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Success factors for sourcing teams: How to foster sourcing team effectiveness

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Summary   Cross-functional sourcing teams have become a popular coordination mechanism to organize company procurement activities. However, many of these teams fail to meet management's long-term expectations. A lack of sourcing-specific team research obstructs a clear understanding of the factors that drive sourcing team performance. In the present study, we identified three major dimensions of sourcing team success. Apart from general overall team effectiveness and supply base management effectiveness, sourcing teams need to effectively cooperate with other stakeholders within the firm in order to secure purchasing cost savings and supplier contracts. Additionally, we identified factors that underlie sourcing team success, based upon extensive survey data taken from members, leaders, and managers of 59 (cross functional) sourcing teams in twelve large, multinational companies. Our study revealed that different success factors drive different sourcing team effectiveness dimensions. Also, we found a seemingly contradictory need for both autonomy and formalization to ensure sourcing team effectiveness on all three dimensions. The latter seemed particularly important for teams with high levels of functional diversity.
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Introduction

Strategic purchasing is at the forefront of contemporary company practice. The purchasing profession now has a strategic role in the firm (Carr & Pearson, 2002). Strategic purchasing, or sourcing, is part of the purchasing function that aims at selecting and managing the external suppliers in line with the strategic objectives and goals of the firm (Van Weele, 2010). Evidence shows that organizing purchasing activities through a separate purchasing department is no longer appropriate in today's business context; when organizing for complex buying decisions alignment with other functions is critical (Brown & Cousins, 2004; Seth,

1996). This also seems true when multidivisional corporations want to create purchasing leverage among their global business units (Trautmann, Bals, & Hartmann, 2009). Sourcing thus requires effective management of both external suppliers and internal stakeholders, and occurs as a cross-functional, boundary-spanning activity (Handfield, Petersen, Cousins, & Lawson, 2009). Flexibility and horizontal and cross-functional communication must increase, while lead times must decrease, to ensure purchasing's value-added contribution to business success (Trent & Monczka, 1998). While taking advantage of emerging technologies for collaboration, knowledge-sharing and communication, new organizational structures are emerging to meet these new objectives.

Multinational firms adopt cross-functional, cross-business unit team structures to deploy their sourcing strate-

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gies, to manage their suppliers, and to harmonize their supply operations. Team-based organizational structures with purchasing professionals working alongside representatives from other functional areas (e.g., research and development, quality, engineering, finance, depending on the specific sourcing category), replace traditional purchasing departments and mono-functional buying center structures and processes (Ellram & Pearson, 1993; Giunipero & Vogt, 1997; Johnson, Robert, Michiel, & Fearon, 2002; Monczka, Trent, & Petersen, 2006; Seth, 1996; Trent & Monczka, 1994; Trent & Monczka, 1998), a trend that is forecasted to continue (Zheng, Knight, Harland, Humby, & James, 2007).

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

The use of team structures in purchasing organizations seems to correlate with positive performance outcomes. However, success has no guarantee and extant research indicates that the implementation of sourcing teams knows many challenges. Companies that implement sourcing teams face the risk that, within months after start-up, teams' ambition levels decrease as motivation and cohesiveness among team members flag (Johnson & Leenders, 2004). Also, not uncommonly teams report to lack a mandate, which delays projects significantly when the teams try to close a contract (Englyst, Jorgensen, Johansen, & Mikkelsen, 2008). Similar concerns were voiced in the companies we visited.

Effective management of sourcing teams is a key lever for increasing the purchasing function's contribution to company profitability. Although quite some research has been devoted to buyer—supplier relationships (e.g. Gadde & Hulthen, 2009; Hald, Cordon, & Vollmann, 2009; Penttinen & Palmer, 2007), the internal organization of the purchasing function has achieved far less attention (Trent & Monczka, 2003). Ideas from prescriptive literature in the area of sourcing team management (e.g., Banfield, 1999; Philippart, Verstraete, & Wynen, 2005) have hardly been tested empirically. Of course, team effectiveness has been studied extensively in other settings, such as in manufacturing, new product development, and service organizations. Yet these studies provide limited guidance for sourcing team management, since their contexts and performance requirements differ from those of sourcing teams in a number of ways. A combination of part-time team member allocations and cross-functional and cross-business unit team compositions characterizes the context of sourcing teams, whereas the teams referred to above often reside in one business unit, or have full-time dedicated members (Trent, 1998). Sourcing teams often deal with conflicting interests of different stakeholders, who may perceive the purchasing function to be of limited strategic importance (Carr & Pearson,

2002). At the same time, sourcing teams depend on others external to the team, since operational buying activities typically occur elsewhere in the organization (Karjalainen, Kemppainen, & van Raaij, 2009). Prior research has not explored how this purchasing context affects different antecedents of team effectiveness. Empirical research could identify success factors underlying sourcing team effectiveness, and provide insight into the mechanisms that drive sourcing team effectiveness in practice.

This article presents the results of a large-scale field survey study addressing the effectiveness of sourcing teams. Drawing a sample from a variety of companies that switched from more traditional purchasing structures to team-based structures, our aim was to identify critical success factors for these sourcing teams and to provide insight into the relationships between input factors, team processes, and specific dimensions of their effectiveness. The study translates implications from prior team effectiveness research in other areas into purchasing settings and offers guidance for companies that have introduced or plan to introduce sourcing teams.

The article proceeds as follows. In the next section we describe a conceptual framework and review literature for factors of potentially high impact on sourcing team effectiveness. In section three we describe the method we used to test this framework empirically. Section four, then, presents the results. Finally, in section five, we summarize the findings, discuss the implications and limitations of the study and we raise additional questions for future research. The focus and scope of the present research do not allow for a detailed description of the set up, context, and activities of the sourcing teams under study. The interested reader is referred to an article by Englyst and colleagues (2008) for an elaborate case description of a sourcing team similar to the ones we studied.

