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The effects of purchasing proactivity on value creation and supply risk reduction in sourcing projects: Implications for marketers' capabilities

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Abstract

In many organizations, the role of purchasing is in a transition from a reactive order taker, into a proactive and internally integrated business partner. Building on a Resource-Based View and Capability-Based View, this study explores how purchasing professionals' involvement and proactive efforts in sourcing processes affect sourcing project outcomes, in terms of both value creation and supply risk reduction. The authors gathered data on 112 sourcing projects from a large, private financial services company with in-depth and structured interviews with key stakeholders. A structural model deploying the research hypotheses was analyzed using the Partial Least Squares technique. The results reveal that, driven by early involvement of and responsibility granted to the purchasing professional, purchasing proactivity enhances value creation and supply risk reduction sourcing outcomes. Specifically, proactivity mediates the effect of purchasing's involvement on value creation.

This study empirically establishes the importance of purchasing proactivity, serving as critical capability of purchasing professionals. Following a dyadic logic, this impacts industrial marketers. More specifically, when purchasers build capabilities to show proactive behavior to enhance value creation and risk reduction, marketers need to develop capabilities to facilitate purchasers in their endeavors.

Keywords

Purchasing involvement; Purchasing proactivity; Sourcing project outcomes; Industrial marketing capabilities; Purchasing capabilities

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1. Introduction

Whereas once the purchasing department was mainly reactive and supportive, today it increasingly serves as a strategically involved and internally integrated business function that manages the supply base, as detailed in both academic (e.g., Paulraj et al. 2006; H. Schiele 2007) and managerial (e.g., van Weele 2010; Zimmermann and Foerstl 2014) purchasing and supply management (PSM) literature. Some researchers note the impact of this shift on both purchasing as a business discipline and firm performance (Hartmann et al. 2012; H. Schiele 2007; Zimmermann and Foerstl 2014). However, prior studies tend to limit purchasing's development in terms of cross-functional integration, talent management, supplier management, or control (Foerstl et al. 2013; H. Schiele 2007). Thereby, descriptions of the role of the purchasing department, as reflected by its involvement in the company's sourcing initiatives and purchasing processes, remain mostly conceptual in nature (Bals et al. 2009; Lakemond et al. 2001).

The involvement of the purchasing department in sourcing thus remains an underexplored field (Luzzini et al. 2015; Van Poucke et al. 2016), and academic interest appears rather limited with regard to how it impacts on, for instance, product development, process improvements, outsourcing decisions or service sourcing (Ellram and Tate 2015; Gonzalez-Zapatero et al. 2016). This important shortcoming of PSM research ignores the position of modern purchasing departments, namely, as interfaces between internal customers and the supply base (Luzzini et al. 2015; Wagner and Eggert 2016). Internal customers may be reluctant to involve purchasing professionals in sourcing, despite their potential contributions, especially in the early phases of the process (Bals et al. 2009; Ellram et al. 2007). The involvement of the purchasing department might reveal new opportunities in the external environment, improve purchase quality, reduce costs and lead time, increase the competitiveness of commercial deals, or enhance coordination (Ellram and Tate 2015; McGinnis and Vallopra 1999; J. J. Schiele 2005; Werr and Pemer 2007). Thus, we seek insights into the role of purchasing departments in sourcing processes.

In particular, we consider the level of proactivity of involved purchasing professional(s) (Freeman and Cavinato 1990). Firms need extensive knowledge of their supply markets and build capabilities to find the right suppliers (Modi and Mabert 2007). Today, purchasing professionals can make important contributions by updating both management and internal customers about

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(supply) market developments and participating in strategic planning (Foerstl et al. 2013; Tchokogué et al. 2017). Prior PSM literature notes the increasing importance of a proactive purchasing approach (Bowen et al. 2001; Carr and Pearson 2002; Smeltzer and Siferd 1998) but contains limited empirical research on proactive supply management (or purchasing proactivity) and its outcomes. In this study purchasing proactivity implies that purchasing professionals proactively identify and meet the latent needs of their internal customers during the project to provide value. This article on purchasing's role and capabilities also enables the identification of necessary capabilities for industrial marketers to satisfy their changing customers and build long standing relationships with today's purchasers. As such, there are linkages with the literature on customer relationship management (Ritter and Geersbro 2018), value-based selling (Töytäri and Rajala 2015) and boundary spanning capabilities (Zhang et al. 2015). What capabilities are needed in view of purchasers striving for value creation and risk management rather than primarily cost savings?

