Team characteristics and the effectiveness of cross-functional sourcing teams
- an embedded case study in a public organization

Esther Verweij
838657523

Open University of the Netherlands

Faculty: Management, Science & Technology
Program: Master of Science in Management
Specialization: Marketing & Supply Chain Management

First supervisor: dr. C.J. Gelderman
Second supervisor: prof. dr. J. Semeijn

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Abstract

Problem statement
The complexity of the environment and the large public purchase volume has made public procurement more important than ever before. The recognition of the strategic role of public procurement has emerged since there are increasingly sophisticated product choices, increased use of technology, extended consideration of environmental and social issues and a switch of focus from cost to best value. Sourcing is one of the most important processes of purchasing nowadays and is often strategic because it affects the entire organization. It requires input from different disciplines within the organization. Cross-functional sourcing teams have become popular in recent years. However, making cross-functional sourcing teams successful is not simple. Consequently, it is important to know which factors impact cross-functional sourcing team effectiveness. Cross-functional sourcing teams differ in many important ways from other type of teams. In many studies, different type of teams and a different context led to divergent results. Prior researchers have shown that there are many team characteristics that influence team effectiveness but they have hardly examined cross-functional sourcing teams in a public purchasing context. Thus characteristics of cross-functional sourcing teams in public organizations warrant further investigation. Therefore, the aim of this study is to empirically investigate the relationships between team characteristics directly, mutually or as mediators/moderators and their impact on cross-functional sourcing team effectiveness in a public procurement environment. The problem statement is:

What is the impact of team characteristics on the effectiveness of cross-functional sourcing teams in the public sector?

Research method
Qualitative data have been collected in an embedded case study in a public organization. The use of a case study design was chosen to gain a rich understanding of cross-functional sourcing teams in a specific public procurement context, to capture the complex and dynamic nature of teams and to discover the interaction between team characteristics and the context. Three cross-functional sourcing teams were purposively selected and respondents were selected through the key-informant method. Data collection involved document analysis and semi-structured interviews, allowing for triangulation of data. Analysis entailed within case analyses, followed by a cross-case analysis.

Results
Cross-functional sourcing teams in public organizations are usually faced with a complex environment in which many internal and external actors and factors influence the output and effectiveness of teams. The study shows that factors in the organizational and environmental context are important characteristics that have an impact on sourcing team effectiveness. Organizational developments, like downsizing, changes in team composition and a new open office concept, can have a negative impact on the sourcing team effectiveness, for instance by making a tendering process more complicated. Working close to each other and working at the same location contribute to the collaboration of team members.

Obviously, cross-functional teamwork requires proper communication with internal and external stakeholders. In the investigated cases, task and knowledge dependence were found to stimulate communication and contribute to the general sourcing team effectiveness. Interpersonal cohesion appeared to be related to communication in all teams. Teams with greater interpersonal cohesiveness indicated more personal and open communication and greater informal frequency of within-team communication. Apparently, task work communication has a positive impact on task cohesion and interpersonal cohesion has a positive impact on interpersonal communication. Teams with much task related communication created a strong common interest and commitment to achieve joint goals. On the negative side, legal procedures were mentioned for their negative moderator effects on the relationship between motivation and sourcing team effectiveness. Specific requirement of stakeholders can frustrate innovative initiatives. Teams should not be reluctant to replace
dysfunctional team members with new members with better skills and knowledge. However, teams should be aware of the negative effects of the temporary absence or permanent leave of a team member with good skills and knowledge. A replacement can lower task cohesion. An important conclusion is that a stable team with no changes in roles and membership during the entire sourcing project is likely to show a strong task cohesion.

Recommendations for practice
The findings presented several opportunities for practice. First, it is advisable to start a sourcing project with an analysis of the environment to create valuable insights. Second, procedural, organizational, environmental or judicial limitations must be recognized and the team must try to work around or change them if possible. Third, a team manager should create extra time for team activities and an office space where team members can meet on a regular basis. Fourth, team members should identify key interdependencies and need to know the sequential and reciprocal tasks in order to make agreements on how and when to communicate about the tasks. Fifth, a team manager should be aware that member skills and personal chemistry are important criteria during the selection of new team members. Sixth, a team manager must select team members whose skill set is aligned with the goals and the level of representation each needs during each project phase. Moreover, all sourcing goals need to be communicated from the beginning and repeated regularly to create a common bond and a clear big picture. Finally, a team manager should take actions to promote greater team communication. Workshops and informal team sessions for example can be helpful.

Recommendations for further research
Implications for future research were also formulated. The risk of researcher bias existed. Additional research can raise reliability by making use of an independent researcher for conducting the interviews. There were some different understandings of the meaning of some concepts. Future research could address this by an alternative approach to construct measurement, better distinction and further refinement of the concepts. Other avenues for future research were conducting a theory testing research, applying an additional differentiation in objective measures of the concept sourcing team effectiveness, selecting teams with a more recent team assignment, research with more public organizations and sources of data to be able to generalize, making a comparison of public and private organizations, more research on contextual factors, a longitudinal research and studying also differences in characteristics of a team assignment instead of only team characteristics.
1. Introduction

1.1 Problem statement

The changing and dynamic nature of the business environment with regard to outsourcing, innovation, globalized supply and e-business technologies has had a substantial impact on the role of purchasing (Giunipero et al., 2006; Van Weele & Rozemeijer, 1996; Zheng et al., 2007). Purchasing’s significance to an organization is becoming ever more evident these days and the strategic role of purchasing has been recognized (Carr & Smeltzer, 1997; Gadde & Håkansson, 1994; Kaufmann & Gaeccker, 2015; Paulraj et al., 2006). Public purchasing has an enormous effect on the economy and financial performance of the government sector, as purchasing costs constitute a great part of the public’s total budget (Ålbjørn & Freytag, 2012; Deasy et al., 2014; Schapper et al., 2006). The tendencies in the business environment have also resulted in greater dependence of organizations on their suppliers for decreasing total ownership costs, developing new and high quality products, more sustainability, continuity of supply, and providing on time delivery and satisfactory services (Anderson & Katz, 1998). Consequently, suppliers have become increasingly important (Carter & Narasimhan, 1996; Gadde & Snehota, 2000; Kaufmann et al., 2014). Sourcing is one of the most difficult tasks of purchasing nowadays and is often strategic because of the dynamic and increasing complexity of the supply environment, characterized by sophisticated products and rapidly changing conditions (Anderson & Katz, 1998; Kaufmann et al., 2014; Moses & Åhlström, 2008). Strategic sourcing involves selecting, developing, integrating and managing suppliers in an effective manner to achieve improvements in the long run in support of an organization’s strategic objectives (Driedonks et al., 2010; Talluri & Narasimhan, 2004). The focus with strategic sourcing is on long-term partnerships and total cost of ownership rather than short-term price reductions (Anderson & Katz, 1998; Enz & Lambert, 2012; Talluri & Narasimhan, 2004). Sourcing is highly relevant as the process runs through the entire organization and therefore requires input from many employees with different functions (Driedonks et al., 2010; Kaufmann et al., 2014; Moses & Åhlström, 2008). Thus sourcing decisions can have a direct impact on the performance of an organization (Driedonks et al., 2010).

Increasingly, team structures are being used in a purchasing and supply chain context (Driedonks et al., 2010; Giunipero & Vogt, 1997; Johnson et al., 2002; Zheng et al., 2007) and in particular for activities such as new product development (Giunipero & Vogt, 1997; Trent & Monczka, 1998), sourcing (Driedonks et al., 2010; Gevers et al., 2015; Trent & Monczka, 1998), and improved supplier quality (Giunipero & Vogt, 1997; Johnson et al., 2002). The popularity of the use of sourcing teams is in line with the increased awareness of the strategic role of purchasing in many organizations (Giunipero & Vogt, 1997; Johnson et al., 2002). The use of teams is particularly suitable when a team task directly influences an organization’s goals; when organization-wide decisions can only be made with input from personnel of several functional backgrounds; when it is not possible for an individual, function or subunit to manage large and complicated projects effectively; or when the expected value of using a team is higher than the costs (Enz & Lambert, 2012; Trent, 2003). A sourcing team is often cross-functional or multidisciplinary, which means that it consists of members with different functional experiences and abilities, and who most likely come from different departments or sub-units within the organization (Driedonks et al., 2010; Kaufmann et al., 2014; Moses & Åhlström, 2008; Trent & Monczka, 1998).

Monczka & Trent (1993) define a cross-functional sourcing team as one that “consists of personnel from at least three separate functions brought together to achieve a purchasing or material related assignment(s); this team must consider purchasing/sourcing goals or decisions involving supply base management” (p. 15). These teams are established to develop sourcing strategies, identify potential suppliers, analyze supplier capabilities, select suppliers, determine price and conditions of a contract, and evaluate and manage the suppliers’ performances for a specific category of products and services (Driedonks et al., 2010; Driedonks et al., 2014; Luzzini et al., 2015; Trent & Monczka, 1994; Trent & Monczka, 1998). Such teams can flexibly adapt and react to turbulent and dynamic environments and can combine skills, knowledge and abilities and simultaneously make sourcing decisions (Johnson et
al., 2002; Trent & Monczka, 1994). Sourcing decisions not only affect the organization, but they can also change supply network structures and processes (Moses & Åhlström, 2008). Consequently, the role of sourcing crosses the boundaries between two distinct domains: internal interactions and external involvement (Driedonks et al., 2010; Driedonks et al., 2014; Luzzini et al., 2015).

Making sourcing decisions is a complex process, particularly in cross-functional sourcing teams with divergent views, objectives, and priorities of the various members of different disciplines (Driedonks et al., 2014; Gevers et al., 2015; Meschnig & Kaufmann, 2015; Murphy & Heberling, 1996). Creating a successful cross-functional sourcing team requires much time and effort (Giunipero & Vogt, 1997; Moses & Åhlström, 2008). However, it is pivotal for a cross-functional sourcing team to function effectively in order to achieve a superior team performance (Driedonks et al., 2014; Englyst et al., 2008; Meschnig & Kaufmann, 2015). The characteristics of cross-functional sourcing teams are many and varied and critical to effectiveness (Meschnig & Kaufmann, 2015; Trent, 1994). Only a limited number of studies have been conducted to analyze sourcing teams (Driedonks et al., 2010; Driedonks et al., 2014), and even fewer studies have examined sourcing teams in the public sector (Glock & Hochrein, 2011). Johnson et al. (2003), for example, analyzed the use of sourcing teams in public institutions and compared their results with studies that focused on the private sector. At the same time, Athanasaw (2003) studied members of cross-functional teams in the public sector and their effectiveness with regard to knowledge, skills, and abilities. According to some researchers the private and public sector exhibit divergent purchasing behavior (Johnson et al., 2003; Telgen et al., 2007; Thai, 2001). There are various forms of purchasing teams (Johnson et al., 2002). As previous studies show, different contexts and types of teams lead to different results (Driedonks et al., 2010; Driedonks et al., 2014; Hackman, 1987). A better understanding of the characteristics that play an important role in the effectiveness of a cross-functional sourcing team in a public purchasing context could help organizations attain a good purchasing performance (Driedonks et al., 2010; Trent, 1998).

Due to the increased use of cross-functional sourcing teams (Trent & Monczka, 1994; Trent, 1996), the importance of team context (Driedonks et al., 2010), and the little research that has been conducted on team effectiveness in a public purchasing context (Glock & Hochrein, 2011), this study focuses on cross-functional sourcing teams within a public organization. The following problem statement is investigated:

What is the impact of team characteristics on the effectiveness of cross-functional sourcing teams in the public sector?

A widespread review on existing literature on teams in general and cross-functional (sourcing) teams specifically and the public organization context provide a useful point of departure. The purpose of this analysis is to empirically investigate the relationships between team characteristics directly, mutually or as mediators/moderators, and their impact on cross-functional sourcing team effectiveness in a public procurement environment. These insights can be applied to the use of cross-functional sourcing teams in a public organization and could help to create more effective cross-functional sourcing teams in practice.

1.2 Research method

The problem statement is assessed by means of an analysis of the relevant literature and a case-based qualitative research study combined with other sources of evidence, such as documents and archival data. The empirical part of this study examines an embedded single case study. Considering the scarcity of research in the context of a public organization and the complex team processes, dynamic nature of teams and impossibility of separation between phenomenon and context, a case study approach is considered appropriate as it is likely to discover a rich and new understanding of cross-functional sourcing teams in a specific public procurement context. In an embedded single case study, three cross-functional sourcing teams of diverse divisions and departments of the Province of South Holland are analyzed by means of a comparative analysis. An embedded case study offers the opportunity to analyze within, between and across the cases within the same context. In this study, it
will be an advantage to keep the organizational context stable, as the context is new in this research field. The use of cross-functional sourcing teams is not a frequent phenomenon in public organizations (Johnson et al., 2003; Reed et al., 2005). The single case study allows this phenomenon to be explored (Eisenhardt & Graebner, 2007; Yin, 2009).

The single case study of a large, Dutch public organization has been chosen according to the use of sourcing teams and multiple departments and divisions. On the basis of purposive sampling, sourcing teams have been selected. Other criteria for selecting teams were: members of sourcing teams have different functional backgrounds, various purchase categories of work, supply or service, teams with more than three members, sourcing process in functioning or finishing stage and practical criteria such as easy access, proximity and willingness of members. A series of semi-structured and open-ended interviews was conducted to collect data. Members and non-members of three cross-functional sourcing teams of the Province of South Holland have been interviewed and the key-informant method has been used to choose respondents. Data collection also involved document analysis.
2. Literature Review

In this chapter, an overview of the characteristics of public procurement and how the public sector context may differ from that of the private sector is provided. Thereafter, this thesis presents a description of teams in public organizations and the concept of teams in general. Furthermore, a review of the cross-functional team literature relevant to understanding the features of cross-functional sourcing teams is considered, and finally, a brief review of literature based upon the Input-Mediation-Output-Input (IMOI) model relevant to understanding team effectiveness in general and related to sourcing teams is presented.

2.1 Characteristics of public procurement

In public organizations and institutions, the public procurement function is concerned with the acquisition of goods and services from a third party (Cabras, 2011; McCue & Gianakis, 2001). It ranges from the purchase of routine items (e.g. stationery, temporary office staff, furniture, insurance, cleaning) to complex spend areas (e.g. construction, defense systems, large infrastructural projects, major IT systems or capital goods) (Arlbjørn & Freytag, 2012). Public procurement takes place at national, regional and local levels and is subject to specific laws, regulations and policies (Murray, 2009). It has a broad range of goals such as transparency, accountability, fair and open competition, efficiency and effectiveness, innovation and sustainability (Murray, 1999; Schapper et al., 2006; Telgen et al., 2007; Thai, 2001).

Public procurement professionals are working in an environment more complex than in former times (McCue & Gianakis, 2001; Thai, 2001; Thai, 2008). They must ensure cost efficiency, as it involves a great proportion of public expenditures, must deal with a constantly changing environment (rapidly emerging technologies, increasing product choice), make use of complicated procurement techniques, processes and methods (e-procurement, value for money, life-cycle costing, outsourcing, make or buy decisions). In addition, they are under further pressure as public procurement is used as a policy tool (sustainability, innovation, social return, involve small and medium enterprises (SME) and encourage local development) (Deasy, 2014; McCue & Gianakis, 2001; Thai, 2001; Thai, 2008). Due to its complexity, public procurement has been evolving into a function with a strategic approach which place greater emphasis on supplier management, innovation development, outsourcing of products and services and collaborative long term supplier relationships (Arlbjørn & Freytag, 2012; Deasy, 2014; McCue & Gianakis, 2001; Paulraj et al., 2006; Thai, 2001; Zheng et al., 2007).

Procurement in the public sector has some unique characteristics that differs from purchasing and supply in the private sector (Harland et al., 2013; Murray, 2009; Telgen et al., 2007; Thai, 2001). First, purchase circumstances are different (Arlbjørn & Freytag, 2012). Public procurement professionals are required to observe special rules and regulations, such as the European Union tendering directives, that do not apply to private sector purchasing and supply (Arlbjørn & Freytag, 2012; Harland et al., 2013; Reed et al., 2005; Telgen et al., 2007). It is also different because of the frequent existence of a large number of goals, which are difficult to harmonize (Erridge, 2007; McCue & Gianakis, 2001; Schapper et al., 2006; Thai, 2001). Public procurement professionals must achieve value for money, but they also need to play a role in broader political goals such as sustainability, innovation and helping minorities (Erridge, 2007; Schapper et al., 2006; Thai, 2001). For example, the bundling of buying products or services result in lower purchasing costs but may exclude small and medium size enterprises due to the large volume (Cabras, 2011; Reed et al., 2005). Another difference is the presence of a greater variety of stakeholders such as interest groups, taxpayers and management (Harland et al., 2013; Murray, 1999; Telgen et al., 2007; Thai, 2008). The influence of politicians on public procurement is also substantial (Arlbjørn & Freytag, 2012; Murray, 2009). Furthermore, the requirements of the various stakeholders are likely to be conflicting and impede the possibility of an optimized solution (Boyne, 2002; Harland et al., 2013; Schapper et al., 2006; Thai, 2001). Also, the diversity and needs in terms of products and services that must be purchased, are more extensive in public organizations (Arlbjørn & Freytag, 2012; Erridge, 2007). Public organizations are generally
based on budgetary accounting (Telgen et al., 2007) and are primarily funded through taxation (Boyne, 2002). Moreover, public organizations do not have to compete for customers in the market (Boyne, 2002). Consequently, the incentive to perform better and more efficient is lower because the link to financial results is absent (Boyne, 2002).