Hypotheses development

Companies create sourcing teams when a certain product category represents both significant annual expenses for a company and large cost savings potential. Sourcing teams' assignments include finding, selecting, contracting, and managing one or more suppliers for the category on a global scale (Johnson et al., 2002). Such teams are responsible for the strategic part of the purchasing process, commonly referred to as sourcing (Samli, Browning, & Busbia, 1998). However, the sourcing team typically does not execute operational purchasing activities, which occur instead in decentralized units. Thus, to complete the sourcing team's task, others external to the team must comply with a sourcing team's recommendations, by implementing agreements reached by the team, and by placing orders against previously arranged contracts at selected suppliers. Team performance requirements typically exist in terms of cost savings, but other objectives may include improved supplier relationship management, supply base responsiveness and access to suppliers' knowledge and expertise.

Sourcing teams typically assemble representatives of internal stakeholder groups, so members may come from

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

These characteristics of sourcing teams suggested the outlines of an explanatory framework for sourcing team effectiveness. Our model draws on Hackman's (1987) input-process-output (IPO) model of group effectiveness and employs a three stage process in which input factors affect the team processes that evolve over time and impact team outcomes (see Figure 1). In line with Cohen and Baily's (1997) heuristic model, the framework also allows for direct relationships between input- and output factors (Campion, Papper, & Medsker, 1996; Cohen, Ledford, & Spreitzer, 1996).

We conducted an extensive, cross-disciplinary literature review, including research on other types of teams, which identified a number of potential success factors for sourcing teams. The selected input factors appear as (a) ''employee involvement context'', which includes factors that aim to enable and support a sense of ownership and control by team members, (e.g., rewards and authority); (b) ''organizational context'', involving factors that provide teams with guidance regarding task execution (e.g., team leadership and formalization); and (c) ''team composition'', referring to the team's staff (e.g., functional diversity). The effects of these input factors on sourcing team effectiveness are expected to be mediated by (d) ''team processes'' (e.g., effort and communication). The framework is presented in Figure 1. The framework draws on leading articles contributing to team performance theories. The next sections explain all hypothesized relationships that follow from this framework on the basis of extant literature.

Sourcing team effectiveness

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

Employee involvement context

A correct team approach enables and allows a group of employees to execute a certain task (Giunipero & Vogt, 1997). Employee involvement context factors represent empowerment and appreciation. ''Reward structure'' and ''authority'' may contribute to a sourcing team's sense of ownership and control (Murphy & Heberling, 1996; Trent, 1998; Trent & Monczka, 1994). Motivation and systems theories suggest positive relationships with sourcing team effectiveness: the more of each element the sourcing team enjoys, the more employees will feel ownership and responsibility for their work, motivating them to perform. Moreover, systems theories emphasize the importance of the internal congruence of these organizational design elements (Cohen et al., 1996). Sourcing team members typically work in a matrix structure, and their part-time allocation to their teams creates a challenge for management to get the reward structure right and to involve non-purchasing members in the team. Two elements comprise the framework's reward structure: (1) who is rewarded, and (2) the basis of the rewards. First of all, the reward structures of all members should include the team's work (Robbins & Finley, 1995). If not, team members will prioritize their individual tasks instead, since these will have a more direct effect on their performance evaluation and reward. In this study,
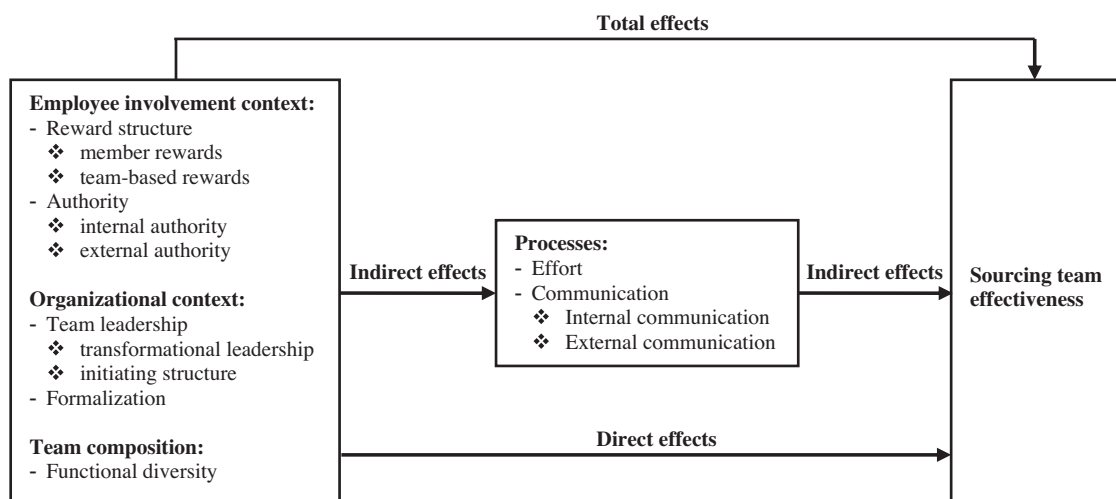

Figure 1   Conceptual framework for sourcing team effectiveness.

''Member rewards'' refers to the factor representing whether or not all team members receive rewards and recognition for contributions made to the team. Second, these rewards can be based either on individual performance within the team, or on collective team performance. Giunipero and Vogt (1997) find that firms do not adapt reward structures sufficiently to sourcing team structures: although *collective* team performance is the desired outcome, *individual* performance is rewarded. Such a situation may foster competition rather than collaboration among team members. Based on the foregoing, we hypothesize positive relationships of member rewards and team-based rewards with sourcing team effectiveness.

Hypothesis 1. Member rewards relate positively with sourcing team effectiveness.

Hypothesis 2. Team-based rewards relate positively with sourcing team effectiveness.

Receiving appropriate authority (Kirkman & Rosen, 2000) increases team effort and effectiveness in general, and for cross-functional teams in particular (Holland, Gaston, & Gomes, 2000). We distinguish here between internal- and external authority. A team's internal authority refers to its ability to control internal team processes and activities; greater internal authority improves the flexibility of teams, and allows teams to deal with complex end-user demands and resource issues more effectively (De Jong, De Ruyter, & Lemmink, 2004; Gonzalez-Padron, Hult, & Calantone, 2008). A team's external authority is its ability to make sourcing decisions without the approval of others external to the team. The team cannot deliver high quality results without a proper level of external authority. In the early nineties, researchers reported insufficient internal- and external authority as barriers to sourcing team success (Trent & Monczka, 1994). Therefore, we hypothesize positive relationships of both internal and external authority with sourcing team effectiveness.

