuitkomsten, maar ook bijvoorbeeld key account teams moeten strategische en operationele aspecten coördineren tussen verschillende afdelingen, en de ontwikkeling van steeds

complexere producten door productontwikkelingteams vraagt om integratie van expertise uit verschillende functies en zelfs verschillende bedrijven. De bevindingen van dit onderzoek naar inkoopteams zijn tevens toepasbaar op andere teams die integratie tussen functies en bedrijfsonderdelen tot doel hebben.

We kunnen ten minste drie theoretische bijdragen van dit proefschrift aan de teamliteratuur onderscheiden, welke mogelijkheden bieden voor het modeleren van de contextuele en dynamische eigenschappen van teams.

Ten eerste hebben we een nieuwe dimensie van team effectiviteit geïntroduceerd: kwaliteit van de samenwerking buiten het team. Deze dimensie breidt bestaande IPO onderzoeksmodellen uit door een elementair aspect van team succes te onderkennen. Bovendien heeft ons onderzoek tot beter inzicht geleid in hoe verschillende input factoren deze en andere prestatiedimensies beïnvloeden.

Ten tweede beschrijft dit proefschrift een van de eerste studies waarin het IMOI model wordt toegepast. We baseerden ons op de theorie van attributie om te onderzoeken hoe de uitkomsten van één prestatiecirkel de basis vormen voor een volgende. Teamsamenwerking bleek niet alleen een voorspeller van team prestaties, maar ook een moderator in de relatie tussen team prestaties en percepties omtrent de geschiktheid van functionele diversiteit. Dit impliceert dat de levensvatbaarheid van een teams functionele samenstelling laag blijft zolang er geen sprake is van goede teamsamenwerking, ongeacht de daadwerkelijke prestaties van een team. Dit inzicht biedt een theoretische verklaring voor de verschillende zienswijze van teamleden en managers op wat nodig is om toekomstige prestaties te bevorderen.

Ten slotte combineert en verbreedt het Dynamic Embeddedness Model bestaande theorieën in een nieuw, meer holistisch theoretisch kader voor team presteren. We introduceerden het concept 'team embeddedness', en theoretiseerden over de relaties tussen team embeddedness, tijdige voortgang van teams in het uitvoeren van hun taken en team succes.

Implicaties voor de bedrijfspraktijk

Team onderzoek, evenals team management, kan op drie niveaus plaatsvinden: managers kunnen zich richten op de individuen binnen het team, op het team als geheel, en op de organisatie waarbinnen het team functioneert. De implicaties van ons onderzoek kunnen elk geplaatst worden binnen één van deze benaderingen. Het 3C model, dat wordt gepresenteerd in hoofdstuk 5, biedt een overzicht van deze drie essentiële aspecten van team management, namelijk: 1)

Wie behoort lid te zijn van het team (Composition), 2) Hoe teamsamenwerking aan te moedigen (Collaboration), en 3) Hoe een team te verankeren in diens organisatie (Contacts). Een teams samenstelling, samenwerking en contacten houden onderling verband, en versterken elkaar.

Composition – Een multidisciplinaire teamsamenstelling blijkt team succes te vergroten, met name als het gaat om doelen zoals kwaliteit, innovatie, relatiemanagement en flexibiliteit. Teamleden blijken een multidisciplinaire aanpak dan ook te prefereren. Managers staan echter gereserveerder tegenover meer multidisciplinaire teamsamenstellingen. Om ineffectieve interventies in teamsamenstellingen te voorkomen, is het raadzaam om niet alleen het resultaat, maar om ook het proces wat tot dat resultaat geleid heeft te evalueren. Dit is een belangrijke stap bij het vaststellen van welke functies daadwerkelijk in het team vertegenwoordigd zouden moeten zijn. Naast het vaststellen van de optimale functionele diversiteit dient ook bekeken te worden of teamleden gemakkelijk andere belanghebbenden binnen de organisatie kunnen aanhaken. Om een team goed te verankeren in de organisatie dienen teamleden te worden geselecteerd die in staat zijn om een brug te slaan naar de belangrijkste belanghebbenden.