Secondly, organizational structures in public procurement are considered as distinctive in some ways (Johnson et al., 2003; Thai, 2001). Public organizations have another decision-making structure than private enterprises. Decision-making is more formal, lengthy, political and risk-averse, and less flexible (Boyne, 2002; Harland et al., 2013). The organization structure of public procurement is thus often fragmented and complex with many sections that impede process efficiency (Reed et al., 2005; Thai, 2001). As a solution for more efficiency, public procurement organizations have been participating more often in consortia buying activities (Johnson et al., 2003). The use of cross-functional teams and teams involving suppliers is less in public procurement organizations than in their private counterparts (Johnson et al., 2003). Also, cross-functional sourcing groups are rather underrepresented in public organizations compared to private organizations (Reed et al., 2005).

Third, the focus in public organizations lies on different types of buyer-seller relationships than their private counterparts (Wang & Bunn, 2004). Buyer-seller relationships can vary from short-term transactional relationships to very long term partnerships (Erridge & Mcllroy, 2002). In public organizations, the buying procedure is mainly based on increasing competition among many suppliers, while in private organizations, reducing risks and realizing long-term objectives with one strategic supplier is the established practice (Arlbjørn & Freytag, 2012; Wang & Bunn, 2004). Establishing long-term partnerships with suppliers has not been easy for public organizations due to their rules, regulations and culture (Erridge & Greer, 2002; Telgen et al., 2007; Wang & Bunn, 2004). Public organizations have encouraged a public procurement policy of fair treatment of suppliers, open competition through competitive tendering, and transparency and proportionality of public procurement procedures as the best way to achieve efficient and effective purchasing (Erridge & Greer, 2002; Wang & Bunn, 2004). Also, there is still a strong emphasis on formal contracts, rigid terms and performance monitoring (Erridge & Greer, 2002). Consequently, there is less freedom, flexibility and risk taking in public organizations (Erridge & Greer, 2002; Wang & Bunn, 2004). In partnership relations, trust and mutual commitment are highly valued (Erridge & Mcllroy, 2002). The bureaucratic procedures, culture, policies and rules limit the interaction between public procurement employees and suppliers, and restrict the opportunity to close long term relationships which are based on trust, commitment, equality and information-sharing (Erridge & Greer, 2002; Erridge & Mcllroy, 2002).

Finally, some other differences between public and private organizations concerns their attitudes and values (Boyne, 2002; Christensen et al., 2007; Telgen et al., 2007). The public sector must take into account a broader set of norms and values. Democratic conditions, statutory values and public prosperity are given much more attention in public organizations than in private organizations (Christensen et al., 2007). In public organizations, there is greater emphasis on openness, transparency, equal treatment, non-discrimination and proportionality (Telgen et al., 2007; Wang & Bunn, 2004). As a consequence, employees in public organizations are less willing to take risks than private sector employees (Erridge & Greer, 2002; Johnson et al., 2003, Telgen et al., 2007). Also, public organization employees have a stronger wish to serve the broader public interests (Boyne, 2002; Johnson et al., 2003, Telgen et al., 2007). In addition to this, public sector employees appear to be less materialistic and less motivated by financial rewards (Boyne, 2002). Moreover, changes to the organization are mostly determined by political rather than market forces (Arlbjørn & Freytag, 2012). Employees in private organizations, on the other hand, want to meet the demands of individual customers instead of the demands of citizens (Arlbjørn & Freytag, 2012; Boyne, 2002).

2.2 Teams in public organizations

Organizations have entered a new era characterized by rapid, dramatic and turbulent changes, advanced technologies, and globalization (Kaufmann et al., 2014; Leibold et al., 2007, Zheng et al., 2007). The accelerated pace of change has caused public organizations to work more flexibly and
responsive to citizens. Public organizations must meet the increasing demands for greater financial accountability, efficiency and effectiveness (Athanasaw, 2003; Koehler & Pankowski, 1996; McHugh et al., 2001). These demands require changes in processes, procedures and structures (McHugh et al., 2001). Increasingly, public organizations are implementing new ways of working that are flexible, efficient and responsive, and new public management principles, such as collaboration, citizen focus, change orientation, continuous learning, partnerships and decentralization, are being employed (Athanasaw, 2003; Kernaghan, 2000). The traditional bureaucratic structures are not flexible enough to adapt and react to unstable and vigorous environments, solve complex problems and stimulate creativity and innovation (Athanasaw, 2003; Leibold et al., 2007). Consequently, rigid, vertical and functional structures in public organizations are being replaced with new forms of working in which employees must collaborate with one another (Koehler & Pankowski, 1996; Leenders et al., 2005; Schapper et al., 2006).

As a result, teams are being used more and more in public organizations in a variety of team-working forms (Parris & Vickers, 2005). The study of team structures in organizations in academic literature has been rich and extensive and is rooted in the field of social psychology (Kozlowski & Bell, 2003). There are several definitions with regard to the term “team” (Guzzo & Dickson, 1996). According to Kozlowski & Bell (2003), “works teams and groups: (a) are composed of two or more individuals, (b) who exist to perform organizationally relevant tasks, (c) share one or more common goals, (d) interact socially, (e) exhibit task interdependencies (i.e. workflows, goals, outcomes), (f) maintain and manage boundaries, and (g) are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity” (p. 334). The terms “team” and “group” are used synonymously in the literature. However, for some researchers “team” implies a higher degree of collaboration than “group” (Guzzo & Dickson, 1996). Katzenbach & Smith (1993b), for example, argue that groups become teams when team formation is initiated for a unique purpose, when team members construct products together and when a high degree of interdependency, integration and mutual commitment among members exists.

The use of teams can have many benefits: knowledge, skills, abilities, resources and information can be shared, and productivity, quality, flexibility, innovation, co-ordination, communication and collaboration can be improved (Driedonks et al., 2014; Englyst et al., 2008; Leenders et al., 2005). Teams are seen as a possibility to create good performance results (Driedonks et al., 2014; Katzenbach & Smith, 1993a) and are considered to be more effective than individual employees in dealing with difficult tasks (Katzenbach & Smith, 1993a; Wildman et al., 2011). Teams are particularly relevant for developing complex solutions that involve members of different backgrounds and various stakeholders (Englyst et al., 2008; Trent, 1998). However, teams sometimes fail to be effective (Giunipero & Vogt, 1997; Trent, 2003). The benefits of teamwork are weakened by conflicts or problematic cooperation (Gevers et al., 2015; Trent, 2003). Creating successful teams thus require a great deal of time and commitment (Giunipero & Vogt, 1997; Hackman, 1987; Trent, 2003).

There is an extensive diversity of team types, such as self-managing teams, cross-functional teams, functional teams, design teams, quality teams, project teams, virtual teams, crews and top management teams (Guzzo & Dickson, 1996; Kozlowski & Bell, 2003). Frequently, differences have been found across team types which affect team results (Driedonks et al., 2010; Wildman et al., 2011). A classification of team types has been attempted in order to diminish complexity, but has unfortunately failed because of the use of many heterogeneous categorizations of team types (Wildman et al., 2011). Cohen & Bailey (1997), for instance, classified teams into the following categories: work teams, parallel teams, project teams and management teams. On the other hand, Sundstrom et al. (1990) identified four types of teams: advice and involvement teams, production and service teams, project and development teams and action and negotiation teams. Despite the absence of a universal classification, a distinction between team types remains important as teams are subject to changes in their context and research findings of a team type in a certain context cannot be easily generalized in another team's context (Devine et al., 1999; Hackman, 1987; Kozlowski & Bell, 2003).
### 2.3 Cross-functional teams

Sourcing is a cross-functional activity that affects multiple disciplines in an organization (Driedonks et al., 2010; Moses & Åhlström, 2008). In this sense, cross-functional teams are similar to classic work groups (Denison et al., 1996). Katzenbach & Smith (1993a) emphasized that “the commonalities are more important than the differences when striving for team performance” (p. 3). Nevertheless, cross-functional teams also differ in several significant ways compared to other type of teams (Denison et al., 1996; Holland et al., 2000). The cross-functional sourcing team members heavily depend on others external to the team, since the sourcing process affects the entire organization and the supply chain (Driedonks et al., 2010; Kaufmann & Gaeckler, 2015; Moses & Åhlström, 2008), as operational buying activities often take place elsewhere in the organization (Karjalainen et al., 2009).

Many stakeholders inside and outside the organization with conflicting interests have some involvement in the sourcing process (Driedonks et al., 2010; Driedonks et al., 2014; Englyst et al., 2008). It is very important to communicate with these stakeholders and to obtain the commitment of these stakeholders (Driedonks et al., 2010; Kaufmann & Gaeckler, 2015). The performance expectations of cross-functional teams are often higher than conventional teams (Holland et al., 2000) since they expect to attain enhanced problem-solving and decision-making abilities (Zheng et al., 2007) by combining multidisciplinary skills, abilities and knowledge (Driedonks et al., 2010; Trent, 1996). Also they expect to increase flexibility, creativity, speed (Denison et al., 1996; Holland et al., 2000; Parker, 2003) and ideas, organizational learning and improvements (Denison et al., 1996; Holland et al., 2000; Luzzini et al., 2015; Parker, 2003).

A cross-functional team has many benefits such as improved coordination, integration and communication across functional boundaries (Driedonks et al., 2010; Pinto & Pinto, 1990; Trent & Monczka, 1994), a general and complete viewpoint of considering a problem brought in by the different disciplines (Luzzini et al., 2015; Parker, 2003; Trent, 1996), and higher availability of sources of information and resources (Trent & Monczka, 1994). On the other hand, members from different functional backgrounds will implicitly have other points of view on many team task issues, which makes integration, coordination and communication difficult (Driedonks et al., 2010; Driedonks et al., 2014) and can lead to an unwillingness to cooperate (Trent & Monczka, 1994). Conflicts between team members can arise as a consequence of competing preferences, norms and values and personalities (Gevers et al., 2015; Holland et al., 2000; Moses & Åhlström, 2008). According to Holland et al. (2000) the key issues of cross-functional barriers are: “conflicting organizational goals, competition for resources, overlapping responsibilities, conflicting personal goals, no clear direction or priorities and lack of co-operation” (p. 233). Generally, members of a cross-functional sourcing team are temporarily assigned to the team (Driedonks et al., 2014; Englyst et al., 2008; Holland et al., 2000; Trent, 1998; Trent & Monczka, 1998). Figure 1 shows a classification of sourcing teams based on two variables: duration of a team’s existence (finite or continuous) and the time members spend on the sourcing team (full time or part time) (Trent, 1996; Trent, 1998). Specifically, the organization can have problems with part time members of cross-functional sourcing teams who are not fully involved and committed (Meschnig & Kaufmann, 2015). Often, members report not only to the team leader, but also to their functional managers and have responsibilities not only within the team, but also in their own department (Trent, 1996; Trent, 1998). As such, a risk for cross-functional sourcing teams is that their members only represent the interests of their own department, which can create tension and conflict within the team (Moses & Åhlström, 2008; Trent & Monczka, 1998).
Members move from project to project

Members assigned permanently to a sourcing team with evolving or changing responsibilities

Members support a specific team assignment or project in addition to regular job responsibilities. Team usually disbands after completing project or assignment.

Continuous support of team assignments in addition to regular responsibilities. Members most likely report to both a functional area and the team.

Fig. 1 Segmenting sourcing teams by commitment and time frame (adopted from Trent, 1998)

2.4 IMOI Model for cross-functional sourcing team effectiveness

There is a significant amount of research regarding the performance of teams. Much of this research is based on the popular Input-Process-Output model (IPO-model) (Figure 2) from McGrath (1964). The model depicts a causal linkage between a variety of inputs combined to affect team processes, which in turn drive team effectiveness (Ilgen et al., 2005). Inputs refer to resources and antecedents that make members’ interactions possible or reduce members’ interactions. These input factors include individual level factors (skills, attitudes, personalities), group level factors (group structure, group size, group composition, team leadership) and organizational level factors (reward structures, resources, environmental characteristics and stress) (Mathieu et al., 2008). Processes comprises the team level interactions and activities that take place among team members and others outside the team to transmit inputs into outputs by means of the use of members’ capabilities and behavior (time spent together, communication, conflict resolution, strategy discussion, team learning activities) to achieve team goals (Kozlowski & Bell, 2003; Marks et al., 2001). Team processes should be distinguished from task work. Marks et al. differentiated task work and teamwork: “task work represents what it is that teams are doing and is critical to team effectiveness and depends heavily on member competence as well as team processes and teamwork describes how they are doing it with each other and are used to direct, align, and monitor task work” (2001, p. 357). Furthermore, team outputs represent criteria to determine the effectiveness of team actions and can be distinguished according to individual, group, business unit or organizational level (Cohen & Bailey, 1997). Team effectiveness is generally understood as multi-dimensional (Driedonks et al., 2014; Kozlowski & Bell, 2003). Hackman (1987), for instance, has made a distinction between external outputs, such as performance quality, speed to solution and number of errors, and other internal outputs, such as member satisfaction, group cohesiveness, attitude change or sociometric structure. In practice, a body of terms has been used to define team effectiveness and there are different operationalizations (Guzzo & Dickson, 1996; Kozlowski & Bell, 2003).

Fig. 2 Input-Process-Output model (IPO) Team Effectiveness Framework (Mathieu et al., 2008, p. 413)

The IPO model has been changed and developed over the years because there was a need to place the model in broader contexts and to emphasize the dynamic nature of teams (Cohen & Bailey, 1997;
Ilgen et al., 2005; Kozlowski & Bell, 2003). Teams should be considered as complex dynamic systems that operate in a multilevel interactive context (Cohen & Bailey, 1997; Driedonks et al., 2014; Ilgen et al., 2005; Kozlowski & Bell, 2003). Teams also have multiple connections outside the team, for example with other teams or key stakeholders (Cohen & Bailey, 1997, Mathieu et al., 2008).

The limitation of the IPO model is that it only represents a simple cause and effect relationship which considers teams as static and independent entities (Ilgen et al., 2005; Marks et al., 2001). In addition, time plays a crucial role in team functioning (Ilgen et al., 2005; Kozlowski & Bell, 2003; Marks et al., 2001; Mathieu et al., 2008). The IPO model neglects the changes in a team over time because it cannot delineate a temporal approach in the model (Marks et al., 2001; Mathieu et al., 2008). Because of the limitations of the IPO model, Ilgen et al. (2005) proposed the Input-Mediation-Output-Input (IMOI) model as a better alternative to the conventional IPO model as shown in figure 3. They state that many of the meditational factors that transform inputs to outputs are not processes, but are so called emergent cognitive or affective states (e.g. team efficacy, team potency, team empowerment, cohesion and trust) (Ilgen et al., 2005). This was already recognized by Cohen & Bailey (1997), who separated internal processes from group psychological traits, and by Marks et al. (2001), who noted that team processes relate to actions of members and that other meditational factors can be described as cognitive, motivational or affective team qualities (emergent states). Marks et al. defined emergent states as “constructs that characterize properties of the team that are typically dynamic in nature and vary as a function of team contexts, inputs, processes and outcomes” (2001, p. 357). The model also highlights the cyclical nature of feedback processes. The outputs of a team by means of the completion of a task or activity at a certain moment serve as new inputs (solid line from output to mediators and dashed line from output to input in figure 3) (Gevers et al., 2015; Ilgen et al., 2005). The IOMI model shows that the influence of feedback from output to mediators (solid line) is more than the influence of feedback from output to input (dashed line).

In this study, the principles of the IOMI framework serve as the starting point for examining cross-functional sourcing teams in a public organization. In the following sections, each of the categories-
inputs, mediators, and outcomes-, are analyzed on the basis of an extensive cross-disciplinary literature review on the effectiveness of teams. Factors derived from theory of other types of teams in general and cross-functional sourcing teams in particular, which might possibly affect sourcing team effectiveness, have been included. Only factors relevant for this study are highlighted.

2.4.1 Inputs

Inputs can create, facilitate or hinder the functioning of a team and can be classified at different levels: 1) organizational and contextual factors (e.g. organizational design features, environmental complexity), 2) team-level factors (e.g. task structure, external leader influences), and 3) individual team member characteristics (e.g. competencies, personalities). The influence of the context plays an important role in the effectiveness of teams (Mathieu et al., 2008). McGrath (1964) and Cohen and Bailey (1997) predicted that the influence of micro and macro contexts on team effectiveness is relevant. Organizational contexts can differ in their structures and systems external to the team within the organization, and characteristics of the environment outside of the organization that influences team effectiveness (Mathieu et al., 2008). Environmental factors are included as features of the external area in which the organization is embedded, such as industry characteristics or turbulence (Cohen & Bailey, 1997). A distinction can be made between micro-contexts, which are team-level inputs specifically tailored to a team's needs, and macro-contexts which are characteristics inside or outside the organization that cannot be changed for the purpose of the team (Mathieu et al., 2008). Important variables in the micro-context are rewards, training systems and human resource policies. The influence of organizational (inside the organization) or environmental (outside the organization) factors at the macro level on team effectiveness has rarely been studied (Mathieu et al., 2008). Next to design factors, group processes and emergent states, environmental factors are also an important function of team effectiveness (Cohen & Bailey, 1997).