Hypothesis 3. Internal authority relates positively with sourcing team effectiveness.

Hypothesis 4. External authority relates positively with sourcing team effectiveness.

Organizational context

Conform findings in other areas of team research, organizational context factors that provide guidance and support teams in executing their tasks, including ''leadership style'' and ''formalization,'' may strongly impact sourcing team effectiveness. Sourcing team specific empirical evidence is lacking, however. The team leader's role is believed to be critical (Hult, Ferrell, Hurley, & Giunipero, 2000; Trent, 1996). Keller (2006) studied the impact of the two leadership styles ''transformational leadership'' and ''initiating structure'' on team performance. The characteristics of transformational leadership include intellectual stimulation, charisma, and an eye for individual team member needs and interests. Initiating structure, on the other hand,

relates to how a leader defines, directs, and structures the roles and activities of subordinates toward the attainment of a team's goals. Initiating structure as a leadership style resembles transactional leadership, in which the focus lies on control, standardization, formalization, and efficiency (Bass, 1985). The results of Hult et al. (2000) point towards transformational leadership as the most effective style in a purchasing context, since transformational leadership allows for developing a shared vision with internal users as well as external suppliers. Keller (2006) suggests that transformational leadership is more effective when knowledge from outside the team is required; initiating structure, however, is more effective when the required information largely resides within the team.

Both transformational leadership and initiating structure may enhance sourcing team success. The transformational leadership style allows for effective communication among team members, with internal stakeholders, and with suppliers (Hult et al., 2000; Jassawalla & Sashittal, 2000; Lowe, Kroeck, & Sivasubramaniam, 1996). At the same time, conducting high quality analyses by sourcing teams requires structured roles and activities, and a leader who initiates structure well (Keller, 2006). Moreover, creating trust, cohesion, and a clear vision in sourcing teams requires both types of leadership style (Kayworth & Leidner, 2001). Therefore, we hypothesize a positive relationship with sourcing team effectiveness for both leadership styles.

Hypothesis 5. Transformational leadership relates positively with sourcing team effectiveness.

Hypothesis 6. Initiating structure relates positively with sourcing team effectiveness.

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

Hypothesis 7. Formalization relates positively with sourcing team effectiveness.

Team composition

Purchasing's increasing strategic importance requires integration with other functions (Van Weele & Rozemeijer, 1996). Besides expertise on purchasing, a sourcing team may need expertise from the fields of research and development, quality, engineering, finance, or other functional areas, depending on the specific sourcing category. Teams' ability to combine knowledge and skills from people with

different functional backgrounds is an important driver for moving from a functional approach in purchasing to a cross-functional team approach. But cross-functionality can also create team stress, damaging cohesiveness (Keller, 2001). Nevertheless, given their tasks, sourcing teams need knowledge from diverse functional backgrounds to perform effectively, which favors cross-functional team composition (Hensley, Irani, & Satpathy, 2003; Monczka et al., 2006). Functional diversity in a team enhances communication across functional boundaries and increases the availability and number of sources of information, and is, therefore, expected to result in higher team effectiveness.

Hypothesis 8. Functional diversity relates positively with sourcing team effectiveness.

Mediating team processes

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

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

Communication is another likely mediator for sourcing team effectiveness, as it appears essential for all sorts of teams (Cohen & Bailey, 1997; Hoegl & Gemuenden, 2001). As sourcing is a boundary spanning, cross-functional activity and team effectiveness relies heavily on the effectiveness of communication both within and across team boundaries. Sourcing teams need to communicate extensively with internal stakeholders outside the team and with suppliers. Effective communication enhances gathering relevant information and knowledge, sharing information and knowledge within the team, and follow up activities after team decisions. Communication, therefore, seems especially import for sourcing team success.

Unlike effort, effective communication cannot be secured by the implementation of a (team-based) reward system, nor will it thrive through the implementation of formalized rules and procedures. Effective communication requires that team members are enabled to set up and maintain effective channels of communication both within the team and with important stakeholders outside the team. Therefore, we suggest internal authority, functional diversity, and transformational leadership as likely antecedents of communication. Internal authority, for example, implies that the team coordinates all tasks and activities autonomously, which offers the team the opportunity to select ways of working that enhance their *internal* communication in particular. Functional diversity, on the other hand, offers access to more stakeholder groups, which likely enhances *external* communication. Finally, transformational leadership is expected to enhance both internal and external communication. A transformational leader is more communicative in general, and stimulates members to actively participate in decision making and to discuss issues within the team (Lowe et al., 1996), which will likely improve internal communication. The open and inviting style of the transformational leaders, however, may also enhance external communication. Not only would team members feel empowered to go beyond team boundaries, the shared decision making may also raise the awareness of the need to do so. Therefore, our final hypotheses read as follows.

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

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

Methods

Sample and procedure

Sourcing team members, leaders, and managers in twelve large West-European multinational companies (headquartered in Sweden, Germany, Finland, and the Netherlands) took part in a cross-sectional survey to empirically test the conceptual framework in Figure 1. Participants were 392 individuals from 64 teams at companies from a wide range of industries, including the construction, manufacturing, telecom, medical service and banking industries. Company sizes ranged from 17,000 to 95,000 employees, all having a billion plus revenues (EUR), although we also recruited some teams from smaller, specialized company units. Companies in the sample were participating in one of two existing purchasing roundtables (one in the Netherlands and one in Sweden) and were selected for having installed centralized sourcing teams. All participants operated in team-based structures (rather than a traditional sourcing department) with varying degrees of cross-functionality.