Collaboration – De teamleden van inkoopteams komen veelal uit verschillende afdelingen, en rapporteren aan verschillende managers. Doordat hedendaagse teamstructuren complexer worden, wordt het voor managers van inkoopteams moeilijker om zicht te houden op teamwork, en om effectief teamwork te stimuleren. Beloningsstructuren van individuele teamleden, en de mate van autonomie die een team geniet, liggen bijvoorbeeld vaak buiten de directe invloedsfeer van de manager aan wie het team rapporteert. Hierdoor zijn teams die effectief team management het meest behoeven –omdat ze virtueel en multidisciplinair zijn, en omdat ze meerdere afdelingen en divisies representeren–, paradoxaal genoeg de teams waarvoor effectief team management het moeilijkst in de praktijk te brengen is. We concludeerden dat voor inkoopteams in ieder geval drie factoren cruciaal zijn voor het ontwikkelen van effectieve interne samenwerking. Ten eerste behoeven teams een heldere briefing waarin doelstellingen, verwachtingen en bewegingsvrijheid worden vastgesteld, aangezien teamleden verschillende achtergronden en mogelijk verschillende verwachtingen hebben. Daarnaast heeft een team voldoende bevoegdheid en autonomie nodig. Ten slotte vragen de verschillen in belangen en achtergrondkennis van teamleden veel van de teamleider, wiens capaciteit om te coachen, te inspireren, en te motiveren vitaal is voor het bevorderen van de interne

samenwerking, terwijl de bekwaamheid van de teamleider in het structureren van activiteiten duidelijk de samenwerking met managers buiten het team ten goede komt.

Contacts – Voor team succes blijkt een goede verankering in het upstream en downstream netwerk noodzakelijk. Lijnmanagers van individuele teamleden en andere managers wiens steun nodig is voor het bereiken van een goed team resultaat dienen tijdig geïnformeerd te worden over teamactiviteiten en voortgang. Ook contact met diegenen die betrokken zullen zijn bij de implementatie van teamresultaten is van belang, en dient niet pas aan het eind van een project gezocht te worden. Natuurlijk is het selecteren van teamleden die gemakkelijk een brug kunnen slaan naar belanghebbenden een eerste stap voor het creëren van team embeddedness. Daarnaast zouden managers de verantwoordelijkheid van teamleiders voor het managen van externe relaties op moeten nemen als evaluatiecriterium. Ten slotte is, wanneer een nieuw team wordt gelanceerd of een nieuw project wordt geïnitieerd, een duidelijke briefing en actieve managementondersteuning raadzaam bij het identificeren van en contact leggen met het upstream en downstream netwerk. Zo kan het team goed uit de startblokken. Ons onderzoek laat zien dat wanneer teamleden met diverse achtergronden een coherent team vormen, het waarschijnlijker is dat het team expliciet de noodzaak van het betrekken van belanghebbenden bespreekt. Een valkuil wat dit betreft ligt in het beoordelen van teamprestaties. Meestal wordt teams gevraagd om hun resultaten zelf te rapporteren, direct nadat hun taak is voltooid. De mate waarin een teams uiteindelijke doelstellingen zijn behaald hoeven echter op dat moment nog niet goed waarneembaar te zijn, aangezien dit vaak afhangt van de bereidheid buiten het team om opvolging te geven aan de teamactiviteiten.

We stellen vast dat in de hedendaagse bedrijfspraktijk van complexe internationale bedrijven teams in toenemende mate worden ingezet om doelstellingen te behalen die afzonderlijke afdelingen en divisies overstijgen. Inkoopteams zijn hier een typisch voorbeeld van. Dit proefschrift had tot doel om theoretisch inzicht te verschaffen in het succes van inkoopteams in het bereiken van die doelen, en om een bijdrage te leveren aan het verbreden en consolideren van best practices in team management.

About the author

Boudewijn Driedonks, born in 1983 in Vlaardingen, finished grammar school at Marnix Gymnasium Rotterdam in 2002. He studied Industrial Engineering and Management Science at Eindhoven University of Technology, and obtained his Bachelor degree in 2006. He obtained his Master degree two years later, when he finished the master program Innovation Management with the qualification 'cum laude'. Boudewijn conducted his master thesis project during an internship at Skanska AB. Based in Group Staff Unit Procurement at the headquarters in Stockholm, he conducted a research project on the effectiveness of sourcing teams. The results of this study formed the basis for his later PhD research. In December 2008, Boudewijn started at Eindhoven University of Technology within the department Innovation, Technology Entrepreneurship & Marketing. This dissertation is the product of the PhD research he conducted in this position, and addresses the success of sourcing teams in large companies. His research was awarded by the International Federation for Purchasing and Supply Management with the best paper award at the IPSERA conference in 2011. At the start of 2011, Boudewijn accepted a part-time position at FrieslandCampina in the corporate procurement department, where he implemented best practices derived from his studies.

As from November 2011, Boudewijn will start as a consultant at McKinsey & Company.