Moreover, team-level input variables that influence mediators and outcomes have been frequently scrutinized (Mathieu et al., 2008). Characteristics at the team level, such as team leadership, task interdependence and role structure, can be used to specify the unique features of teams (Wildman et al., 2011), where “Interdependence describes the nature, or structure of the dependencies and interconnections between members of the team” (Wildman et al., 2011, p. 19). Different types of interdependence have been identified (Mathieu et al., 2008). One of the most studied concepts of interdependence is task interdependence. Task interdependence is the degree to which team members depend on each other and interact to complete tasks (Wildman et al., 2011). It can be divided into four categories: pooled task interdependence (little interaction between team members because a team member can do the task alone), sequential task interdependence (team members must wait for each other to be able to act), reciprocal task interdependence (interaction between two team members who work back-and-forth on a task), intensive task interdependence (whole team interact and work together as a unit to complete the task) (Wildman et al., 2011). Studies focusing on task interdependence have revealed a positive modulating effect on a diversity of relationships with team performance (Wildman et al., 2011). Barrick et al. (2007), for example discovered that interdependence moderates the relationship positively between team mechanism (cohesion and communication) and team performance.

At the member input level, team composition has been studied considerably (Guzzo & Dickson, 1996; Kozlowski & Bell, 2001). Team composition refers to the nature and attributes of team members, and the influence of the combination of member attributes on team processes and effectiveness (Guzzo & Dickson, 1996; Kozlowski & Bell, 2001; Mathieu et al., 2008). Diversity in team composition received a large amount of attention in team studies and can be described as the influence of the heterogeneity of team member characteristics on team performance and is compositional in nature (Mathieu et al., 2008).

At the same time, team functional diversity is the degree of difference among team members in terms of their professional backgrounds, experience, and skills (Mathieu et al. 2008). A cross-functional sourcing team needs the expertise of other functional areas to be able to perform its tasks (Driedonks
et al., 2010). The relation between functional diversity and supply base management effectiveness is positive according to Driedonks et al. (2014) and more functional diversity has been associated with improved effort and external communication (Driedonks et al., 2014). On the other hand, functional diversity also means more diverse viewpoints and interests which can increase stress and conflict and lower cohesiveness (Driedonks et al., 2014; Gevers et al., 2015).

Another aspect that has received a lot of attention recently and has been identified as highly significant is change of team composition over time (Mathieu et al., 2014). Mathieu et al. (2014) argue that relationships between team composition and outputs probably vary over time, and thus different team composition will be important at different points in time. Additionally, membership change has advantages and disadvantages: for example, new members of a team can increase knowledge and stimuli which reflect on the group’s processes. On the other hand, it is also favorable for a team to work with team members for a longer time so that they can recognize one another’s strengths and weaknesses, coordinate activities, and develop a shared understanding of the knowledge and processes required to perform the group’s task (Lewis et al., 2007). Membership dynamics involves more than changes in team composition and compromises the patterns (duration, frequency, timing), roles and status of change. Members in a team move in and out and sometimes only stay in the team for a short time indicating the dynamics of membership (Mathieu et al., 2014). Overall, teams remain unstable over time and are dynamic and changeable. Membership dynamics can have a positive or negative influence on team effectiveness (Mathieu et al., 2014).

### 2.4.2 Mediators

Cohen and Bailey (1997) long ago made a distinction between team processes and psychosocial traits. They ascertained that team processes can become embedded in collective social and emotional feelings. In recent years, more attention has been paid to mediating processes that clarify why some inputs influence team effectiveness (Ilgen et al., 2005). Mediators can be divided into processes and emergent states (Marks et al., 2001; Mathieu et al., 2008). These constructs should not be convoluted, as emergent states do not result in outputs but are qualities of a team, and products of team experience (including team processes) and become new inputs to future processes and outputs (Marks et al., 2001). Emergent states are cognitive, affective and motivational conditions (member attitudes, values, cognitions, and motivations), which are seen as mechanisms that are dynamic in nature and that change frequently (Marks et al., 2001). Mathieu et al. (2008) argued that emergent states emerge over time. Emergent states, such as team confidence, potency, team efficacy, team climate, cohesion, trust, collective cognition and empowerment, have been the subject of copious scientific examinations (Marks et al., 2001; Mathieu et al., 2008).

Team processes have played an important role in almost all models of team effectiveness (Mathieu et al., 2008). Task work is sometimes considered synonymous with team processes; however, task work involves activities members must carry out to complete the team’s task. On the other hand, team processes are the interactions between team members that lead to the success or failure of completing the tasks (Marks et al., 2001). Different team processes and activities occur at different stages in teamwork, and various processes and activities are managed simultaneously (Marks et al., 2001).

Furthermore, Marks et al. (2001) classified processes into three segments to point out how temporal factors impact team functioning: transition, action and interpersonal. Transition phase processes are processes during which teams focus on evaluation, planning and organizing, strategy formulation, mission analysis and goal specification to prepare for future actions, goals and strategies. Action phase processes are processes such as team, goal and system monitoring, and coordination during which teams perform activities to fulfill goals (Marks et al., 2001). The interpersonal processes can occur across both transition and action phases and include conflict, motivation, confidence building and affect (Marks et al., 2001). The link between processes of coordination and communication and team effectiveness has received great empirical support (Mathieu et al., 2008). Open and solid communication is significant for a team’s effectiveness (Katzenbach & Smith, 1993a) and it is essential
for all sorts of teams (Cohen & Bailey, 1997). In a previous study by Driedonks et al. (2014), it was found that internal and external communication is a mediator between internal authority, transformational leadership, functional diversity and sourcing team effectiveness. Also in a public procurement environment, sourcing team members need to communicate extensively and therefore, communication seems highly important for sourcing team effectiveness. Moreover, Kozlowski & Bell (2001) noticed that communication has two important functions that aid task work and teamwork: “Task work communication involves exchanging task-related information and developing team solutions to problems. Teamwork communication focuses on establishing patterns of interaction and enhancing their quality” (p. 40). In similar vein, according to Monczka & Trent (1993), teams with a higher variety of member with functional backgrounds showed more internal and external team communication frequency. At the same time, Driedonks et al. (2014) noticed that working together effectively with internal stakeholders is essential for sourcing team effectiveness.

In addition, communication is the primary means by which information is shared between team members with different functional backgrounds and very important for the completion of teamwork. The several types of communication are internal and external communication (communication patterns within and across team boundaries), formal versus informal communication, and written versus oral communication (Pinto & Pinto, 1990). Conflict and dissension due to poor communication often occurs in teams and organizations. Marks et al. (2001) defined two types of conflict management processes: “1) preemptive conflict management involves establishing conditions to prevent, control or guide team conflict before it occurs, and 2) reactive conflict management involves working through task, process, and interpersonal disagreements among team members”(p. 368). Most relevant research has focused on reactive conflict by focusing on, for example, the nature of conflict between team members, problem solving, willingness to accept differences of opinion, openness and flexibility, and compromising (Kozlowski & Ilgen, 2006). Indeed, conflict is not always negative and is sometimes positively related to team performance because it can enhance different perspectives, reveal important information or shed light on better methods and solutions (Kozlowski & Ilgen, 2006).

At the same time, Cohen and Bailey (1997) argued that conflict linked to interdependence. The stronger the interdependence between team members, the higher the chance of relationship conflict within the group. Team cohesion has been one of the most studied characteristics of team effectiveness (Kozlowski & Ilgen, 2006). According to Kozlowski & Ilgen (2006), team cohesiveness can be divided into task cohesiveness, interpersonal cohesiveness and group pride. Task cohesiveness can be described as the degree to which members have a strong common interest and commitment to achieve the common tasks and goals, while interpersonal cohesiveness represents the appeal of the team and willingness to participate in the team. Kozlowski & Ilgen (2006) concluded that “teams with greater collective task and interpersonal cohesion and pride will be more effective” (p. 89). Yet at the same time, Holland et al. (2000) contend that cohesiveness can also be seen as an output of good internal communication and as a mediator. Little attention in research, however, has been paid to prior factors that can influence team cohesion (Kozlowski and Ilgen, 2006). Functional diversity, for example, can create more disagreement and hence less cohesiveness. Also, changes in team membership and dynamic can be unfavorable for team cohesion.

2.4.3 Outputs

Team effectiveness is sometimes considered from a multi-dimensional and multi-level perspective (Mathieu et al., 2008). Cohen & Bailey (1997) categorize effectiveness into three types: objective outputs, such as quantity and quality of outputs; member attitudes; and behavioral outputs; and on four levels: individual, group, business unit and organizational levels. Outputs of different types or levels can influence each other, sometimes in a negative way (Cohen & Bailey, 1997). It is important to define output measures that are relevant to both the team and the organization. There needs to be a clear link between team effectiveness criteria and the function and tasks of the team being studied.

Furthermore, team effectiveness criteria must be divided into output components instead of a general overall team effectiveness measure. Techniques, such as the balance score card, must be applied to
be able to combine these output components (Mathieu et al., 2008). In addition, time is crucial for the collection of output data. Not only decisions regarding the kind of output data are relevant, but also decisions about which output data should be measured and when (Mathieu et al., 2008).

This study distinguishes general and specific indicators of sourcing team effectiveness. General sourcing team effectiveness consists of quantity and quality of work produced by the team, number of innovative ideas, efficiency, and ability to communicate, coordinate, and meet targets and performance expectations. Specific sourcing team effectiveness includes improving purchase quality, ameliorating supplier performance, achieving best-in-class supplier selection, and offering support for innovation (Driedonks et al., 2010; Monczka & Trent, 1993).

2.5 Research model

The research model underlying this thesis has been partly based on theory. However, the purpose of this study is not to statistically test the research model. The model is meant to guide the analysis to gain new insights in the domain to be investigated and to extend existing theory. The factors, such as interdependence, membership change and dynamics, communication and team cohesion as input, process or emergent states characteristics, were derived from the literature and compromise the research framework together with public procurement and organization characteristics and sourcing team effectiveness. Figure 4 shows the research model which contains the dynamic and complex relationships between sourcing team characteristics (inputs and mediators), and between the sourcing team characteristics and team effectiveness (inputs, mediators and outputs).

![Fig. 4 Research model of factors influencing one another and cross-functional sourcing team effectiveness](image-url)
3. Methodology

This chapter elaborates on the research design of this study. The reason behind the chosen design is discussed in detail. In section 3.2 the collection of data and in section 3.3 the operationalization of concepts are clarified. Furthermore, section 3.4 gives a description of the data analysis. Finally, a critical evaluation of the validity and reliability of the performed study is given in section 3.5.

3.1 Research design

The deductive and inductive research logics are two distinctive ways of doing research. Inductive reasoning starts with specific observations for patterns, similarities or regularities which can lead to new conclusions or theories, which may evolve as a result of research. This research logic is more open-ended and exploratory in the beginning. Deductive research logic, on the other hand, focuses on existing theories for the development of hypotheses and then test these by confronting them with observations that lead to a rejection or confirmation of these predictions.

Generally, an inductive reasoning is often associated with qualitative methods of data collection (mainly verbal data) and data analysis, whereas the deductive approach is perceived to be linked to quantitative methods (collection of numerical data) (Eisenhardt & Graebner, 2007; Thomas, 2006). However, in some cases, qualitative and quantitative data collection methods can be applied in the same study (Eisenhardt, 1989). There are several research designs including the survey, the case study and the experiment (Yin, 2009). A case study is especially appropriate when the study is about a contemporary phenomenon in real-life contexts and when the subject of study is new (Eisenhardt, 1989; Yin, 2009). In particular, research questions of the type “how” and “why” are suitable for case studies (Yin, 2009), as these can be exploratory, descriptive or explanatory (Yin, 2009).

In this study an inductive reasoning is followed and an exploratory case study research design is applied. A case study research design has been chosen for a number of reasons. First, sparse prior research exists relating sourcing team characteristics and sourcing team effectiveness in the public sector (see page 4). As already stated in the literature review (see page 9), a different context of teams leads to different results, which means that an accurate generalization is not attainable. The lack of attention in the context of public procurement justifies an explorative in-depth case study analysis of the subject. Gaining a rich and new understanding of a specific public procurement context takes precedence over data that can be generalized to other geographical areas or populations. Second, team processes are difficult to statistically observe and measure in organizations due to the dynamic nature of teams (Mathieu et al., 2008; Roe et al., 2012). A case study can provide a unique way of studying complex processes involving many variables (Yin, 2009), which quantitative data alone cannot easily reveal. For answering the research question, it is important to offer thorough insights into complex and dynamic team processes. A case study can make it possible to examine in depth values, opinions, behaviors and relationships of people in contemporary and dynamic contexts of a purposive population in different situations. Third, in team research, internal and external organizational context is also very important (Cohen & Bailey, 1997; Mathieu et al., 2008). A real-life phenomenon cannot be separated from its context and the boundaries between the phenomenon and context are difficult to determine (Yin, 2009). As such, the interaction between a phenomenon and its context is best understood through an in-depth case study.

There are several types of designs for case studies. The main distinction is between a single case design or a multiple case design and a holistic or embedded unit of analysis (Yin, 2009). The unit of analysis in this study was the entire cross-functional sourcing team and a single embedded case design was adopted. In an embedded case design, within unit analysis, between unit analysis and cross-unit analysis can be applied, which allows for a thorough examination of the subject. The single case study gives the opportunity to explore the phenomenon under uncommon circumstances (Eisenhardt & Graebner, 2007; Yin, 2009). The use of cross-functional sourcing teams is not a frequent and common phenomenon in public organizations (Johnson et al., 2003). The organizational
context has been held fixed because a public procurement context is new in the field of sourcing team studies. In order to be able to explore the influences of public procurement and organization characteristics, sourcing teams had to be studied under the same conditions and in the same environment. According to Mathieu et al. (2008), studying many teams from contexts that differ along variables is difficult. Three cross-functional sourcing teams of diverse divisions and departments of the Province of South Holland formed the subjects of this case study, in which the influence of the characteristics on the effectiveness of the team was analyzed by means of a comparative analysis. After an exploration of the teams in their specific contexts, a more general level than the studied cases could be investigated in a further study. Sourcing teams were thus carefully and purposively (purposive sampling) selected for comparison.

### 3.2 Data collection

The criteria for the single case study were: use of several sourcing teams in a Dutch public organization, as the analysis is limited to the public sector and a large organization with multiple business units or divisional structures. This was largely due to the fact that small public organizations usually do not use cross-functional sourcing teams. In general, there are not many organizations in the public sector that adopt a cross-functional sourcing team concept (Johnson et al., 2003; Reed et al., 2005). For practical reasons, a case study subject had to be easily accessible (contacts, documents), nearby and have members that are willing to cooperate.

Moreover, a number of criteria were developed to select the sourcing teams. First, teams had to consist of members with different functional backgrounds that find, select and manage suppliers for a sourcing category or purchase item. Second, teams had to be different regarding sourcing category with various members from different business units or departments. Third, the team size had to be large enough (more than three members). Fourth, the sourcing process of the teams had to be in the functioning or finishing stage to be able to capture dynamics, experiences and changes in teams.

On the basis of an informal contact, the head of purchasing of the Province of South Holland was contacted. The Dutch public organization Province of South Holland met all the criteria including large public organization with several organizational divisions (1,700 employees, 3 divisions and 14 departments), use of cross-functional sourcing teams in the organization and large sourcing projects. A list of potential sourcing teams had been drafted and key informants (project leaders of sourcing teams) were contacted to be able to select the right unit of analysis. As a result, three cross-functional sourcing teams in the same public procurement organization were chosen in order to gain an understanding of the similarities and differences. Table 1 provides a description of the three sourcing teams studied.

<table>
<thead>
<tr>
<th>Team 1 Printers and copiers</th>
<th>Team 2 Road construction</th>
<th>Team 3 Cycle paths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Province South Holland</td>
<td>Province South Holland</td>
</tr>
<tr>
<td>Division</td>
<td>Organizational Matters</td>
<td>Space and Mobility</td>
</tr>
<tr>
<td>Department</td>
<td>IT</td>
<td>Projects and programs</td>
</tr>
<tr>
<td>Section</td>
<td>Architecture and support</td>
<td>Projects and programs</td>
</tr>
<tr>
<td>Type of team</td>
<td>Cross-functional</td>
<td>Cross-functional</td>
</tr>
<tr>
<td>Sourcing project</td>
<td>Printers and copiers</td>
<td>Road construction parallel structure A12</td>
</tr>
<tr>
<td>Team size</td>
<td>Approx. 6 members</td>
<td>Approx. 10 members</td>
</tr>
<tr>
<td>Functional areas in team</td>
<td>Procurement specialist</td>
<td>Procurement specialist</td>
</tr>
<tr>
<td></td>
<td>Procurement lawyer</td>
<td>Project leaders</td>
</tr>
<tr>
<td></td>
<td>ICT specialists</td>
<td>Engineers</td>
</tr>
<tr>
<td></td>
<td>Coordinators facility services</td>
<td>procurement lawyer</td>
</tr>
<tr>
<td>Stage in sourcing process</td>
<td>Functioning</td>
<td>Functioning</td>
</tr>
<tr>
<td>Date</td>
<td>Since May 2014</td>
<td>Since November 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Since May 2008</td>
</tr>
</tbody>
</table>

Table 1: overview characteristics teams

In this study, the evidence is solely of a qualitative nature. Interviews were chosen as the main source of evidence for collecting data. The interviews were generally of the semi-structured type in which different themes were discussed by means of open-ended questions. Semi-structured questions allow
for flexibility and provide the chance for more in-depth understandings of some topics. The key informants were also approached for choosing respondents for the interviews (key-informant method) based on their own judgment of the most suitable individuals. The interviewees were professionals from various functional areas and participants of cross-functional sourcing teams. Among the interviewees were: procurement experts, consultants, lawyer, ICT specialists, project leaders and other project members. A manager of a functional area not participating in the sourcing team was also interviewed. 10 interviews were conducted face-to-face between June and July 2015 and all interviews were audio recorded and transcribed. The interviews lasted approximately between 60 and 90 minutes and were executed by the same interviewer. Prior to each interview, information about the topic and indication of the kind of questions were sent by e-mail for preparation. An overview of the exact number of interviews, positions, names and data can be found in appendix A. The semi-structured interviews are based on the perceptions and views of reality of the team members on the influence of team member characteristics in relation to team effectiveness. Data collection involved not solely interviews but also document data, thus enabling data triangulation (Yin, 2008). In this way, interview data could be placed in context and an in depth understanding of the relationship between various characteristics and effectiveness could be obtained. Document analysis such as evaluation reports, e-mail correspondence, purchasing and organizational plans and records have been used to affirm information collected through interviews.