After having been informed about the research by their own team leader, respondents received a personalized invitation through e-mail that gave access to an online questionnaire. In case of no response, or an incomplete response, the respondent received two reminders. Assured anonymity of respondents and non-disclosure of team scores

encouraged a ''high'' (Baruch, 1999; Cook, Heath, & Thompson, 2000) overall response rate of 70.2%. Eventually, 193 team members, 38 team leaders and 44 managers, referring to 59 teams, completed a total of 275 questionnaires (see Table 1). The average number of completed questionnaires per team was 4.7, with a minimum of one (in 10 teams) and a maximum of 14 respondents per team. Management ratings of team effectiveness were available for 32 of these 59 teams. Analyses involving management ratings were based on this smaller sample.

We discussed the study extensively in a roundtable meeting with purchasing executives from the participating companies to improve interpretation of results in consultation with experts from the field.

Measures

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

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

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

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

Validation and reliability

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

Sourcing team effectiveness was operationalized through items from two dimensions developed by Trent and Monczka (1994). However, the exploratory factor analysis showed that these items actually relate to three dimensions. The first two factors corresponded to the a priori dimensions ''general overall team effectiveness'' (GOTE) and ''supply base management effectiveness'' (SBME). However, the items relating to the ability to cooperate with others within the company, but outside the team, represented a third unique factor. Both literature and practitioners suggest that sourcing team success depends highly on a team's ability to cooperate effectively with people external to the team (Hoegl, Weinkauf, & Gemuenden, 2004; Hult & Ferrell, 1997; Senior & Swailes, 2007). Without effective cooperation with the wider organization, a team's output will not have an effect on company performance, due to a lack of alignment with strategy, poor implementation, and low compliance levels (Senior & Swailes, 2007). Therefore, we labeled this third dimension ''external cooperation effectiveness'' (ECE), and included it in further analyses. Cross-loadings of items suggested that best-in-class supplier selection and cost reductions related to both general overall team effectiveness and external cooperation effectiveness.

Table 1 Response rates.			
Group	Respondents contacted	Respondents who filled out the questionnaire completely	Response rate (%)
Team members	276	193	69.9
Team leaders	52	38	73.1
Team managers	64	44	68.8
Total	392	275	70.2

Table 2 CFA results.

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

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

Member rewards and team-based rewards appeared to load on the same factor, with positive and negative loadings, respectively. These statistical results suggested that member rewards and team-based rewards refer to the same latent factor. A close examination of the items (as advised by Hair et al., 2006) convinced us that there is a conceptual distinction between the measures that should not be discarded. More specifically, the items of the member rewards factor measure the extent to which *all* members receive a reward for their work on the team. The items of the team-based rewards factor measure whether rewards are based on individual contributions to the team (in comparison to other members' contributions) or on the accomplishments of the team as a whole. Thus, whereas the second factor implies within-team competition for rewards, the first does not. Also, the correlation between the two measures was not so strong ($r = .41$, $p < .01$) as to suggest a single construct. Consequently, team processes and outcomes may be affected differently by the two factors. Because a combined measure may obscure such effects, we considered it important to maintain the distinction between the two aspects of rewards (i.e., whether team members are rewarded and the basis for their rewards) in subsequent analyses.

The results showed some Cronbach's alphas to be just below .7 (see Table 3). These reliability scores are acceptable since prior research successfully validated these scales (Keller, 2001; Kirkman, Rosen, Tesluk, & Gibson, 2004) or, in case of external cooperation effectiveness, because of the scale's exploratory nature (Robinson, Shaver, & Wrightsman, 1991).

Secondly, we conducted confirmatory factor analyses (CFA) to test for discriminant validity. All CFA models included team processes and output factors, and CFA results can be found in Table 2. CFA results for the employee involvement context showed a good fit (Hair et al., 2006; Hu & Bentler, 1999). Some of the indices for the organizational context model showed a moderate fit (Hair et al.,

2006; Hu & Bentler, 1999; Markland, 2007). This concerned indices affected negatively by scales including a large number of items, here the scale for transformational leadership (Kenny & McCoach, 2003). However, we considered the scores acceptable given the fact that the respective scales were tested extensively in prior research with much larger and more diverse samples than ours, and because the retained items showed clear dimensionality in the exploratory factor analysis that we conducted.

Data preparation and data analyses

The unit of analysis was the team, conforming to the study hypotheses and the operationalization of the study variables. Scales in this study referred to attributes of the team, not individuals; and management ratings also referred specifically to the team. Analysis of variance results confirmed that the variance between teams was greater than the variance within teams, justifying aggregation (Danserau & Yammarino, 2000; James, 1982). Average $r_{wg(j)}$ values, all above .5, were satisfactory, but show relatively high levels of disagreement in a substantial number of teams (James, Demaree, & Wolf, 1984). The average team score on the construct served as a replacement variable in further analyses. Table 3 shows the correlations between all constructs.

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

Table 3 Means, standard deviations and correlation table.

	Mean	Std. dev.	N	1	2	3	4	S	6	7	8	9	10	11	12	13	14	15	16	17
1. Member regards	3.80	1.17	59	.75																
2. Team-based rewards	4.73	0.94	59	− 41**	.83															
3. Internal authority	5.15	0.68	59	.13	.00	.66														
4. External authority	4 32	1.19	59	.06	−.20	.02	na													
5. Transformational leadership	4.56	0.93	58	.04	−.28*	.34**	.20	.96												
G. Initiating structure	4.72	0.82	58	−.02	−.17	.11	.12	.63**	.75											
7. Formalization	4.22	0.84	59	.05	−.30.*	.09	⁻.22	.35**	.38**	.66										
8. Functional diversity	3.64	1.85	36	.12	−.22	.04	.29	.06	−.34*	.06	na									
9. Effort	3 96	1 02	59	.34**	−.10	.34**	.17	.32*	−.17	.19	.43**	.82								
10. Internal communication	4.63	0.97	59	.04	−.13	.42**	.10	.40**	.30*	.30*	−.06	.53**	na							
11. External communication	4.51	0.78	59	.08	−.11	.30*	−.01	.40**	.16	.47**	.45**	.53**	.51**	.65						
1 2. GOTE	5.06	0.68	59	.20	−.11	.46**	.15	.54**	.48**	.45**	.07	.56**	.62**	.45**	.86					
1 3. GOTE†	4.86	1.11	32	.14	−.11	.22	.17	.22	.36*	−.04	−.36	−.02	.30	.26	.28	.86				
14. SBME	4.71	0.67	59	.10	−.21	.41**	.31*	43**	25	.15	.43**	.48**	.43**	.38**	.67**	.12	.88			
1 5. SBME†	4.99	0.95	32	.30	−.22	.05	.05	.16	.18	.12	−.21	−.13	.08	−.01	.04	.72**	−.02	.88		
16. ECE	5.23	0.61	59	.34**	−0.7	.57**	−.03	.35**	.20	.32*	.22	.44**	.44**	.48**	.68**	.25	.49**	.12	.68	
17. ECE†	4.99	1.02	32	.20	−.09	.16	−.08	−.03	.25	−.00	−.51*	−.20	.18	−.02	.11	.81**	−.10	.68**	.02	.68

(Alpha coefficients are included on the diagonal).
GOTE: General over team effectiveness.
SNME: Supply base management effectiveness.
ECE: External cooperation effectiveness.
*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
†Management ratings.

effects of each input factor on the three team processes and on each dimension of effectiveness. These tests involved the ordinary least squares procedure.

Results

Table 4 shows an overview of the regression results; Table 5 offers a graphical overview of the results of the hypothesis tests.

The employee involvement context covered empowerment and appreciation. Member rewards did not show a significant total effect on either general overall team effectiveness or supply base management effectiveness, but related significantly to external cooperation effectiveness ($b = .18$, $p < .01$), implying support for H_1. Team-based rewards failed to show any significant relationship with team outcomes. Hence, the findings fail to support H_2. Internal authority showed a significant total effect on all three dimensions of sourcing team effectiveness (GOTE: $b = .46$; SBME: $b = .40$; and ECE: $b = .51$, all $p < .01$), supporting H_3. External authority, however, only showed a significant positive effect on supply base management effectiveness ($b = .18$, $p < .02$). This positive effect supports H_4.

The results of the organizational context factors, referring to the guidance that teams receive, indicated that transformational leadership had a significant positive impact on all three dimensions of team effectiveness (GOTE: $b = .27$, $p < .01$; SBME: $b = .31$, $p < .01$; and ECE: $b = .23$, $p < .03$), supporting H_5. Initiating structure by the leader showed a significant positive effect on management ratings of external cooperation effectiveness ($b = .58$, $p < .04$), implying support for H_6. Formalization appeared to be positively and significantly related to general overall team effectiveness ($b = .36$, $p < .01$) and external cooperation effectiveness ($b = .23$, $p < .02$). These findings imply support for H_7.

We assessed the effect of different team compositions in terms of cross-functionality as proposed in H_8. The total effect of functional diversity on supply base management effectiveness was positive and significant ($b = .15$, $p < .01$). However, the total effect of functional diversity on management ratings of external cooperation effectiveness was negative and significant ($b = -.23$, $p < .02$). This statistical analysis neither confirms nor disconfirms H_8.

Finally, results showed to what extent team processes mediate the effects of the input factors as hypothesized in H_9, H_{10}, and H_{11}. In accordance with H_9, effort mediated the effects of the input factors internal authority (effect on effort: $b = .51$, $p < .01$; effect of effort on GOTE: $b = .18$, $p < .05$; effect of effort on SBME: $b = .18$, $p < .05$) and transformational leadership (effect on effort: $b = .11$, $p < .05$; effect of effort on GOTE: $b = .11$, $p < .05$). Moreover, effort appeared to mediate the relationship between functional diversity and supply base management effectiveness (effect on effort: $b = .21$, $p < .01$; effect of effort on SBME: $b = .40$, $p < .01$). H_9 did not receive support for the reward structure. Although member rewards significantly impacted effort ($b = .30$, $p < .01$), the results showed no significant total effect of member rewards on general overall team effectiveness ($b = .12$) or supply base management effectiveness ($b = .06$), and thus mediation cannot occur.

Internal communication mediated the effects of internal authority (effect on internal communication: $b = .60$, $p < .01$; effect of internal communication on GOTE: $b = .25$, $p < .01$), transformational leadership (effect on internal communication: $b = .36$, $p < .05$; effect of internal communication on GOTE: $b = .17$, $p < .05$), and formalization (effect on internal communication: $b = .34$, $p < .05$; effect of internal communication on GOTE: $b = .27$, $p < .01$). Consequently, H_{10} receives full support. The results partially support H_{11} by showing a mediating effect of external communication for transformational leadership (effect on external communication: $b = .40$, $p < .01$; effect of external communication on GOTE: $b = .20$, $p < .01$; effect of external communication on ECE: $b = .38$, $p < .01$). The findings do not support a mediating effect on the relationship between functional diversity and team effectiveness as H_{11} predicts. Though functional diversity resulted in more external communication, a significant total effect to support mediation is lacking. Mediation by external communication occurred for internal authority (effect on external communication: $b = .34$, $p < .05$; effect of external communication on ECE: $b = .20$, $p < .05$).

Discussion

Increasingly, organizations are moving toward team-based structures for organizing company procurement activities. Purchasing professionals work alongside representatives from other functional departments to ensure purchasing's value-added contribution to business success. However, due to a lack of sourcing-specific team research little is known about what determines the success of sourcing teams. The aim of the present study was to identify critical success factors for sourcing teams and provide insight into relationships between these factors, team processes, and specific dimensions of sourcing team effectiveness. The study's findings offer some important insights for theory and practice.

Theoretical insights

First, our initial analyses revealed that sourcing team effectiveness is a three-dimensional construct rather than the two-dimensional construct described in earlier research. Besides general overall team effectiveness and supply base management effectiveness, the ability of sourcing teams to cooperate effectively with internal stakeholders appeared to be a unique and critical dimension of sourcing team effectiveness. Traditionally, the emphasis in supply chain management is placed on building relations with outside suppliers and less emphasis is placed on the collaboration with internal users (Bryde, 2005; Hult et al., 2000). The cooperation with the internal stakeholders, however, is of critical importance for effective supplier management in a time in which organizations are much more dependent on suppliers (Hult, 1998). Whereas building strategic relationships with suppliers supports a company's innovativeness through the supply base and general team effectiveness allows the team to deliver a good solution efficiently, external cooperation effectiveness assures a certain level of influence of the purchasing function to create alignment

Table 4 Regression results.