3.3 Operationalization

Operationalization in qualitative research is the development of specific operational definitions of the concepts. In the research model (see chapter two) the core concepts of the study were determined based on existing studies (see chapter 2). Table 2 shows a summary of the core concepts.

<table>
<thead>
<tr>
<th>Core concept</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdependence</td>
<td>The nature, or structure of the dependencies and interconnections between members of the team (Wildman et al., 2011)</td>
</tr>
<tr>
<td>Task interdependence</td>
<td>The extent to which team members count on each other and act together to complete tasks (Wildman et al., 2011)</td>
</tr>
<tr>
<td>Membership change</td>
<td>New members that replace existing team members (Mathieu et al., 2014)</td>
</tr>
<tr>
<td>Membership dynamics</td>
<td>Change of duration, frequency, timing, roles and status of team members (Mathieu et al., 2014)</td>
</tr>
<tr>
<td>Task work communication</td>
<td>Reciprocal transfer of information about the task and team solutions (Kozlowski &amp; Bell, 2001)</td>
</tr>
<tr>
<td>Teamwork communication</td>
<td>Involves the establishment of patterns of interaction and enhancing their quality (Kozlowski &amp; Bell, 2001)</td>
</tr>
<tr>
<td>Task cohesiveness</td>
<td>The extent to which team members are committed or attracted to the team’s tasks and goals (Kozlowski &amp; Ilgen, 2006)</td>
</tr>
<tr>
<td>Interpersonal cohesiveness</td>
<td>The extent to which team members like the team and are attracted to each other (Kozlowski &amp; Ilgen, 2006)</td>
</tr>
<tr>
<td>General sourcing team effectiveness</td>
<td>Outputs based on the functioning of the team (Driedonks et al., 2010; Monczka &amp; Trent, 1993)</td>
</tr>
<tr>
<td>Specific sourcing team effectiveness</td>
<td>Outputs based on the accomplishment of the task (Driedonks et al., 2010; Monczka &amp; Trent, 1993)</td>
</tr>
</tbody>
</table>

Table 2: summary of core concepts

The operational definitions were used in the interviews. The research framework was translated into a preliminary set of questions to be covered in the interviews (see appendix B). In each interview, respondents were asked to answer questions about the concepts and the relationships among the characteristics, and between the characteristics and effectiveness. The results obtained in the three cases are discussed in chapter 4. Yin (2009) recommends developing a case study protocol as a way to specify the kinds of evidence needed during data collection. In line with this, a case study protocol describes the entire set of procedures involved in the collection of data and also includes an overall picture of the case study (background information, letter of introduction, case study questions and purpose) and an outline of a case study report (Yin, 2009). The case study protocol can be found in appendix C.
3.4 Data analysis

Documents were analyzed with the aim of discovering useful information for this study. Relevant documents were sought on the intranet and in the archive system of the Province South Holland. Many suitable documents were available. The public sector has an obligation to keep records in any form (Public Records Act) and to give public access to information (Open Government Act). For this reason, it was easy to find substantial documentation, such as reports, presentations, e-mails, minutes, letters and schedules. A list of used documentation per sourcing team can be found in appendix D. On the basis of the core concepts in the research model, the relevant passages were extracted from the documentation. The collected data was classified per criterion. The content of each useful documentary evidence was categorized in a table, which made it easy to compare each team and to have a clear overview of the key elements of each team.

In the next step, the data of the interviews were analyzed. First, interview transcriptions were made and controlled by the respondents. Following the interview transcriptions, word data was coded and classified into categories according to a data matrix suggested by Miles and Huberman (1984). Key words, sentence fragments and respondents were used to fill the matrix. The data matrix made it possible to determine if there is a pattern in the data. Also, cross-case analyses were conducted to identify similarities and differences between sourcing teams. From this comparison, attempts have been made to discover tentative relationships between constructs.

3.5 Methodological issues

In case studies, validity and reliability deserve specific attention (Yin, 2009). Yin (2009) proposed four tests to raise the quality of a case study: construct validity, internal validity, external validity, and reliability. Construct validity is achieved if the researcher’s understanding of the concepts being studied genuinely measures what is meant to be measured (Yin, 2009). A research model has been developed to structure this case study and specific concepts have been defined. A comprehensive body of literature has been consulted to be able to identify operational measures for the specific concepts. Interviews were semi-structured and followed an interview guide with clarification of the concepts and open-ended questions related to the concepts in the research model. In order to ensure all interviewees understood the concepts, information about the topic and concepts was also sent a week before interview. Furthermore, construct validity is enhanced by drawing evidence from different data sources or methods (triangulation) (Yin, 2009). To enhance the construct validity in this study, interviews and document analysis were combined to reach triangulation. As a consequence of the different methods that have been used, several data types such as interview transcripts, documentation and tape recordings were combined to control data. It was important to combine multiple sources and methods of evidence, as teams already existed for some time and it could happen that respondents had difficulty to recall certain issues during interviews which could lead to incorrect findings. All interviews were recorded and soon after the written interview reports were sent to the interviewees for revision and control of misconceptions. Finally, the key informants received a draft of the case study report for verification.

Moreover, internal validity refers to the accuracy of causal relationships when drawing proper conclusions (Yin, 2009). As this logic is not applicable to descriptive or exploratory studies since these are not concerned with this kind of causal situation, internal validity is not applicable and thus not further discussed.

At the same time, external validity refers to the extent to which the findings can be generalized (Yin, 2009). According to Yin (2009), a case study depends on analytic generalizations rather than statistical generalizations. Analytical generalization means generalizing specific findings in the form of a broader theory (Yin, 2009). The aim of this study is to create and extend theoretical frameworks for cross-functional team characteristics and team effectiveness that are useful for analyzing similar cases. The empirical findings should first be tested by replicating the analysis in similar case studies in
other public organizations before a general theory is constructed. Moreover, the small sample size (one embedded case study) and the focused selection of the case and units of analysis can cause bias. The selected organization based on certain criteria has some more advanced experience in the area of cross-functional teams of which the obtained findings can lead to wrong generalizations.

Furthermore, reliability refers to the degree to which the same findings and conclusions can be reached by repeating the case study (Yin, 2009). The aim of a high reliability is to minimize the errors and biases in the case study (Yin, 2009). It is important to document the exact procedure of a case study in order to understand what has been done. In addition, a reliable procedure enables other researchers to replicate the research and generate comparable results. This is mainly done by carefully writing out all steps taken during the case study and keeping all written evidence. In light of this, a case study protocol was developed to increase reliability. In the case study protocol, an overview of the research, data collection procedures, case study questions and report guidelines are described. As a method of organizing the data, a case study database has been created in order to obtain a chain of evidence.

There were some potential risks of errors and biases in the case study. Miles and Huberman (1994) indicate three potential sources of biases: holistic fallacy (interpreting events wrongly), elite bias (overweighting data from some participants) and going native (being influenced by perceptions and explanations of informants). First, the list of respondents was set up with the help of key informants. However, there were some criteria the respondents had to comply with (different functional areas and not the same respondents as in the other teams). The key informants were not completely free to choose their most favored respondents. Moreover, interviewees were checked beforehand to guarantee they met the criteria and were representative for the case study. No respondent refused to cooperate in the interview. Interviewing several participants of different functional areas per sourcing team and a manager as a non-participant of the team allowed for combined insights and complete perspectives, which result in moderating respondent bias and reliability checks. Second, there was a chance of researcher effects because of the author’s own experience in the organization. Researcher effects can be separated into effects of the researcher on the case study and the effects of the case study on the researchers (Miles and Huberman, 1994). To lower the effects of the researcher on the case study, the purpose of the case study had been clarified to the respondents. Also it was made clear what shall be done with the collected information and that the information being collected shall be treated confidentially. Another potential bias was the effects of the case study on the researcher due to the knowledge about the organization. However, the researcher did not know the investigated sourcing projects and sourcing teams beforehand. To avoid biases, the researcher tried not to distort professional and objective judgments and took some precautions to increase the data reliability, such as feigning ignorance during interviews to obtain impartial data, tape-recording of the interviews, applying interview transcripts, using an interview guide and a case study protocol, combining different data source and making use of member checking.
4. Results

This chapter presents the findings required to answer the problem statement. The findings are a result from multiple readings and coding of the transcripts and documentation into constructs and categories. The case analysis commenced with the identification of meaningful text segments that relate to the topic. To this end, decisions were made about what is important and less important in the data. All coding involves perception and interpretation of what is happening in the data, thus it is a selective and subjective process (Saldaña, 2012). During descriptive coding (Miles & Huberman, 1994), different data labels were generated from the raw data. Coding helped to organize and group comparably coded data into segments. The initial long list of data labels derived through descriptive coding was reduced into a smaller number of relevant constructs and categories through pattern coding by clustering the different text segments and reducing overlap and redundancy between the categories. After coding, within case analysis was applied in order to analyze the results in a team. Checklist matrices were used to merge and reduce the data to the team level. A comparison across teams was also explored by means of a cross-case analysis. The within case analysis for the different teams were compared in a meta-matrix and further complemented with relationships existing between the major categories. In the following section, a description of the organization is presented. Thereafter, the individual teams included in the study will be discussed in detail, and the last section presents the results of the cross-case analysis.

4.1 Background of the organization

The case organization is the Province of South Holland which is an authority, similar to the state and municipalities. The Province resides between the state and the municipalities: literally as “middle government”. These authorities work together as they are part of the same larger polity. Every four years the voters in South Holland go to the polls to elect the 55 members of the Provincial States (PS). The Provincial States are the people’s representatives and meet every month in the provincial government building in The Hague. They determine the broad outlines and monitor the Executive Council (EC). The EC makes up the daily government of the province. This council is appointed by the PS for a period of four years. The EC carries out the policies and is accountable to the PS. Almost 1,500 employees work on the implementation of provincial tasks. These core tasks include spatial planning, managing the regional economy, and creating an attractive environment and functional traffic and transport systems.

The Province South Holland has chosen an open and transparent style of government, based on trust. The organization is governed by a board of three directors and one managing director, and consists of fifteen departments and fifty-five sections. Appendix E shows the organizational structure of the Province. Since 2006, process management within the Province of South Holland has been implemented which aims to focus on efficiency, effectiveness, flexibility and the involvement and collaboration of different functional departments. Recently, the organization started to introduce a completely new working mind-set aimed at integral working, customized approaches, modern flexible management, and establishing a learning organization, collaboration and creative thinking. In 2007, a central procurement unit was established within the Province of South Holland with the task of advising and supporting purchasing activities and decisions of the line- and project management. The procurement unit consists of 25 employees, which are divided into senior buyers, junior buyers, assistant buyers, contract administrators and policy advisors. The procurement manager reports to the head of the department for facility services. The specific departments and sections hold autonomous authority over purchasing decisions and when to include the implementation of contracts and the management of suppliers.

The Province of South Holland started to work with cross-functional teams in 2008 with the task of coordinating the sourcing of chosen commodity groups, mainly services and supplies, in framework agreements. Nowadays, cross-functional teams are also used for construction projects. The cross-functional teams for services and supplies are staffed with part time human resources while retaining
the prior responsibilities in their respective departments. It is voluntary for the different functional areas to participate in the team’s work, but the departments must in principle follow team decisions. A department with a high purchasing budget in a given commodity group or project or specific knowledge of the commodity area in question is responsible for properly performing teams and team based sourcing decisions. The cross-functional teams for construction projects are staffed with permanent resources for a specific period. The teams are authorized to decide on their commodity sourcing strategies, tender process, agreements with suppliers, and the implementation. Normally, the teams have five to ten members. It is the responsibility of the project leader to staff the team with sufficient members. In case of the printers and copiers team, the team leader comes from the IT department. The head of the IT department is responsible for the performance of the printers and copiers team, but does not participate in the team. Moreover, not only employees of the IT department have been joining the team, but also staff from other functional areas in the organization (procurement and facility services). Also, Omgevingsdienst Haaglanden (ODH) (Area Authority Haaglanden) participated in the team. ODH was part of the organization, but has been privatized recently. Members have been assigned to the team in addition to regular job responsibilities (part time commitment and finite time frame). Furthermore, the team leader of team road construction and team cycle paths has been appointed full time and for a long and continuous period to the team. These teams consist of team members of the project organization and team members of functional departments (finance, legal, procurement). Team members of the project organization generally move from project to project (full time commitment and finite time frame), while team members of the functional departments have a part time commitment and a finite time frame, as they also have other job responsibilities.

4.2 Within case analysis

In this section, a within case analysis of each team is provided. The description of each team follows a certain text structure. First, the findings with regard to membership change and membership dynamics and the relationship of these characteristics with team cohesion are described. Second, a description of the findings of interdependence, communication and sourcing team effectiveness and the relationships between them is considered. Third, the findings of the relationships between communication and team cohesion are presented. Fourth, a review of the findings of organizational and environmental characteristics is given, and finally, a summary of the main findings is discussed.

4.2.1 Team 1 – printers and copiers

There were several changes to the team members of the printers and copiers team. The changes to the team members had to do with the retirement of one of the team members and the holiday season, during which team members were replaced temporarily. The interviewees did not have positive experience with the temporary replacement of team members during the holiday season and the permanent replacement of the person retiring, due to the lack of knowledge and information of the new team member. As one team member commented,

“If you do not have insider knowledge, you get lost. If someone suddenly enters the team, one does not know what to do and what one’s role is. That was quite difficult sometimes.”

The commitment of new team members for tasks and goals was poor, as a team member remarked,

“ODH has had three or four different people, I think. This led to changes. Will they be there or not? That was always a question.”

Moreover, according to the printers and copiers team, the change of team members particularly had an impact on the cohesion and atmosphere in the team, as a team member claimed,

“The new team member actually did not know very much and was a bit awkward with his assessments, so I noticed that I found his behavior quite disturbing. There was less cohesion when it came to that. The atmosphere was not as good during those assessments.”

As such, team membership was found to be dynamic, as the composition of the team changed in the course of time. The roles and use of the team members sometimes changed over time as well, which was related to the team’s project phase. Each phase of the project required certain tasks and activities; these tasks and activities required other competences and skills. As a result, team members
were replaced, terminated their contract or took on a different role. The changing roles occurred within the printers and copiers team. A team member stated,

“If the realization phase begins and you have selected the best expert available, something naturally changes. My role goes to the background; as tendering process leader, I am no longer needed.”

Similarly, the use of team members in the printers and copiers team varied during the period of the team assignment, as a team member observed,

“We noticed changes. Sometimes, there were no activities and then there were peak times for several days, and then nothing for a while. There was a dynamic use.”

Task cohesion also played a significant role in team printers and copiers. Commitment, feeling responsible for the tasks and goals, and the willingness to be active and to achieve good results were perceived as essential for the functioning of the team. The task cohesion diminished in the course of time in the team since some member roles became more or less important, or disappeared outright. As one team member ascertained,

“I must say it deteriorated a bit as the supplier was selected and you will enter the migration phase. There has been a great role for me but also the documents that then arise: SLA and service agreements”.

In the printers and copiers team, one was highly dependent on the other to make the project succeed. The dependence mainly existed in the field of substantive knowledge. One worked primarily as a unit with many interactions between team members. One team member stated the following,

“The interaction was strong, because all team members had specific knowledge. We continued to depend on each other to come to the right result. We really needed each other. I could not have done it without that team and the team could not have done it without me”.

As such, there was ample communication in printers and copiers team. A high exchange of task related information existed because there was a strong interdependence based on certain areas of expertise. Communication usually took place during weekly meetings and to a lesser extent by mail, and was focused on sharing, exchanging and structuring information and coordinating the tasks. One team member summarized their communication process as such,

“You are a team and interdependent and you must keep each other informed of what is happening”.

Consequently, there were more insights and a better result due to the frequent exchange of knowledge and information of the particular discipline:

“Several insights arise because everyone came from his own discipline and brought knowledge while sitting together and talking about it. I think you will reach a better result because of that”.

Furthermore, positive sourcing team effectiveness was found. This is rooted in the high satisfaction level among team members of the printers and copiers team. As one team member remarked,

“I am very happy; I have nothing to complain”.

Overall, the printers and copiers team was considered successful in terms of quality and service of the purchased printers and copiers. Also, they achieved a substantial cost saving of more than 50% on the total budget amount. Innovation was also a sourcing specific output. They introduced rules based printing, which is a new software application: according to a certain amount of prints, the print job will be sent automatically to the repro service. In this way, more cost savings can be reached. However, supplier performance was not completely as expected during the implementation phase, as planning, coordination and communication from the supplier during this stage were not satisfactory. Despite these setbacks, the printers and copiers team met targets and performance expectations like flexibility, control of printing costs, customer friendly guidance of print jobs, sustainability and innovation within the expected time frame. A team member stated clearly,

“We reached our goal. The copiers and printers are where they should be and do what they have to do”

This was due to planning, timing and coordination of the sourcing project being very good, as one team member of team printer and copiers mentioned,

“There was no difference in day. It was really well coordinated”
In the printers and copiers team, the communication frequency did vary; it depended on the phase of the project, as a team member claimed,

“In the beginning, communication was more intense than in later months. Especially if you want to prepare and describe the tender, you meet each other more often. I think that it happened weekly, but after it was published, it became less.”

Both interpersonal communication and task work were identified in the printers and copiers team, as a team member indicated,

“There was communication by mail. Naturally, we had had meeting sessions. And sometimes it was informal, such as stopping by and a cup of coffee.”

Similarly, some team members in the printers and copiers team had harmonious relationships, allowing for more personal communication. One team member said,

“It does have advantages that you know each other well. As you have done more sourcing projects together, it becomes easier, you have more personal contact with people and the way you communicate is more open and personal.”

The way one communicates with someone depends on a person’s interests and way of thinking, as a team member of the printers and copiers team clarified:

“In case of one team member, I should have asked more follow-up questions, such as “do you understand it can have these consequences?” I assumed he was like the rest of the team, but he really does have a different perspective.”

Moreover, the communication and exchange of task-related information appeared to be important in the printers and copiers team to increase cohesion in the area of tasks and goals. As one team member stated,

“The moment there is no communication, you do not know what the common goals are and there is no cohesion. The moment you do communicate about that, you do have that cohesion, because you know you are a team. More communication is better.”

Communication led to both task cohesion and interpersonal cohesion. The printers and copiers team has paid much attention to creating a common vision, and common interests and goals at the start of the sourcing project. This has ensured strong task cohesion. However, this was not easy in the beginning, as one team member focused too much on the interests of their department. They communicated frequently and the other team members tried to combine their thoughts and find a solution to the problems in all the team members’ departments. As one team member stated,

“One team member was busy defending their own interests, while the rest of the team was just working on teamwork and trying to run a sourcing project with good results. They were focused on the overall picture more, while the other team member was focused on their own department more. That was tricky.”

Furthermore, there was strong interpersonal cohesion among most team members in the printers and copiers team. The collaboration was good, collegial and friendly. Consequently, there was an energetic dynamic between the team members. And although one team member did stand out, this has not adversely affected the collaboration though, as one team member claimed,

“I would almost say that I can get along with everybody. However, all of us did not get along with one particular team member as well as with the others. Nevertheless, the fact remains that collaboration existed.”

This interpersonal cohesion has ensured that there has been a lot of interpersonal communication between the team members. One team member commented,

“If you have a team that works well together and that has a high cohesion then there is simply a lot of communication on topic but also just loosely and informally and then it is a bit old boys network, but it works great together”.

During the sourcing project of the printers and copiers team, important developments were taking place in the organization that the team had to take into account, such as relocation, downsizing of the organization, a new way of working (time and place independent work) and greater flexibility and digitization of the workplace (such as working with tablets). These developments resulted in the need for less office space and fewer printers and copiers as well as ICT facilities, and an ICT arrangement that supports flexible working. In an open-office design, the use of printers that perform optimally in
terms of, for example, factors such as environmental noise and emissions, is more important. One team member noted,

“The most important development was basically: we do not know what we are going to market at all, because there will be fewer printers and more tablets, and we are moving to a new office concept. Yes, it really means that we do not know exactly what we should ask the market either.”

In the printers and copiers team, a key element for the successful completion of the sourcing project was that team members were given enough time from their department heads. In addition to their work in the team, the team members had obligations in their own departments. Sometimes, this caused problems with planning of the team, as one team member suggested,

“Schedules are a very important point; people should have enough time and their managers should let them have enough time.”

Moreover, the internal stakeholders played a role in the printers and copiers team. Several stakeholders in the organization had to be involved in the sourcing process: the various functional department heads, colleagues in the various departments and other stakeholders in the organization. Frequently communicating with stakeholders and keeping them well informed of the sourcing process ensured that there was no resistance and no disagreements with stakeholders arose to adversely affect the team’s work:

“There are also communications outside the team: the communication to and from the stakeholders. This also has an impact on the result. With proper environment management, you keep your team free of disturbances. By designing your environment management well, the environment will not be surprised, allowing the team to continue. It has had no negative impact.”

The organization has formulated several goals in the outline agreement. Sustainability and the environment are a key objective of the organization. Contributing to the achievement of the organizational goals is one of the tasks of the teams. Sustainability is included in the selection of suppliers in the printers and copiers team. This has resulted in a sustainable product, as a team member remarked,

“We have sustainable printers that are made from recycled material and we have a certificate with which we contribute to sustainability initiatives in Kenya.”

Regarding the sourcing processes of a public organization, the Public Procurement law plays a major role. Above a certain purchasing expenditure, a European tender is required. In addition, the procurement procedure has to comply with the procurement rules at all times. The printers and copiers team has followed a new procurement methodology for the European public procurement printers and copiers, which is defined as best value procurement (BVP). Best value procurement is a procurement method that has as few technical requirements as possible, and which requires a detailed description of the scope and budget. BVP allows the distinctive character of the suppliers to be addressed better, the expert to be recognized, a different approach to collaboration with the supplier to be taken and the risks to be reduced. As such, it has provided an extra motivation to have the sourcing project of printers and copiers succeed. This was evident from one team member’s comment,

“I think this was our first BVP tender and you want it to succeed, of course. You want it to have a good result and you want to go the occasional extra mile.”

Additionally, the printing policy of the organization appeared to be important to the printers and copiers team. The policy in the field of paper and printing in the organization relates to the new way of working and aims to encourage paperless meetings and less printing. One team member explained,

“The printing policy is about being paperless, working in quotation marks, so that everyone prints less.”

This printing policy has ensured that the team now perceives the provision of printing and copying in the organization differently. Now it is not just about placing machines in the organization; it is a customized service of which the needs of the organization have changed. Employees of the Province of South Holland are provided with customized printing services, allowing the supplier to provide for the desired printing facilities at one’s discretion. At a workstation where one prints considerably, for example, a high volume printer is placed.

In the printers and copiers team, the entry of newcomers to the team or the leaving of a team member has had a negative effect on task cohesion. Also, membership dynamics were negatively related to task cohesion. A positive relationship between intensive task and knowledge interdependence and
internal task work communication exists. The high interdependence caused more task related communication. Although, the task and knowledge interdependence has had no direct effect on cross-functional sourcing team effectiveness, task and knowledge interdependence have positively influenced the general outcomes of sourcing team effectiveness via communication by creating a better understanding in certain areas of knowledge. It also became clear that task work communication had a positive effect on task cohesion but the opposite effect of task cohesion on task work communication was not found. In contrast, a positive impact of interpersonal cohesion on interpersonal communication was discovered. Organizational and environmental characteristics directly support a number of positive or negative cross-functional sourcing outcomes. The organizational developments like relocation, downsizing of the organization, time and place independent work, and digitization had a direct effect on specific sourcing team effectiveness. It partially determined the quality and quantity of printers and copiers. A printing policy and organizational goals such as sustainability also directly impacted the effectiveness of sourcing teams, as the organization now has sustainable printers and a different quality of printers and copiers. A serious constraint limiting a cross-functional sourcing team's performance is a lack of time available for team assignments. Time availability had a negative effect on team time management, but it has not negatively influenced general sourcing team effectiveness, such as target and performance expectations, because the designated project leader has paid much attention to the coordination and the planning of team activities as well as team member engagement. Only two moderator effects of the organizational context were found. A new tendering method (best value procurement) was used and this new purchase method has positively influenced the relationship between motivation and cross-functional sourcing team effectiveness. Internal stakeholders were also critical for cross-functional sourcing team effectiveness. There was no direct relationship, but internal stakeholders had an impact on the relationship between communication and sourcing team effectiveness. In the printers and copiers team, internal stakeholders, as a moderating entity, did not have an adverse influence.

4.2.2 Team 2 – road construction

At the beginning of the project, team members of the road construction team were often changed, as other skills and knowledge were required that some old team members lacked or because some team members were not in line with the goals of the team or did not function as required. At one point, there was stability and continuity in the team and the interpersonal cohesion increased. This is evident in one team member’s remark,

“\[I honestly think that it has helped the cohesion, because we had a reason for saying goodbye to a number of people. As some of the team members left, the cohesion became better.\]"

At the same time, another team member also explained that the task cohesion improved after changing a team member,

“But before things went well, measures are first taken. The contract manager who was on the team at the beginning, had to leave the team. That had to do with the fact that he did not agree with the common line of the team”.

The road construction team saw high membership dynamics. Team functions were added or changed in the course of time. This team confirmed that each project phase requires different tasks and activities, calling for other people with certain knowledge and skills. A team member indicated,

“Each phase requires specific skills and therefore other people. That makes sense.”

The use of team members in the road construction team was full-time and continuous in the exploration and planning phase and in the tendering phase. In the implementation phase, most team members spent two to three days on the project. The dynamics of the project were so complex and large and so many things were at stake, which meant that part-time use would negatively affect their knowledge about the project and the task cohesion. One team member specifically emphasized,

“If one only spends one or two days on a project, one only comes by and does one’s own tasks. It makes one very focused on one’s own job rather than involved in what is happening around one.”

The task cohesion in the road construction team soon became strong: after replacing a team member, all team members were able to formulate a coherent approach together. The course of the project was thus clear and the team agreed on this:

“We had a goal. We thought, “It will be achieved, and we will all join forces.” We just went for it.”
Moreover, there was strong interdependence with respect to knowledge in the road construction team. One team member suggested, “We all had a specialist side and we had to make that work.” The interconnectedness in the road construction team was high and the interaction during a sourcing project was constantly present. Information about the contents of the tasks continuously needed to be exchanged. There was both sequential task interdependence and reciprocal task interdependence, as expressed by a team member, “On the one hand, there was a continuous interaction and on the other hand, they work separately, because a contract manager is not going to intervene in the communication work area.” As such, the road construction team communicated extensively and the frequency of communication depended on the project phase, as a team member described, “Communication had to be very tight and we have communicated very much. It was less frequent in the first phase, but especially towards the procurement phase, it happened a few times a week.”

Due to the interdependence, communication had to be clear and regular: “You had so many tasks, so many people, so many elaborations. You had to communicate there on a very good level and be clear against each other how some things had to be established”. The interdependence was so large that a lack of communication invariably impacted the team’s results. The team member in charge of the area of cables and pipes was not very communicative. As a consequence, the final contract as a result of the sourcing project was negatively affected. This was implied by one team member, “The dependence had to be larger in the cables and pipes environment. There should have been more understanding of the importance then there was. If the dependency had been better observed and there was communication about it, probably other terms came in the contract and the result has been better”.

Yet, generally, the members of the road construction team were satisfied. Those who considered the teamwork to be successful, enjoyed working together, were motivated and were satisfied with the results. As one team member claimed, “I consider teamwork to be successful if afterwards, people say: it was good and fun. We look back at it with satisfaction. This is not necessarily the case when a project is completed within a certain period or budget.”

During the sourcing process, the road construction team was able to contact a supplier with the lowest price and the highest quality, but this team’s supplier performance was not decent during the implementation phase. There were many discussions with the supplier and collaboration was difficult. After an order had been communicated to the supplier, a stakeholder provided new information that was essential for the construction design. An adjusted construction design had to be made, which resulted in a cost increase that led to further discussions. The payment plan in the contract, the poor quality of the supplier’s documentation and the many changes the supplier proposed led to further delays and negotiations. Despite these difficulties, the team members consider the goal to have been achieved. The tender has been brought to a successful conclusion within the time and without legal objections, as a team member indicated, “The result has been achieved. We have awarded in time without legal procedures, which is the main thing for us. That was what it was about.”

Task-related communication was usually conducted face-to-face and very frequently, according to one team member, “Almost always there was communication during a meeting. The only thing that was done by e-mail was the source of information; the documents. And the rest were all discussed verbally”. Furthermore, another member implied that a large amount of task-related communication creates higher task cohesion, “I have experienced the communication very positive. The higher the frequency, the higher the goal and the higher the interest because it was obviously very important so everyone worked on it”. However, unnecessary communication is not wise either, according to the road construction team. One team member commented
“If you communicate well, it increases cohesion. Nevertheless, you can also communicate too much, such as by sending everyone everything in cc. That could ultimately backfire.”

In addition to task-related communication there was also a lot of interpersonal communication but whether or not this form of conversation is fruitful also depends on the communication style and the match of personalities. One team member stated,

“I was happy to talk with him in an open and direct way. I told him he is a moron because he does not look back. He takes off like a rocket.”

Sometimes team members think differently about communicating, as a team member in the road construction team claimed,

“Someone said “I did see that person had called, but since no voice message was recorded, I assumed it was not urgent.” That is one way of looking at it, but has the other understood that this is your way of looking at it?”

The road construction team was a close-knit team, and thus the strong interpersonal cohesion of the road construction team has affected the communication:

“We had a good relationship with each other. The discussions were open and honest. The relationship also determines how you communicate. If it is good, you can convey the information you have in a good way. If it is received well, the effects are great.”

However, sometimes it is not good to share everything with each other, as one team member stated,

“You must even guard against the other side. People get along with each other; it is cozy; one talks with its all about everything. And sometimes you have to think: do I want them to talk about everything?

Moreover, the road construction team found team facilities to be important, and concurred that these have positively influenced the communication between team members. One team member commented,

“We were all in a room for eight people. This makes the communication lines very short. You only have to yell something to the other side of the room for the message to be received. There is much personal communication.”

Generally, the road construction team has experienced considerable influence from the environment outside the organization. The spatial procedures for acquiring and expropriating land in the area where roads have had to be constructed have provided limitations. For approval of the acquisition and expropriation of land, a zoning plan had to be changed and a reference design had to be drawn up at an early stage. Consequently, the planning and land acquisition frameworks were already far advanced at the beginning of the sourcing process, which meant that there was not enough space for contractors to develop innovative solutions. In the words of one team member,

“The spatial planning and land acquisition has had an impact on what you could ask for. For such an expropriation, the need is also tested, which means you cannot say ‘we have actually taken 4 extra meters’, so the contractor is more likely to think of something nice’.

At the same time, the influence of internal stakeholders on the team performance of the road construction team was rather large. The project was complex and extensive as the entire organization had many interests. Especially departments with much technical knowledge had a significant impact on the team’s results, as one team member claimed,

“Stakeholders had a great influence. They were sometimes decisive, because, for example, this process also included a movable bridge. The DBI department is our specialist in this area and it had a fair amount of input, which was decisive for the tendering process.”

In addition, external stakeholders have had much influence on the team's performance as well. In the area where the construction project was to take place, there were many divergent interests. The various external stakeholders had to be involved in the project closely, as the road also crossed their territory. Rijkswaterstaat, for example, was an important stakeholder due to the connection of the road to the A12 and A20. ProRail was an important stakeholder as well, as there is a rail connection where the road is being constructed. The municipalities were an important stakeholder due to the land acquisition and land expropriation of their inhabitants. All external stakeholders had certain demands and requirements, which had to be taken into account, as one team member stated,

“Stakeholders had an enormous influence. It was not concerned solely about the point of view of interests but it was also about land acquisitions and land expropriations so it came to wishes of
municipalities; we would prefer this and if it is not possible then we prefer that so there were negotiations. A water authority, for example, wanted to have water compensation as a result of the road construction which was crossing their waterway”.

Furthermore, unlike the printing and copiers team, the road construction team has incorporated sustainability into the sourcing process only to a limited extent. The sustainability criteria of the government to which the Province of South Holland has committed itself and the CO2 performance ladder are included as requirements in the tender. A team member explained,

“Sustainability did play a role, but it was limited. The policy was only following the principles of the sustainability criteria of PIANOO”.

The road construction team has undergone a competitive dialogue within the European tender. A competitive dialogue starts with a question for which no (clear) solution is known. Based on solutions that the contractors bring, a dialogue is conducted with the team that can lead to optimization of supply and demand. However, the competitive dialogue procedure has not resulted in open and free discussions with contractors to achieve the best solution possible. On the one hand, the accurately described reference design has given little freedom to contractors and, on the other hand, the strict conditions for conducting a competitive dialogue were a limiting factor. The reason for going through a competitive dialogue was a solution for avoiding traffic problems, the soil conditions and the integration of a movable bridge near the Gouwe Aqueduct. Unfortunately, the team and organization had no experience with conducting a competitive dialogue:

“I think we had too little experience with the competitive dialogue instrument. We found it very difficult to enter into the dialogue with the market. You could not talk freely. For example, you cannot say you like an idea. This made the conversations forced.”