X	Y	X-effort	X-internal comm.	X-external comm.	Direct effect	Total effect	Adj. R2
Member rewards		.30**	.03	.05			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.17	.30**	.07	.05	.12	.43
	GOTE†	−.43	.40	.48	.23	.16	.08
	SBME	.21*	.14	.09	−.01	.06	.23
	SBME†	−.29	.27	.02	.31	.28	.02
	ECE	.03	.15	.24*	.15*	**.18****	.33
	ECE†	−.44	.53	−.11	.25	.20	.10
Team-based rewards		−.11	−.14	−.09			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.20*	.29**	.07	−.01	−.08	.43
	GOTE†	−.25	−.06	.03	−.27	−.16	.07
	SBME	.20*	.14	.09	−.10	−.15	.25
	SBME†	−.33	.22	.09	−.35	−.28	−.02
	ECE	.11	.12	.22	.00	−.05	.25
	ECE†	−.45	.50	−.09	−.20	−.12	.06
Internal authority		.51**	.60**	.34*			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	**.18***	**.25****	.06	.20	**.46****	.46
	GOTE†	−.40	.36	.40	.29	.43	.05
	SBME	**.18***	.09	.08	.22	**.40****	.27
	SBME†	−.24	.23	−.05	.10	.09	−.09
	ECE	.07	.04	.20*	**.38****	**.51****	.41
	ECE†	−.41	.49	−.20	.30	.28	.06
External authority		.15	.08	−.00			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.19*	.29**	.07	.03	.08	.43
	GOTE†	−.43	.39	.36	.14	.17	.05
	SBME	.17	.13	.13	.14*	**.18***	.29
	SBME†	−.27	.25	−.09	.10	.04	−.08
	ECE	.12	.12	.21	−.05	−.02	.26
	ECE†	−.39	.52	−.15	−.01	−.06	.03
Transfor-mational leadership		.37*	.36*	.40**			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	**.11***	**.17***	**.20***	.09	**.27****	.52
	GOTE†	−.49	.06	.73	−.10	−.09	.13
	SBME	.09	.04	.24	.17	**.31****	.27
	SBME†	−.35	.18	−.04	.26	.07	−.07
	ECE	.01	.04	**.38****	.07	**.23***	.29
	ECE†	−.39	.25	.13	.29	−.43	.09
Initiating structure		−.06	.09	−.13			
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.11	.17*	.20	.20*	.18	.52
	GOTE†	−.49	.06	.73	.54	.49	.13
	SBME	.09	.04	.24	.00	−.03	.27
	SBME†	−.35	.18	−.04	.03	.13	−.07
	ECE	.01	.04	**.38****	.02	−.03	.29
	ECE†	−.39	.25	.13	.49	**.58***	.09

(continued on next page)

Table 4 (*continued*)

X	Y						
Formalization		X-effort .23	X-internal comm. .34*	X-external comm. .43**	Direct effect	Total effect	Adj. R2
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.23**	.27**	−.06	**.24****	**.36****	.50
	GOTE†	−.35	.48	.35	−.20	−.06	.05
	SBME	.20*	.15	.10	−.02	.12	.23
	SBME†	−.27	.16	.05	.18	.16	−.08
	ECE	.12	.11	.17	.09	**.23***	.26
	ECE†	−.37	.57	−.21	−.11	−.00	.04
Functional diversity		X-effort .21**	X-internal comm. −.03	X-external comm. .15**	Direct effect	Total effect	Adj. R2
		Effort-Y	Internal comm.-Y	External comm.-Y			
	GOTE	.38**	.31*	.11	−.06	.03	.52
	GOTE†	.24	−.52	1.73**	−.53**	−.20	.45
	SBME	**.40****	.06	.05	.06	**.15****	.47
	SBME†	.22	−.34	.73	−.26	−.10	−.03
	ECE	.28*	.11	.09	−.00	.07	.28
	ECE†	−.02	−.04	.52	−.32*	**−.23***	.18

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

† Management rating.

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

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

Table 5 Hypotheses tests results.

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

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

with key business functions and divisions (Giunipero, Hand-field, & Eltantawy, 2006; Handfield et al., 2009), which is crucial for contract compliance. Indeed, this supports the view that the buying center, as described in Webster and Wind's (1972) model for organizational buying behavior, does not just include the members of the sourcing team,

but anyone who influences the sourcing decision. Effective collaboration between those influencers (including business managers and technical experts) and the team is essential to create value for the buying company (Cova & Salle, 2008; Hult, 1998). Cross-business, cross-functional teams replace traditional purchasing departments in order to build stronger ties within the organization, and our study confirms that this ability is a distinct dimension for successful sourcing performance.

Second, recognizing multiple dimensions of sourcing team success opens the possibility that different success factors drive different team outcomes (Scott-Young & Samson, 2008; Senior & Swailes, 2007), which is exactly what we found. Internal authority and transformational leadership were the only two factors that showed positive relationships with all three dimensions of sourcing team effectiveness; all other input factors affected some specific dimensions of sourcing team effectiveness. That is, besides the effect of internal authority and transformation leadership, general overall team effectiveness was positively related to formalization, supply base management efficacy was positively related to external authority and functional diversity, and finally, external cooperation effectiveness was positively related to member rewards, initiating structure, and formalization. Moreover, the suggested mediating mechanisms of effort, internal communication, and external communication all played a role in these relationships. A closer examination of the specific findings reveals some interesting patterns.