In a similar road construction project in the Province of North Holland, a lawsuit with a contractor was pursued just before the start of the sourcing process for the parallel structure A12. Delays due to legal proceedings would have been disastrous for the project of the road construction team. The fear of legal objections influenced the choices made on behalf of the procurement process and one has strongly relied on the advice of external lawyers. Much time and energy was invested in protecting the project against legal proceedings. The law and regulation were able to exert influence in this way:

“The law has had an effect, also because it was our first time. We had no reference, so we relied on the advisors. I think it was caution and fear in a way. You do not want the tender process to be erroneous.”

In the road construction team, the personnel policy has affected the team composition and indirectly the team result. The team was required to take in a reassignment candidate from the mobility center of the organization. This reassignment candidate was given the job of project assistant, but they lacked the necessary knowledge, skills, attitude and behavior. As a result, the team collaboration was jeopardized. As one team member observed,

“It makes the team wonder how to handle a person like that and have one function properly. That has a big impact. You want someone who fits seamlessly into the team and who can work on normal tasks.”

The membership change in the road construction team has had a positive effect on task cohesion and interpersonal cohesion. Generally, high membership dynamics have a negative impact on task cohesion. At the same time, sequential and reciprocal task and knowledge interdependence appear to have no direct relationship with general sourcing team effectiveness, but the effect occurs through communication. This influence can be positive or negative. A positive relationship exists between task work communication and task cohesion, but the effect might also be negative if communication is not properly executed. In this team, no effect of task cohesion on communication was noted. However, a positive impact of interpersonal cohesion on interpersonal communication was found. Moreover, there is no doubt that the organizational and environmental factors influence effective teamwork. Some factors had a direct positive or negative influence on specific aspects of sourcing team effectiveness, such as spatial planning and land acquisition, as well as sustainability and stakeholders inside and outside the organization. In addition, team facilities, such as sharing the same office, were positively related to communication, which successively affects general sourcing team effectiveness. The purchase procedure appeared to be a moderator of the effect between communication and specific sourcing team effectiveness; the effect was negative. Also the law and regulation had a negative
moderating effect on the relationship between time management and general sourcing team effectiveness. Finally, staff policy had a direct influence on team composition, which was negative.

4.2.3 Team 3 – cycle paths

In the cycle paths team, there were many changes to the team membership. Team members had to be changed due to prolonged holiday periods, weak energy between team members, or team members wanting to join other projects. The project was uncertain in terms of continuity and limited in terms of tasks in the implementation phase, as much of the work was outsourced. A good team without changes of team members was seen as an ideal situation. As one team member argued, “Absolutely because if someone new enters the team; a new child in the classroom; it can be difficult. People need to get used to each other. It works from both sides. And there is at that moment more attention to it. Normally you would not do that so it still works a bit retarding”.

However, the team members had varying opinions about membership change. According to one team member, the change of a team member had a bad influence on the cohesion, “I thought that there was a membership change here and that is less pleasant for the cohesion. You can not always prevent a change of a team member”. On the other hand, another team member found that a change of a team member did not adversely affect task cohesion, “He had a different goal and task in mind that was not in line with what we wanted. The membership change which took place at that time, I have not experienced it as a drawback”.

Generally, the cycle paths team stated that different types of people are needed for different phases of the project: “You need people who can negotiate and be flexible and creative at the front of the project, and you need people suitable for contract management at the back.”

The occasional use of a team member was largely considered not to be beneficial for the member’s involvement in the project and task cohesion in general: “When people join at the last minute, one does not feel so deeply involved, so the relationship with the team is not so great.”

The team members of the cycle paths team sometimes performed the tasks individually, but there were also many moments when task interdependence was very intense and moments when team members had to wait for each other to continue the task. Agreements on time and planning were consequently made. According to the team, there is a difference between a short task and a long task. A short task makes intensive collaboration as a unit possible, whereas a long task does not. One team member argued, “There is a difference between short term and long term in this story. In case of a short term, you get together for a moment to get the job done, so to speak.”

The cycle paths team also revealed that the team members need each other to achieve a result. The knowledge and skills of the individual team members had to be used in order to perform the tasks: “You experience that you need each other's expertise. Otherwise, I would not have been able to achieve results. I do not have specific procurement knowledge. My expertise is cycle paths. This makes you listen to each other when you step into other people's fields of expertise.”

As such, the high interdependence of knowledge is considered to have positively influenced communication: “Due to the strong interdependence, there was more communication because the point is that this dependence is caused by the different disciplines so everyone had added value. What if I had not been in the team perhaps a bad instrument for cycle paths had been made”.

Indeed, clear and coherent communication were vital to the success of the team: “There are different specialists in the team and people often think differently. You might think you have explained something clearly, but the other understands only half of it. This can have very unpleasant consequences.” Overall, the members of the cycle paths team were satisfied with their results. One team member indicated,
“For the first time doing this, we have done well”. Furthermore, achieving efficiency in terms of costs, time and work was greatly valued. Some activities of the Province of South Holland have been outsourced. Before this, each cycle path had to be put out to tender separately. This often resulted in time-consuming decision-making procedures in the organization, much preparatory work and only a few cycle paths constructed per year. Following this sourcing process, a single supplier was contracted who took care of many tasks and ensured that many cycle paths are constructed each year. An open relationship of trust has been built with this collaboration partner. Despite some initial problems, the collaboration with the supplier has been very good. In light of this achievement, the cycle paths team members stated that they have reached their goals. For one, the team felt no time pressure, as one team member remarked,

“We obviously did not have to stick to a specific time period, but we planned time correctly.”

Furthermore, regular task work communication took place during team meetings and via email. According to one team member,

“We had 2-3 weekly meetings and in the meantime both e-mail contact and personal contact. I often walked by with questions to the internal procurement expert”.

Communication is vital for achieving stable cohesion:

“Good communication is essential to achieve results; it is obvious but it is true. It has an impact on the cohesion. By poor communication, it will all fall apart”.

There was high task cohesion in the cycle paths team among most team members, as was made evident in one member’s comment,

“Everybody understood where we wanted to go. I was very driven and the others understood that. They also gave their best.”

In addition, the commitment to each other in the cycle paths team was great. This strong interpersonal cohesion ensured that the team members were willing to help each other and take over each other’s work:

“Everybody helped out somebody if that person was behind a bit, no matter the reason. That has something to do with the good relationship we have with each other. If you do not have that, nobody helps each other and you have to figure it out yourself.”

Indeed, interpersonal cohesion was seen as a prerequisite to be able to communicate well:

“The relationship is very strong. If you do not know to find each other and to understand or work at cross-purposes, the result will be bad. At such a moment, the way of communicating is clearly important, and know what you’re talking about”.

Due to the short period of four years of the Executive Council’s term of the Province of South Holland, the cycle paths team became a temporary team, as during the next council’s term, one could assume that no funding would be available for cycle paths. Because of the uncertainty of the continuity of the project, it was difficult to find team members for the entire project duration. Partly due to this reason, much use was made of external hiring:

“As part of budget cuts it has been said the cycling team is a temporary team. Yes, might as well there is no more money for cycle paths in the next council’s term. That means at some point that you can not so easily place permanent members so we had quite a lot of external hiring”.

Moreover, the cycle paths mentioned team facilities as having a positive effect on communication. One team member stated that working together in close proximity has improved communications,

“It is important that they sit together. For that matter a team that simply have one room or rooms together”.

Environmental factors played a strong role in the cycle paths team. These factors influenced the cycle paths’ locations as well as the costs. One team member indicated which factors might have particular impact,

“One then further zooms in on the cycle path route. What cables and pipes are there? Are we dealing with culture? Are there any archaeological things? Are there bombs? Is it in nature?”

Moreover, according to the cycle paths team, the 2001 construction fraud affected the regulation. The internal regulations and mandating in the organization has been tightened enormously and a culture of fear is now present. As a result, the process of constructing a cycle path was formerly described in detail in the tender documents. There is thus no room for innovation or ideas from the side of the
supplier. This team, however, wanted to approach it differently. But, it was a difficult process to convince those involved in the organization to agree with the new approach. One team member observed,

“Legal restrictions certainly exist. We were going to do something innovative, so if there are obstacles, they affect the result.”

The cycle paths team has experienced a negative influence from the organization’s subsidy unit in particular. In case of collaboration with partners, subsidies had to be taken care of. This process was very rigid and slow. As one team member claimed,

“Previously, we did it in 1 to 3 weeks, but now it took more like 6 months”

Furthermore, many external stakeholders had an influence on the actions and results of the team. Support from water authorities and municipalities is required for the construction of cycle paths. A cycle path often runs through a municipality or on the dikes of the water authorities. Making the external stakeholders ready for a cycle path is not always easy, as one team member indicated,

“Many Aldermen do not care too much about the construction of a cycle path. They only care the moment a student is killed, so to speak, and then something needs to happen immediately.”

In addition, innovation in the construction of a cycle path was blocked by the traditional views of external stakeholders, which led to different results:

“At one point, we had to construct cycle paths with 18 bridges on the N470. The idea was to construct the innovative composite bridges. However, the municipalities did not want a composite bridge. Unknown, unloved.”

Generally, the cycle paths team has not taken into account sustainability and environmental goals. At the start of the sourcing process of cycle paths, the organization had not set sustainability and environmental goals yet. The goal from the outline agreement of the organization that has played a role in the cycle paths team is the realization of 160km of cycle paths. At the same time, the cycle paths team experienced problems with the organization’s labor capacity. The organization had decided that many cycle paths were to be realized in South Holland in a short amount of time. This proved not to match with the current work capacity, making the team largely dependent on external hiring and outsourcing. The outsourcing of some activities made the team assignment less attractive to some employees. One team member claimed,

“At some point, there were many problems with regard to the fact that they conducted an administrative unit. We can do it no longer ourselves. Yes, and that image makes it difficult”. Moreover, the cycle paths team found legal rules to be disturbing. It slowed down motivation and enthusiasm. On the other hand, the team thought the new concept regarding procurement and contracting enhanced motivation, because it was different from the original process:

“We were excited like “Let us do this!” and then we had the feeling that we were held back.”

In the cycle paths team, conflicting opinions existed about the influence of membership change on task cohesion. It appears to depend on the reason of membership change whether the effect on task cohesion is positive or negative. Membership dynamics had a negative effect on task cohesion. Conversely, task and knowledge interdependence has positively influenced the general outcomes of sourcing team effectiveness via task work communication. It became obvious that task work communication had a positive effect on task cohesion. Also, a positive impact of interpersonal cohesion on interpersonal communication has been revealed. Certain organizational and environmental characteristics relate directly to specific sourcing team effectiveness. In the cycle paths team, environmental factors, such as land acquisition, land expropriation, nature, and cables and pipes, and external stakeholders, had the greatest impact. Furthermore, organizational resource availability, in this case working close to each other, play an important role in positively affecting the relationship between communication and general sourcing team effectiveness. On the other hand, organizational developments, including new executive council and budget cuts, have had a direct negative effect on team composition. Similarly, organizational goals related negatively to team composition and membership change. Also, two moderating effects of the organizational context have been perceived. Internal stakeholder appeared to be a negative moderator of the effect between time management and general sourcing team effectiveness, while law and regulation had a negative moderating effect on the relationship between motivation and the output of team satisfaction.
4.3 Cross-case analysis

This section discusses a comparative analysis of team factors and characteristics most critical for cross-functional sourcing team effectiveness. Table 3 provides insights into organizational and environmental, team and individual input and team processes characteristics.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Team printers and copiers</th>
<th>Team road construction</th>
<th>Team cycle paths</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational developments</td>
<td>(-) Relocation, new open office concept, tablet use (D)</td>
<td>(+) Working in the same space (SI → communication)</td>
<td>(-) New executive council, budget cuts (D → team composition)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Organizational resource availability</td>
<td>(-) Availability of time (SI → time management)</td>
<td>(+) Working close to each other (SI → communication)</td>
<td>(-) Working close to each other (SI → communication)</td>
<td>Low and High</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>(-) Spatial planning and land acquisition (D)</td>
<td>(-) Land acquisition, land expropriation, cables and pipes, nature (D)</td>
<td>(-) Land acquisition, land expropriation, cables and pipes, nature (D)</td>
<td>High</td>
</tr>
<tr>
<td>Internal stakeholders</td>
<td>(+) functional department managers and colleagues (SM → communication)</td>
<td>(-) Functional department DBI (D)</td>
<td>(-) Subsidy unit (SM → time management)</td>
<td>Moderate and Low</td>
</tr>
<tr>
<td>External stakeholders</td>
<td>(-) Municipalities, Rijkswaterstaat, water authorities (D)</td>
<td>(-) Municipalities, water authorities (D)</td>
<td>(-) Social relations (SM → communication)</td>
<td>High</td>
</tr>
<tr>
<td>Organization goals</td>
<td>(+) Sustainability, environment (D)</td>
<td>(+) Sustainability, environment (D)</td>
<td>(-) 160 km cycle paths in short time (D → team composition, membership change)</td>
<td>High and Moderate</td>
</tr>
<tr>
<td>Purchase procedure</td>
<td>(+) New purchase method BVP (SM → motivation)</td>
<td>(-) Purchase method competitive dialogue (SM → communication)</td>
<td>(-) Legal rules (SM → motivation)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Law and regulation</td>
<td>(+) Protect against appeal procedures (SM → time management)</td>
<td>(-) Protect against appeal procedures (SM → time management)</td>
<td>(-) Protect against appeal procedures (SM → time management)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Policy</td>
<td>(+) Printing policy (D)</td>
<td>(-) Staff policy (D → team composition)</td>
<td>(-) Staff policy (D → team composition)</td>
<td>Moderate and Low</td>
</tr>
<tr>
<td>Interdependence</td>
<td>(+) Intensive task and knowledge interdependence (SI → taskwork communication)</td>
<td>(+) Sequential and reciprocal task and knowledge interdependence (SI → taskwork communication)</td>
<td>(X) Intensive, pooled and reciprocal task and knowledge interdependence (SI → taskwork communication)</td>
<td>High</td>
</tr>
<tr>
<td>Membership change</td>
<td>(+) Retirement, holiday (D → task cohesion)</td>
<td>(+) Other skills and knowledge, malfunctioning (D → task and interpersonal cohesion)</td>
<td>(X) Holiday, poor chemistry, joining other projects</td>
<td>Moderate</td>
</tr>
<tr>
<td>Membership dynamics</td>
<td>(-) Dynamic use and roles of team members, (D → task cohesion)</td>
<td>(-) Dynamic use and roles of team members, (D → task cohesion)</td>
<td>(-) Dynamic use and roles of team members, (D → task cohesion)</td>
<td>High</td>
</tr>
<tr>
<td>Communication</td>
<td>(+) Taskwork communication frequency, (D → task cohesion)</td>
<td>(+) Taskwork communication frequency, (D → task cohesion)</td>
<td>(+) Good taskwork communication, (D → task cohesion)</td>
<td>High</td>
</tr>
<tr>
<td>Cohesion</td>
<td>(+) Interpersonal cohesion, (D → communication type/frequency)</td>
<td>(+) Interpersonal cohesion, (D → communication type/frequency)</td>
<td>(+) Interpersonal cohesion, (D → communication type)</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 3: meta-matrix: characteristics influencing sourcing team effectiveness

Legend for sources of data: (+) = positive effect, (-) = negative effect, underlined text refer to claim made strongly by one person, or by more than one respondent, (X) presence of dissenting or conflicting opinion, (D) = Direct effect, (SI) = Side effect, (SM) = Side effect Moderating, (SI) = Side effects Intervening.

High impact = claimed by several teams and respondents
Moderate impact = claimed by several respondents in a team
Low impact = claimed by one respondent

The linkage between cross-functional sourcing team effectiveness and organizational and environmental factors and characteristics is an important research finding. Organizational developments have a negative impact on specific sourcing team effectiveness. Team members in the printers and copiers team explained that the relocation, downsizing of the organization, time and place of independent work, and digitization of the workplace made the tendering process more complicated.
This resulted in the use of a new procurement methodology and a different approach to collaboration with the supplier. At the same time, organizational developments also have had a negative impact on team composition. The cycle paths team, for one, was a temporary team, as a newly elected executive council could decide to cut budgets on cycle paths. It was hence difficult to have permanent team members. Consequently, external hiring became common practice. Furthermore, organizational resource availability has had no direct influence on the general team effectiveness, but a positive indirect effect through communication and a negative effect through time management, though the latter effect was less. The amount of time available to commit to the team assignment was mentioned as an organizational resource in team printers and copiers. The members of the printers and copiers team also had responsibilities in their functional department besides their team assignments. As such, team members with a lack of time to pursue a team assignment caused planning and time problems. Also, in the road construction and cycle paths teams, sharing the same office has been indicated as a way of improving communication frequency and type (more open and personal). Moreover, external environmental factors have a negative impact on specific cross-functional sourcing team effectiveness. The advanced spatial planning, land acquisition and land expropriation frameworks in team road construction and cycle paths prevented new ideas and innovation.

The internal stakeholders have had a moderating effect on the relationship between communication and general sourcing team effectiveness and the relationship between time management and general sourcing team effectiveness. In the printers and copiers team, the internal stakeholders did not negatively influence teamwork, as this team spent much time on communicating with internal stakeholders. Arranging subsidies by the unit subsidy took very long, which jeopardized the planning of the project in the cycle paths team and negatively influenced their teamwork. On the other hand, internal stakeholders can have a negative impact on specific sourcing team effectiveness under certain circumstances. The technical department of team road construction was decisive in designing a particular bridge, which made innovation of the bridge impossible. External stakeholders have similarly had a negative impact on specific sourcing team effectiveness. Municipalities, water authorities and Rijkswaterstaat prevented innovation due to their specific requirements.

The goals of the organization, on the other hand, positively influenced specific sourcing team effectiveness. All teams had to take into account sustainability and environment. These goals have had a positive impact on the quality of the products. Team cycle paths, for instance, had to reach the goal of 160km cycle paths in a short period. This organizational goal directly influenced team composition and membership change. At the same time, the purchase procedure has positively influenced the relationship between motivation and general cross-functional sourcing team effectiveness and negatively influenced the relationship between communication and general sourcing team effectiveness. The new purchase method BVP in the printers and copiers team had a positive influence on motivation and team effectiveness, but the purchase method “competitive dialogue” in the road construction team had a negative influence on communication and sourcing team effectiveness due to the strict conditions for conducting a competitive dialogue. Law and regulation had a negative moderating effect on the relationship between time management and general sourcing team effectiveness and a negative moderator effect on the relationship between motivation and team satisfaction outcome. Internal regulations limited the opportunities for new ideas and innovation. Team members lacked motivation due to rules and regulations. Similarly, team road construction communicated to suppliers more than necessary because of the fear of legal objections. On the other hand, policy has had a positive impact on specific sourcing team effectiveness and a direct negative impact on team composition. Team printers and copiers have a different quality of printers and copiers due to the printing policy, while the cycle paths team was obliged to take in a reassignment candidate from the mobility center.

No moderating effect of organizational and environmental factors was found between interdependence and sourcing team effectiveness. In all teams, task and knowledge interdependence has positively influenced the general outputs of sourcing team effectiveness via task work communication. More communication was needed due to the task and knowledge interdependence. On the other hand, the
change of team members was found to be detrimental to task cohesion in team printers and copiers. Membership change in team road construction was positively related to task and interpersonal cohesion. Team members left the team because they failed to function satisfactorily. In the cycle paths team, there were conflicting opinions about membership change. In all teams, membership dynamics demonstrated less committed team members. Membership dynamics has a negative impact on task cohesion.

Finally, a relationship was found between task work communication and task cohesion in all teams. The more communication about tasks and goals, the more task cohesion arose about a shared and clear understanding of a team’s purpose and tasks. On the other hand, bad communication can also lower task cohesion, according to team cycle paths. Interpersonal cohesion appeared to be related to communication type in all teams, and also to communication frequency in team printers and copiers and team road construction. Teams with greater interpersonal cohesiveness indicated more personal and open communication and greater informal frequency of within team communication. Moreover, task work communication has had a positive impact on task cohesion, and interpersonal cohesion has had a positive impact on interpersonal communication, while task cohesion has had no significant impact on team communication. Figure 5 provides a revised model.

Fig. 5 Revised model based on findings of factors influencing cross-functional sourcing team effectiveness

(●) = Side effect Moderating
5. Conclusions, discussion and recommendations

In this final chapter, the conclusions, discussion of the key findings and recommendations are presented. Section 5.1 reviews a summary of the motivation of the study and the main conclusions in order to give an answer to the overall problem statement. In section 5.2, reflections on the empirical findings gathered within the scope of this study and previous literature are made. Section 5.3 translates the research findings into practical implications for team members and team managers. The last section discusses the limitations of this study, provides new research ideas and suggestions for optimization of further research.

5.1 Conclusions

The complexity of the environment and the large public purchase volume has made public procurement more important than ever before. The recognition of the strategic role of public procurement has emerged since there are increasingly sophisticated product choices, increased use of technology, extended consideration of environmental and social issues, and a switch of focus from cost to best value. Sourcing is nowadays one of the most important processes of purchasing and often strategic because it affects the entire organization. It requires input from different disciplines within the organization. Cross-functional sourcing teams have become popular in recent years. However, making cross-functional sourcing teams successful is not simple. Consequently, it is important to know which factors impact cross-functional sourcing team effectiveness. The initial problem statement was: What is the impact of team characteristics on the effectiveness of cross-functional sourcing teams in the public sector?

The study shows that factors in the organizational and environmental context are important characteristics that have an impact on sourcing team effectiveness. One important conclusion can be drawn: there is not one effect of the characteristics in the context that is beneficial or detrimental for all teams’ effectiveness. There were different effects of the factors in the organizational and environmental context on sourcing team effectiveness. The findings indicate that organizational developments, environmental factors, internal and external stakeholders, goals and policy were all very important and directly influenced specific sourcing team effectiveness (in a negative or positive way). On the other hand, some of these contextual factors also influenced input factors like team composition or membership change directly.

Organizational and environmental factors as a moderating variable were also found. These factors had a negative or positive effect on the interaction between a mediating process and general sourcing team effectiveness. The results indicate that it is important for the teams to be aware of environmental and organizational factors. It can be concluded that the environment of the teams is complex and that the teams have a unique nature. Although situated in the same environment, teams had some clear differences with regard to environmental and organizational characteristics because of their varying sourcing team assignments and types of sourcing product. The printing team, for example, had some higher association with organizational developments and internal stakeholders because of the internal orientation of the sourcing team assignment. All team members were highly interdependent in terms of tasks, goals and feedback and this affected task work communication, which in turn impacted team effectiveness. Thus, there was a high interdependence due to the different fields of expertise and this caused a lot of task work communication to lead to insights into other knowledge areas. A good quality of task work communication additionally created positive team effectiveness. Moreover, the analysis revealed that membership change can have a negative or positive impact on team effectiveness. Another conclusion is that changing a team member that is malfunctioning for a new team member with better skills and knowledge increases task and interpersonal cohesion. On the other hand, the temporary absence or permanent leave of a team member with good skills and knowledge is seen as a shortcoming to the team. Also, a replacement can lower task cohesion. Furthermore, a strong negative relationship between membership dynamics and task cohesion exists in all teams. Thus it
can be concluded that a stable team with no changes in roles and membership during the entire sourcing project will benefit enhanced task cohesion.

Interestingly, though communication and team cohesion were very important, no mutual effect between those two constructs were found. The constructs had to be separated into task work and interpersonal communication, and task and interpersonal cohesion to find relationships. Teams with a stronger attractive force and enthusiastic team members communicated more openly and more often, while teams with much task related communication created a strong common interest and commitment to achieve joint goals.

5.2 Discussion

This study indicates that the teams are part of a broader organizational and environmental context. Teams have a multilevel nature in which members are part of a team, teams are part of an organization and an organization exists within a wider environment (Kozlowski & Bell, 2003; Mathieu et al., 2008). Contextual characteristics of a team can inhibit or facilitate a good team performance (Kozlowski & Bell, 2003; Mathieu et al., 2008; Meschnig & Kaufmann, 2015). The empirical findings confirm that contextual and environmental factors are important determinants of team effectiveness. Many previous studies addressed the importance of context on team effectiveness (Cohen & Bailey, 1997; Gladstein, 1984; Guzzo & Dickson, 1996; Hackman, 1987; Holland et al., 2000; Sundstrom et al., 1990). However, evidence of organizational and environmental factors in the context of a team is often neglected (Kozlowski & Bell, 2003; Mathieu et al., 2008). Most research concerning context has been based on organizational factors (factors that are external to team but internal to the organization). Particularly organizational design factors, such as rewards, supervision, training and resources, have been studied the most. On the other hand, characteristics of the external environment in which the organization is embedded have hardly been studied (Denison, 1996; Guzzo & Dickson, 1996; Mathieu et al., 2008).

In the findings, a positive indirect relationship was found between office space as organizational resource availability and team effectiveness through communication. A negative indirect relationship exists between time availability as organizational resource availability and team effectiveness through time management. Trent & Monczka (1994) found a strong relationship between organizational resource availability and cross-functional sourcing team effectiveness. Similarly, teams with access to a work environment achieved high levels of team effectiveness. One of the least correlated resources was time availability. This is in accordance with the findings in this study, as time availability was not indicated as highly significant. Moreover, Holland et al. (2000) state that a larger distance between offices decreases communication between people. Similarly, the results in this study also confirmed the influence of office space on communication. Furthermore, no direct relationship was found between organizational resource availability and team effectiveness.

According to Kozlowski & Ilgen (2006) organizational or environmental characteristics have an influence on the development of team mood and emotions. The empirical results demonstrated that purchase procedure and law and regulation moderate the relation between motivation and general sourcing team effectiveness. Purchase procedure also had a negative moderating effect on the relationship between communication and sourcing team effectiveness. Kaufmann et al. (2014) declared in their research that too much focus on rational procedures in sourcing team decision-making can limit effectiveness. In the literature review of Mathieu et al. (2008), they concluded that team processes impact team effectiveness and this relationship can be influenced by contextual circumstances. This study confirms that statement. Several contextual factors had an impact on the relation between task work communication as a team process and sourcing team effectiveness.

Moreover, the direct or indirect influence of external organizational variables on team effectiveness can be found in the work of Gladstein (1984). The research of Ancona-Gladstein in 1990 indicated the influence of external contacts on task performance. It can be said that the findings of this study are in line with existing research of Ancona-Gladstein. Although several relationships were found between
the context and team inputs, team processes and team effectiveness in this study, no relationship was found between context and task interdependence as suggested in the review of Kozlowski & Bell (2003). A possible explanation is that the study did not take into account the dynamic and unpredictable nature of the interdependencies.

This study’s research framework was based on the IMOI model (Ilgen et al., 2005), which indicates the cyclical and nonlinear linkages between variables. Kozlowski & Ilgen (2006) mentioned that there is a need for research on antecedents of team cohesion and clearness about the direction of relationships because it is likely reciprocal. Mathieu et al. (2008) pointed out that different processes and emergent states highly correlated with one another. This study identified positive relationships between task work communication and task cohesion and between interpersonal cohesion and interpersonal communication. The findings further confirmed the nonlinear linkage between processes and emergent states, but a reciprocal relationship could not be found due to a further differentiation of the constructs ‘communication’ and ‘cohesion’.

Prior research has examined interdependence as a moderator between a team mechanism and team performance (Barrick et al., 2007; Kozlowski & Bell, 2003; Wildman et al., 2011). However, this study examined task interdependence as an input factor and concluded that task interdependence has a positive influence on task work communication, which in turn has a positive influence on specific sourcing team effectiveness. A possible explanation is the use of a type of interdependence (task interdependence) instead of a composite construct (team interdependence). Nevertheless, this study is in accordance with the study of Beal et al. (2003) who found out that team members who are highly interdependent, have greater need to communicate to achieve team effectiveness. This study indicated mixed results on the relationship between membership change and task cohesion, due to the knowledge, skills and ability of the new or replaced team member. Summers et al. (2012) also ascertained that the impact of membership change depended on the competencies of leavers or newcomers. According to Mathieu et al. (2008), empirical research on membership dynamics are rare, while Roe et al. (2012) stated that more dynamic concepts have to be studied. Thus the concept of membership dynamics was assessed in this study, which was found to have a negative relationship with task cohesion.

The most significant contribution of this study comes from the investigation of complex and various relationships among the team effectiveness indicators and characteristics about the context in or outside the organization, which gives support to the view of the importance of the context of teams. Moreover, in-depth insights have been provided for the nonlinear relationships between variables and the direction of relationships between processes and emergent states, whereas previous studies have not investigated these relationships. Also, this study contributed to the call for more examination of dynamic concepts. The findings demonstrate that there are many changes in team settings and changes during periods of activity.

5.3 Recommendations for practitioners

Some practical recommendations to team managers and team members related to the characteristics can be formulated. First, the specific environmental and organizational team context plays an important role. Each team has a different context; it is therefore advisable to start with an analysis of the environment to gain valuable insights into environmental factors, risks, strengths, weaknesses, opportunities and threats to the team. In this way, a better understanding of the environment and a better preparation to deal with environmental factors and risks can arise. Stakeholders, for example, have a meaningful influence on the effectiveness of a team (Driedonks et al., 2014). A stakeholder analysis can be useful in order to prevent a negative impact of stakeholders on a team’s assignment. Consequently, it is pivotal to make all stakeholders understand the importance of the team and its purpose and priorities. Similarly, teams should spend time communicating with stakeholders to understand their needs and what outcomes they expect from the team (Driedonks et al., 2014). Communication steps with stakeholders should be planned as carefully as any other part of the sourcing project (Kaufmann & Gaeckler, 2015).
Furthermore, teams should also determine if there are procedural, organizational, environmental or juridical limits that have to be taken into account. For example, are there time or office space limitations that have to be considered? Are there some procedural or juridical constraints that have been deemed undesirable by the team? The team must recognize these limitations and work around or change them if possible.

Moreover, putting team members together during sourcing project on a regular basis strengthens communication and breaks down barriers. A lack of time available to team activities is a serious obstacle to team effectiveness. Team managers and supervisors in the functional department should create additional time for team activities and reduce time spent on other job activities. Another important point is to identify key interdependencies in the team. In a cross-functional sourcing team, team members have heterogeneous skills, knowledge, backgrounds and experiences. A high level of interdependencies between the team members exists due to the heterogeneous skills, knowledge, backgrounds and experiences. A team should know the sequential or reciprocal task steps and should make agreements on how and when to communicate about the tasks before the sourcing project starts.

Additionally, during a sourcing project, composition of the team changes over time. Team members leave the team for many reasons such as retirement, holiday, joining other team assignments, lacking the necessary skills or poor chemistry. A membership change can be positive if the new member has the right skills, personality and ability to perform in the team. A team manager should be aware that member skills and personal chemistry are important criteria during the selection of new team members. Teams are not static but dynamic units with team members who move in and out of the team. Also, irregular deployment of personnel and changing roles of team members in different project phases are common. Each project phase requires different skills so when a team is formed, the team manager must select team members whose skill set is aligned with the goals and the level of representation each needs on the team during each phase of the sourcing project. Some sourcing team phases will need permanent members, while other phases may only need members who participate in certain areas of the team assignment. To create a common bond and to ensure that everyone is well working together, all team members need to know the common sourcing objectives and strategic priorities from the very beginning (Meschnig & Kaufmann, 2015). These goals need to be repeated regularly. It is important that team members see the greater picture instead of looking only at their own particular field of operations (Gevers et al., 2015). A team manager should thus take certain actions to promote greater team communication. Teams that have a greater frequency of within team communication also have a stronger common interest and commitment to achieve mutual goals and tasks. A team whose members like working together has a higher level of communication frequency and communication is more open and informal. Also, for this reason, a team manager should consider the chemistry between members when forming teams. Workshops and informal team sessions through which the different team members learn to know each other and build a mutual bond can be very helpful.

5.4 Recommendations for further research

One of the limitations of this study is the risk of bias during interviews and interpretation of the interview results. The researcher is well acquainted with the organization and the phenomenon studied. An interviewer’s perceptions, on the one hand, can be based on personal prejudices and subjectivity. The distortions may influence the interpretation of the data. On the other hand, knowledge about the organization and the phenomenon studied can also be viewed as an advantage: continuing to ask questions was easier because of this background knowledge and, understanding the answers was easier due to the lack of a language barrier. Further research could raise the reliability by making use of an independent researcher for conducting the interviews.
Another significant limitation during the study was the difficulty of the respondents to have a clear understanding of the meaning of the concepts ‘membership dynamics’ and ‘team cohesion’. Although definitions of the concepts were explained before conducting the interviews, it appeared that during the interviews other interpretations of the concepts were still given by some respondents. Membership dynamics was interpreted as the energy and the many interactions in the team, while the interpretation of team cohesion had some overlap with the concepts of commitment and motivation. A direction for future research is an alternative approach to construct measurement, a better distinction between the concepts and a further refinement of the concepts (more narrowly defined). Also, the questions about the relationships between the concepts were difficult for the respondents because of the high level of abstraction. The relationships between the characteristics are based on the perceptions of the respondents and interpretations of the findings rather than objective measures. The direction of causality cannot be confirmed with a case study design, but an avenue for future research could be a theory testing research.

Moreover, the concept of sourcing team effectiveness was subjective and composed of a few dimensions. Future research could apply a wider variety of indicators and use more objective measures. Another limitation was the retrospective view of events. In this study, the findings were based on existing data and events that have already occurred. In one particular team, respondents had difficulty reflecting on situations because they occurred a long time ago (retrospective bias). A recommendation for further research is to select teams with a more recent team assignment.