Internal authority proved to be the strongest predictor for all three dimensions of sourcing team effectiveness, with effects being mediated by enhanced internal communication and increased member efforts. Different from traditional purchasing departments, sourcing teams represent knowledge from multiple backgrounds, which allows these teams to be more self-managing than more traditional structures (Johnson et al., 2002). Offering team members autonomy in their daily practices thus pays off, not just in terms of optimizing internal team dynamics, but also in terms of building strategic relationships with suppliers as well as internal stakeholders. Moreover, external authority related positively to supply base management effectiveness, which confirms earlier findings that teams become less effective in closing deals when managers attempt to overrule final team decisions (Holland et al., 2000; Trent & Monczka, 1994). The beneficial effects of team autonomy are also reflected in the findings that sourcing teams benefitted from transformational leadership on all effectiveness dimensions as it enhanced internal and external communication, and stimulated team member effort. Transformational leadership is an inviting, participative style of leadership in which a communicative leader challenges team members with high performance standards, while allowing them to find their own way of making this work (Keller, 2006). All of these results point towards the importance of devolving authority to teams, which has been shown to allow for greater flexibility, better collaboration, and more efficient and accurate knowledge exchange (Cummings & Cross, 2003).

However, notwithstanding the importance of team empowerment, structure and formalization also emerged as important influences on sourcing team effectiveness.

Interestingly, in the perception of the managers it is a leader's capability to initiate structure that significantly affects the team's ability to cooperate effectively externally. Moreover, formalization was perceived to improve general overall team effectiveness as well as external cooperation effectiveness. Roundtable participants indicated that clear procedures and structured leadership reduce ambiguity around teams' tasks, responsibilities and mandate, resulting in increased accountability and, hence, better team performance. This is in line with earlier research showing that clear procedures create support in organizations for team decisions (Andrews, 1995) and that formalization also improves cross-functional relationships (Pinto et al., 1993). Thus, initiating structure and formalizing sourcing processes seem particularly relevant when a team's recommendations must be implemented and followed up by other departments in the organization.

Regarding team composition, the functional diversity factor generated some interesting results. Functional diversity was shown to relate positively with supply base management effectiveness. Both effort and external communication improved as a result of higher diversity, and team members and leaders perceived their teams' performance to increase due to the representation of knowledge and skills from different backgrounds. The positive effect of functional diversity on effort may spring from a team's increased perception of the strategic importance and meaning of its work when managers from multiple departments allocate resources to the team. At the same time, though, there was a negative relationship between functional diversity and management ratings of external cooperation effectiveness. Apparently, according to the purchasing managers involved in our study, the representation of more functional backgrounds in a sourcing team decreases its ability to cooperate effectively with others external to the team. In the roundtable meeting, a number of explanations were raised for these findings. First, the level of functional diversity can reflect the complexity of the sourced product or service, serving in effect as a proxy for likelihood of success. Second, when the team represents knowledge from more functional backgrounds, different viewpoints and interests and practical limitations will make both team and task management more difficult, as most practitioners would admit. Third, when conflicts arise across functional boundaries, these conflicts often escalate to management. Senior managers are therefore more likely to encounter issues with functionally diverse teams. At least these findings suggest that, while functional integration seems a necessity for further development of the purchasing function (Reinecke, Spiller, & Ungerman, 2007; Zheng et al., 2007), purchasing managers tend to perceive this integration as a troublesome process.

Finally, member rewards were found to have a positive influence on the team's effort and related positively to external cooperation effectiveness. However, with an average score of 3.8 on a 7-point Likert scale the result regarding member rewards indicated that, within the companies in this study's sample, not all sourcing team members received rewards. This may also explain why team-based rewards did not show a significant impact on any of the effectiveness dimensions. Clearly, team-based rewards may fail to have the desired (and expected) positive effects when the reward system is not 'all-inclusive' (i.e., when not all team mem-

bers get the team-based reward). In the roundtable meeting, purchasing managers indicated that their influence on the reward structures for team members from outside their own departments is indeed very limited.

Practical implications

This study clearly carries practical relevance for those companies that have initiated sourcing teams with high expectations, only to face challenges in implementation (Englyst et al., 2008; Johnson & Leenders, 2004). A clear insight from the present study is that sourcing team effectiveness requires proficiency in terms of general overall teamwork processes, supply base management, and external cooperation. Improving sourcing team effectiveness, therefore, requires an assessment of the current situation on all three dimensions as the basis for crafting managerial interventions toward enhanced sourcing performance. The measures used in the present study will enable managers to assess the performance of their sourcing teams.

Especially when team recommendations must be implemented and followed up by other departments in the organization, the findings point toward a seemingly contradictory importance of both team autonomy and formalization in the execution of the purchasing function in teams. On the one hand, sourcing teams require a clear mandate to develop and execute a sourcing strategy, a so-called license to act. On the other hand, managers should provide sourcing teams with clarity regarding roles and responsibilities through formalized sourcing procedures. Next, managers should appoint team leaders able to clearly structure tasks within the team.

Overcoming potential ambiguity seems particularly important for teams with high levels of functional diversity. Although increased functional integration seems essential for further supply base development (i.e., getting suppliers involved in quality improvement, lead-time reduction and product and process innovation), managers indicated that it may be difficult to solve the inherent differences of interest and opinions in functionally diverse teams and to secure compliance with sourcing decisions. Hence, close monitoring of the effects of team diversity on the external cooperation dimension of sourcing team effectiveness specifically seems warranted when team composition gets more diverse.

Finally, our study indicates that it would be desirable for purchasing managers to get more influence on the reward structures of team members from outside the purchasing department. Rewards were found to have a positive influence on sourcing team effectiveness, but a lack of control over external members' rewards impedes a fair and transparent reward system for the entire team, which may ultimately bring down team morale. This points towards the need to include metrics measuring members' contributions to sourcing teams to facilitate performance evaluations.

Study limitations and suggestions for future research

This research has a number of limitations. Organizational cultures in multinational companies reflect, at least partly, the national values of a company's home country (Hofstede, 1982). The multinational companies under study here are all headquartered in Northern Europe, and the majority of the globally operating managers and team members came from Northern Europe countries characterized by low power distance cultures. Previous research has indicated that empowerment may be beneficial in low power distance cultures (e.g., the USA and Northern Europe), but not in high power distance cultures (e.g., China and Russia), since professionals from these cultures may not possess the background and ability to perform well when experiencing an empowerment intervention (Eylon & Au, 1999). So, our finding that internal authority is a key success factor for all three effectiveness dimensions may not be generalizable to every cultural setting.