Moreover, this study relied on a sample of one public organization; thus, findings and conclusion may not be generally applicable beyond this context. Hence, to increase external validity, future research could take multiple public organizations and multiple sources of data into account to further elaborate on the findings of this study. Similarly, another interesting avenue for future research is the comparison of public and private organizations, in particular with regard to the external environment. In this study, the internal and external context of a team played a crucial role. In the future, more research could focus on the examination of potential contextual factors. For example, economy or market characteristics could affect sourcing team effectiveness (Meschnig & Kaufmann, 2015). At the same time, this study confirms the dynamic nature of participation of members in a team. Longitudinal research could further test causality. Studying team characteristics like membership dynamics and cohesion over time in teams may be a prospect for future research. Finally, it might be interesting to pay attention to the differences in characteristics of a team assignment instead of only team characteristics. This study noticed that type of sourcing category or purchased item and duration of the team assignment (short term and long term) also affected team characteristics.
References


## Appendix A  An overview of interviews

<table>
<thead>
<tr>
<th>Team</th>
<th>Name</th>
<th>Position</th>
<th>Interview Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printers and copiers</td>
<td>Mrs. Paula Haanstra</td>
<td>Project leader</td>
<td>30-06-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. Mike Gonesh</td>
<td>IT specialist</td>
<td>06-07-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. John Jonkhout</td>
<td>Procurement consultant</td>
<td>25-06-2015</td>
</tr>
<tr>
<td>Road construction</td>
<td>Mrs. Geraldine Post</td>
<td>Contract manager</td>
<td>25-06-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. Johan Kort</td>
<td>Procurement specialist</td>
<td>23-06-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. Ard Schoep</td>
<td>Project manager</td>
<td>30-06-2015</td>
</tr>
<tr>
<td>Cycle paths</td>
<td>Mr. Gijs Overbeek</td>
<td>Program manager</td>
<td>19-06-2015</td>
</tr>
<tr>
<td></td>
<td>Mrs. Linda van der Wal</td>
<td>Procurement lawyer</td>
<td>02-07-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. Karel Schaafsma</td>
<td>Department manager</td>
<td>07-07-2015</td>
</tr>
<tr>
<td></td>
<td>Mr. Hans van Heijst</td>
<td>Procurement specialist</td>
<td>02-07-2015</td>
</tr>
</tbody>
</table>
Appendix B  Interview guide

<table>
<thead>
<tr>
<th>Interview guide</th>
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</thead>
<tbody>
<tr>
<td>1. Introductie:</td>
</tr>
<tr>
<td>- Voorstellen onderzoeker (naam; functie) en respondent (naam; functie; afdeling)</td>
</tr>
<tr>
<td>- Bedanken voor medewerking</td>
</tr>
<tr>
<td>- Reden en doel van interview</td>
</tr>
<tr>
<td>- Duur en inrichting gesprek (eerst algemene vragen en dan vragen over teamkenmerken en team effectiviteit)</td>
</tr>
<tr>
<td>- Benadrukken eigen mening is belangrijk, bestaan geen foute antwoorden</td>
</tr>
<tr>
<td>- Vertrouwelijkheid gegevens</td>
</tr>
<tr>
<td>- Gebruik opnamerecorder (alleen voor onderzoeksdoeleinden, respondent moet toestemming geven voor opname)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Algemene vragen:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Kun je mij iets vertellen over jouw huidige functie binnen de provincie?</td>
</tr>
<tr>
<td>- Kun je mij beschrijven hoe het sourcing team is ontstaan?</td>
</tr>
<tr>
<td>- Wat zijn werkzaamheden die binnen het sourcing team worden gedaan?</td>
</tr>
<tr>
<td>- Hoe is de taakverdeling binnen het sourcing team?</td>
</tr>
<tr>
<td>- Wat vind je dat er goed gaat binnen het team?</td>
</tr>
<tr>
<td>- En wat zou er verbeterd kunnen worden?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Open gestructureerd interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Teamkenmerken</td>
</tr>
<tr>
<td>a. Organisatie en publieke inkoop:</td>
</tr>
<tr>
<td>Ik kan mij voorstellen dat er elementen vanuit de organisatie zijn die invloed hebben op jouw teamwerk</td>
</tr>
<tr>
<td>- Kun je hiervan voorbeelden noemen?</td>
</tr>
<tr>
<td>(Belangrijk om door te vragen; bij geen of weinig voorbeelden: elementen noemen doelen, stakeholders, beleid, cultuur, procedures)</td>
</tr>
<tr>
<td>- Kun je aspecten van inkoop noemen die van belang waren voor het teamwerk?</td>
</tr>
<tr>
<td>- In hoeverre hebben deze elementen een positieve invloed op het teamwerk? Negatieve invloed? toelichten</td>
</tr>
<tr>
<td>b. Onderlinge afhankelijkheid= de mate waarin teamleden afhankelijk van elkaar zijn en een wisselwerking hebben om taken af te maken.</td>
</tr>
<tr>
<td>- Kun je eens toelichten hoe het team samenwerkt? Wat gaat er goed? Wat niet?</td>
</tr>
<tr>
<td>- In hoeverre is er sprake van onderlinge afhankelijkheid binnen het team? Kun je voorbeelden noemen?</td>
</tr>
<tr>
<td>- Hoe sterk is de wisselwerking tussen teamleden om een taak af te krijgen?</td>
</tr>
<tr>
<td>- Heeft dit (verwijzen naar antwoorden) een positieve of negatief effect op het resultaat van het team? Kun je dit eens toelichten?</td>
</tr>
<tr>
<td>c. Wisseling en dynamiek (tijdelijk lidmaatschap) van teamleden:</td>
</tr>
<tr>
<td>- Kun je aangeven in hoeverre er sprake is van wisseling van teamleden?</td>
</tr>
<tr>
<td>- Waar wordt dit door veroorzaakt?</td>
</tr>
<tr>
<td>- Kun je beschrijven hoe de dynamiek binnen het team is?</td>
</tr>
<tr>
<td>(Belangrijk om door te vragen: op welk moment inzet van welke teamleden, periode van de inzet, redenen van tijdelijke inzet, part time/ full time inzet)</td>
</tr>
<tr>
<td>d. Communicatie tussen teamleden = communicatie gebaseerd op taak gerelateerde informatie en vestigen van interactiepatronen binnen het team</td>
</tr>
<tr>
<td>- Kun je wat vertellen over de communicatie binnen het team? (Eventueel doorvragen: hoe wordt binnen het team gecommuniceerd?, via welke kanalen?, over welke onderwerpen?, wat gaat goed?, wat niet?)</td>
</tr>
<tr>
<td>- Hoe ervaar jij de communicatie binnen het team?</td>
</tr>
<tr>
<td>- Wat is jouw rol in de communicatie binnen het team?</td>
</tr>
<tr>
<td>- Zijn er dingen die je hierin wilt veranderen, waarom?</td>
</tr>
<tr>
<td>e. Team samenhang = de mate waarin teamleden zijn begaan met de taken en doelen van het team (taak samenhang) en het team en elkaar leuk vinden (interpersoonlijke samenhang)</td>
</tr>
<tr>
<td>- Kun je aangeven in hoeverre de taken en doelen van het team voor de teamleden belangrijk zijn?</td>
</tr>
</tbody>
</table>
- Hoe kun je de omgang van de teamleden met elkaar beschrijven?
- Wat maakt het team enthousiast? (Waar gaan ze ‘harder van lopen’?)
- Wat motiveert ze juist niet?

3.2 Team effectiviteit = algemene team effectiviteit gebaseerd op functioneren van het team en specifieke team effectiviteit gebaseerd op de uitkomst van de sourcing taak
- Wat versta jij onder team effectiviteit? Kun je voorbeelden noemen? (Belangrijk om door te vragen bij geen of weinig voorbeelden: elementen noemen prestatie (leverancier, kwaliteit leverancier, efficiency team, innovatie)
- Wat heb je met je team tot nu toe bereikt?
- Wat is er volgens jou nodig om een team doeltreffend te laten functioneren (drivers)? Wat belemmert de effectiviteit (barriers)?

3.3 Verbanden teamkenmerken en team effectiviteit
(Vragen zijn veelal afhankelijkheid van de gegeven antwoorden)
a. Onderlinge afhankelijkheid, organisatie en inkoopkenmerken en teameffectiviteit:
   - Je hebt eerder in het interview aangegeven dat er … (een sterke/zwakke onderlinge afhankelijkheid is) en dat jullie op het gebied van …effectief zijn geweest. In hoeverre heeft deze sterke/zwakke onderlinge afhankelijkheid gezorgd voor meer/minder effectiviteit op het gebied van …?
   - In hoeverre ben je van mening dat ….(kenmerken organisatie/inkoop) dit effect versterkt of verzwakt?
b. Onderlinge afhankelijkheid, communicatie en teameffectiviteit:
   - Je hebt eerder in het interview aangegeven dat er sterke/zwakke onderlinge afhankelijkheid in het team is en dat er binnen het team …. (verwijzen naar wat er gezegd is over communicatie). In hoeverre zorgt een sterke/zwakke onderlinge afhankelijkheid voor meer/minder communicatie met als resultaat ….(verwijzen naar het al besproken teameffectiviteit)?
   - Wat zou de teameffectiviteit dan kunnen verhogen/verlagen?
c. Communicatie en teamsamenhang:
   - Je geeft aan dat er …. (verwijzen naar wat er gezegd is over communicatie) en dat er sprake van een … (team samenhang). Stel dat de communicatie toeneemt, verwacht je dan een sterkere taak/interpersoonlijke samenhang?
   - In hoeverre ben je van mening dat een sterke teamsamenhang zorgt voor meer communicatie?
   - Ben je van mening of er (nog) een verband tussen communicatie en een ander aspect is?
   - Of tussen teamsamenhang en een ander aspect?
d. Wisseling en dynamiek van teamleden en teamsamenhang:
   - Kun je mij vertellen in welke mate een wisseling van een teamlid invloed heeft op de samenhang in het team?
   - En in welke mate heeft de dynamiek binnen een team een impact op de samenhang in het team?
   - Kun je hiervan voorbeelden noemen?

4. Controlevraag:
- Hoe ziet het ideale team eruit? Wat doen zij wel/niet?
- In hoeverre komt jouw eigen team in de buurt van dit ideale team?
- Wat moet behouden blijven? Wat kan nog verbeterd worden?

5. Afsluiting:
- Aanvullende vragen of opmerkingen
- Bedanken gesprek
- Vervolg: interview uitwerken en document sturen naar geïnterviewde voor controle op verkeerde interpretaties of onvolkomenheden.
Appendix C  Case study protocol

A. Overview case study (background & objective)

This protocol is used to conduct an embedded case study in a public organization focused on identifying relationships between team characteristics and their impact on sourcing team effectiveness in a public organization. This protocol intends to follow guidelines and procedures, in order to increase the reliability of the case study. As part of an embedded case study, three cross-functional sourcing team are being analyzed.

**Problem statement:**
What is the impact of team characteristics on the effectiveness of cross-functional sourcing teams in the public sector?

**Research model:**

![Research Model Diagram]

**B. Data collection procedures**

<table>
<thead>
<tr>
<th>Preparation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- First contact with head of purchasing for determining relevant cross-functional sourcing teams and key informants (project leaders of sourcing teams)</td>
</tr>
<tr>
<td>- Determination of relevant respondents together with key informants.</td>
</tr>
<tr>
<td>- Sending an invitation e-mail for an interview to all respondents about topic, definition important concepts, type of questions and duration.</td>
</tr>
<tr>
<td>- Desk research information about organization and cross-functional sourcing teams.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data collection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Preparation interview: arranging data recorder, block agendas, drafting instructions for interviews, making a standard format for interview notes, organizing a meeting room</td>
</tr>
<tr>
<td>- Interviews are carried out with: procurement experts, consultants, lawyer, IT specialists, project leaders or program managers</td>
</tr>
<tr>
<td>- Semi-structured interviews with topic list and questions (see appendix B)</td>
</tr>
<tr>
<td>- Interviews are recorded on tape and written down entirely according to a standard format</td>
</tr>
<tr>
<td>- Comments are asked from the respondents to verify the findings</td>
</tr>
<tr>
<td>- Document analysis (evaluations, reports, sourcing documents, notes) (see appendix D)</td>
</tr>
</tbody>
</table>
| Data analysis: | - Descriptive coding of transcripts and documentation into data labels  
- Pattern coding by clustering text segments into constructs and categories  
- Checklist matrices at team level  
- Meta-matrix to discover relationships between categories |
| C. Case study questions | - What are the environmental and organizational characteristics that influence teamwork?  
- What is the impact of these characteristics on sourcing team effectiveness?  
- What is the degree of task interdependence in the team?  
- What is the impact of task interdependence on sourcing team effectiveness, if any?  
- What is the influence of environmental and organizational characteristics on the relationship between task interdependence and sourcing team effectiveness?  
- What is the impact of task interdependence on communication, and communication on sourcing team effectiveness?  
- What is the degree of membership change and membership dynamics in the team?  
- What is the impact of membership change and membership dynamics on team cohesion (task or/and interpersonal)?  
- What is the nature of the communication in the team?  
- What is the impact of communication on team cohesion (task or/and interpersonal)?  
- What is the impact of team cohesion (task or/and interpersonal) on communication?  
- What is the degree and nature of sourcing team effectiveness? |
| D. Outline of case study findings | Within case analysis and cross-case analysis  
**Within case analysis**  
A description per team of the findings of the relationships as stated in the research model:  
- Description of membership change and membership dynamics and the relationship of these characteristics with team cohesion  
- Description of the findings of interdependence, communication and sourcing team effectiveness and the relationships between them  
- Description of the findings of the relationships between communication and team cohesion  
- Description of the findings of organizational and environmental characteristics  

**Cross-case analysis**  
A comparison of characteristics across teams  

**Report**  
Feedback to key informants in the form of a report  
Integration of comments and remarks of key informants  
Final report case study results |
# Appendix D  Overview documentation

<table>
<thead>
<tr>
<th>Team</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team 1 Road construction</td>
<td>• Hoofdlijnenakkoord 2011-2015 Zuid-Holland verbindt en geeft ruimte</td>
</tr>
<tr>
<td></td>
<td>• Strategisch programmaplan “Focus met Ambitie”</td>
</tr>
<tr>
<td></td>
<td>• Werkinstructie aanbesteden PZH 2013</td>
</tr>
<tr>
<td></td>
<td>• Inkoop- en aanbestedingsbeleid PZH 2013</td>
</tr>
<tr>
<td></td>
<td>• Afdelingsplan programma’s en projecten 2009</td>
</tr>
<tr>
<td></td>
<td>• Inkoopplan parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Voorstel voor besluitvorming parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Notitie evaluatie voor het project “parallelstructuur A12”</td>
</tr>
<tr>
<td></td>
<td>• Agenda startbijeenkomst project parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Contactinformatie uitwerking parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Communicatieplan parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Presentatie parallelstructuur A12</td>
</tr>
<tr>
<td></td>
<td>• Overzicht namen dialoogfase aanbesteding parallelstructuur A12</td>
</tr>
<tr>
<td>Team 2 Cycle paths</td>
<td>• Hoofdlijnenakkoord 2011-2015 Zuid-Holland verbindt en geeft ruimte</td>
</tr>
<tr>
<td></td>
<td>• Strategisch programmaplan “Focus met Ambitie”</td>
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<tr>
<td></td>
<td>• Werkinstructie aanbesteden PZH 2013</td>
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<td>• Inkoop- en aanbestedingsbeleid PZH 2013</td>
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<td>• Inkoopplan integrale fietspadenpakket</td>
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<td>• Risico-inventarisatie fietspaden</td>
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<td>Team 3 Printers and copiers</td>
<td>• Hoofdlijnenakkoord 2011-2015 Zuid-Holland verbindt en geeft ruimte</td>
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<tr>
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<td>• Strategisch programmaplan “Focus met Ambitie”</td>
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<td>• Strategische huisvestingsvisie 2010-2014</td>
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<td>• Werkinstructie aanbesteden PZH 2013</td>
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<td>• Verslag kick-off meeting MFP’s</td>
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<td>• Presentatie kick-off printdienstverlening</td>
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<td>• Scope omschrijving printdienstverlening</td>
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<td>• Beschrijvend document Europese aanbesteding printdienstverlening</td>
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<td>• Projectplan opdrachtnemer</td>
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<td>• Service Level Agreement printdienstverlening opdrachtnemer</td>
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<td>• Presentatie instructie BVP</td>
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<td>• Planning inkooptraject printdienstverlening</td>
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</tbody>
</table>
Appendix E  Organizational structure

ORGANOGRAM PROVINCIE ZUID-HOLLAND, 1 juli 2015

Gewestelijk Haags Plan

 Directie Ruimte en Mobiliteit
  Gemma Smid-Marsman
   Afdeling Ruimte, Wasser en Baden
    Alph Veldhof
   Afdeling Mobiliteit en Milieu
    Jaapero Vroon
   Afdeling Projecten en Programma's
    Diederik van Tilburg
   Dienst Bovenaarde
    Arjan Eersel
   Afdeling Opdrachtgeverschap
    Ger de Roos

 Directie Leefomgeving en Bestuur
  Ron van der Heim
   Afdeling Water en Groen
    Joost Darmen
   Afdeling Samenleving en Economie
    Wimke Brandemere
   Afdeling Bestuur
    vacature
   Dienst Groencontract
    Zuid-Holland
    Thomas Arts (c.i.)

 Directie Dienstzaaken
  Marjolein Nooter (per 1-9-2015)
   Afdeling Financiële Zaken
    Ineke van Derendt
   Afdeling Facilitaire Zaken
    Cor Geerms
   Afdeling Informatisering
    En Automatisering
    Iman Abou-Jaouda
   Afdeling Personeel
    en Organisatie
    Jan Roesel
   Afdeling Ontwikkeling
    en Grootscale
    Adriaan Maas
   Afdeling Communicatie
    Jeroen Koedam