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

The metrics for all effectiveness dimensions were attitudinal scales, so common method bias was not cancelled out. Objective measures of team success across companies and industries are, unfortunately, difficult to define and to obtain. This is an issue not only for researchers, but also for the purchasing organizations involved, who find it difficult to develop fair performance indicators for their sourcing teams. The management ratings in this study counterbalance this limitation somewhat by providing more objective insights from a different source. Of course, the cross-sectional nature of our research design prevents us from deriving hard conclusions about causal directions.

Suggestions for further research include longitudinal studies in the area of sourcing team effectiveness. The mechanisms through which input factors affect team performance in executing sourcing tasks, particularly a team's external cooperation effectiveness, constitute an area of interest for further qualitative research. Also, the contrary perceptions by teams and their managers with respect to the effectiveness of functional diversity are another interesting area for future research. More insight into this phenomenon seems critical for effective sourcing team management. Finally, it is evident that the optimization of reward structures for sourcing teams remains a research need that future research should inform.

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

Appendix.

Employee involvement context
Member rewards (scale developed for present study)
 1. All team members are rewarded for their work on the team.
 2. There are no team members on our team that are not rewarded/recognized for their work on the team.

Team-based rewards (scale adapted from Sarin & Mahajan, 2001)
 1. The best performers on our team receive extra rewards.[R]
 2. *All team members are rewarded equally for their work on the team, independent of their individual contribution.*
 3. The rewards team members receive for working on this team are proportional to their contributions to the team's performance.[R]
 4. Members who perform well on our team are individually rewarded/recognized in the team for their work.[R]

Internal authority (scale adapted from Kirkman, Tesulk, et al., 2004)
 1. My team can select different ways to do the team's work.
 2. My team determines as a team how things are done in the team.
 3. *My team makes its own choices without being told by management.*

External authority (scale adapted from Trent & Monczka, 1994)
 1. My team is able to make sourcing decisions without the approval of others external to the team.

Organizational context
Transformational leadership (scale adapted from Keller, 2006)
   1. Our team leader commands respect from everyone.
   2. Our team leader is a model for me to follow.
   3. In my mind, our team leader is a symbol of success and accomplishment.
   4. Our team leader has provided me with new ways of looking at things which used to be a puzzle for me.
   5. Our team leader is an inspiration to us.
   6. Our team leader makes me proud to be associated with him/her.
   7. Our team leader has a special gift of seeing what it is that really is important for me to consider.
   8. Our team leader's ideas have forced me to rethink some of my own ideas which I had never questioned before.
   9. Our team leader enables me to think about old problems in new ways.
   10. *Out team leader inspires loyalty to the organization.*
   11. Our team leader excites us with his/her visions of what we may be able to accomplish if we work together.
   12. Our team leader has a sense of mission which he/she transmits to me.
   13. Our team leader makes everyone around him/her enthusiastic about assignments.

Initiating structure (scale adapted from Keller, 2006)
 1. Our team leader asks that team members follow standard rules and regulations.
 2. Our team leader encourages the use of uniform procedures.
 3. Our team leader schedules the work to be done.
 4. Our team leader decides what shall be done and how it shall be done.
 5. *Our team leader maintains definite standards of performance.*
 6. *Our team leader assigns team member to particular tasks.*

Formalization (scale adapted from De Jong et al., 2001)
 1. Clear and planned goals and objectives are set for sourcing team performance by upper management.
 2. Sourcing performance rules and procedures are laid down in clear and understandable written agreements.

Team composition
Functional diversity (scale developed for present study)
 1. The number of functional backgrounds (e.g. purchasing, marketing, finance, engineering etc.) that are represented by the team members is equal to:

Team processes
Effort (scale adapted from Hoegl & Gemuenden, 2001)
 1. Every team member fully pushes the team's work.
 2. Every team member makes the team their highest priority.
 3. *My team puts much effort into the team's work.*
 4. *There are conflicts regarding the effort that team members put into the team's work.*

Internal communication (scale adapted from Keller, 2001)
 1. The amount of task-related communication within our team is high.

External communication (scale adapted from Keller, 2001)
 1. The amount of task-related communication outside our team but within our purchasing organization is high.
 2. The amount of task-related communication outside the purchasing organization but within the company is high.
 3. The amount of task-related communication outside the company is high.

Appendix (*continued*)

Sourcing team effectiveness
General overall team effectiveness (scale adapted from Trent & Monczka, 1994)
 1. The team has produced a large quantity or high amount of work.
 2. The team has produced high quality or high accuracy of work.
 3. The team's reputation for work excellence is high.
 4. The efficiency of the team's operations is high.
 5. The morale of the team's personnel is high.
 6. The team's ability to meet timing and task schedule targets is high.
 7. The team's ability to meet executive management's performance expectations is good.

Supply base management effectiveness (scale adapted from Trent & Monczka, 1994)
   1. *The team's ability to reduce purchased item costs is good.*
   2. The team's ability to improve purchased item quality is good.
   3. The team's ability to support the increased use of supplier technical abilities is good.
   4. The team's ability to support the achievement of new product performance targets is good.
   5. *The team's ability to achieve best-in-class supplier selection is good.*
   6. *The team's ability to improve supply base responsiveness is good.*
   7. The team's ability to provide access to new product and process technology before competitors have access to the technology is good.
   8. The team's ability to develop supplier performance capabilities is good.
   9. *The team's ability to achieve supply base optimization targets is good.*
  10. The team's ability to support early sourcing and supplier participation during product design is good.
  11. The team's ability to foster development of new technology by suppliers for company use is good.
  12. The team's ability to establish strategic relationships with suppliers is good.

External cooperation effectiveness (items adapted from Trent & Monczka, 1994)
 1. The team's ability to communicate and coordinate activities across functional boundaries is good.
 2. The team's ability to work with others outside the team is good.
 3. The team's ability to develop procurement strategies that directly support business unit strategies is good.

Note. Items in italics were dropped before the analyses.

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