To address the increasing importance of purchasing's role, and specifically its capability of being proactive, provide empirical validation of the key concepts, and undertake quantitative approaches to test PSM-related hypotheses, we focus on the effects of purchasing involvement and proactivity on sourcing project outcomes. A cost focus, which has been considered as purchasing's primary contribution, is considered as too limited nowadays (Hartmann et al. 2012; Úbeda et al. 2015). As supply base managers, the purchasing department's efforts are increasingly deployed to improve quality, mobilize innovation and supplier know-how (i.e., value creation), and manage supplier performance (i.e., supply risk; Krause et al. 2001; Narasimhan and Das 2001). Accordingly, the authors focus on value creation and supply risk reduction as key sourcing project outcomes.

With this focus, the main research question is the following:

"What is the impact of purchasing proactivity on value creation and supply risk reduction within sourcing projects?" Thereby, we will study whether proactivity positively mediates the effect of involvement on value creation and supply risk reduction. We also want to reflect on the capabilities industrial marketers need when faced with purchasing professionals taking up proactive roles.

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With our quantitative research design, we explicate the importance of both purchasing involvement and proactivity for sourcing project success, building on a *Resource-Based View* (RBV) (Barney 1991) and *Capability-Based View* (Teece et al. 1997). These theories classically take an internal perspective on the firm. More specifically, the RBV views a firm as a set or bundle of resources (Wernerfelt 1984), such as assets, capabilities and knowledge, and builds on the idea that when these resources are valuable, rare, imperfectly imitable and non-substitutable, they are considered as sources of a sustained competitive advantage for that firm (Barney 1991). From a PSM perspective, these theories define the role of the purchasing department in the firm, and with that also its capabilities, experience, and knowledge as well as cross-functional collaboration with internal customers as critical resources for developing a sustained competitive advantage for the firm (Carr and Pearson 2002; Luzzini et al. 2015). From a marketing perspective, the authors build on studies that view a (proactive) market orientation and boundary spanning role as critical capabilities to generate superior performance (Day 1994; Narver et al. 2004).

In the next section, the authors elaborate on the constructs and literature background for this study, which provide the basis for the research hypotheses. After an explanation of the quantitative research design and method being utilized, the results of hypotheses tests are shown. Research findings, scholarly and managerial implications are presented with consequences for the capabilities of both purchasers and industrial marketers. Finally, limitations as well as suggestions for future research are formulated.

2. Background and hypotheses

To address the effects of purchasing involvement and proactivity on the outcomes of sourcing projects, in terms of value creation and supply risk reduction, a thorough review of literature on purchasing professionalism, purchasing and supplier involvement, and purchasing performance was undertaken. In many organizations, purchasing involvement depends on the freedom granted by budget owners (i.e., internal customers), such that it relates closely to the purchasing department's integration within the organization (Bals et al. 2009; Ellram and Tate 2015). Thus the level of purchasing involvement reflects the internal customer's degree of trust, expectations, and beliefs about the added value of purchasing (Ellegaard and Koch 2012; Werr and Pemer

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2007), which in turn stem from the internal customer's previous experiences (Ellram and Tate 2015). For this study, we investigate both the *scope* of purchasing involvement, the stage in the sourcing process from when the purchasing department becomes involved (i.e., earliness of purchasing involvement [EPI]), and the *depth* of purchasing involvement, i.e., the degree of responsibility granted to the purchaser. Thus purchasing responsibility can range from none over cooperative to complete responsibility for routine or nonroutine tasks (Pearson 1999).

In contrast with a reactive purchasing approach, whereby purchasers respond to requests from other organizational functions, proactive purchasing professionals attempt to anticipate and proactively identify and meet their internal customers' needs. In line with prior research into market orientations (Berghman et al. 2006; Day 1994; Narver et al. 2004), proactive behavior (Crant 2000), proactive (relational selling) strategies (Aragon-Correa and Sharma 2003), and proactive supply management (Bowen et al. 2001; Norrman and Jansson 2004; Smeltzer and Siferd 1998), the authors regard proactivity as a critical capability for and source of superior performance, such as defined by the RBV (Barney 1991). Purchasing proactivity should reinforce other functions' efforts to achieve value creation and risk reduction sourcing outcomes. The authors thus adopt the concept of a Proactive Market Orientation (PMO), which originated in marketing literature, to describe an anticipatory approach, characterized by the observation of market and technology trends and the development of innovative, creative value propositions (Berghman et al. 2006; Narver et al. 2004). In the current study with its "reverse marketing" context, purchasing serves its internal customers, so purchasing proactivity describes to what degree purchasing professionals proactively identify and meet the latent needs of their internal customers during the project to satisfy them.

Supply risk reduction and value creation are central sourcing outcomes. For this study, value creation includes innovation outcomes and supplier relationship value, in line with existing definitions in industrial marketing and purchasing contexts (Cheung et al. 2010; Hartmann et al. 2012). Supply risk reduction encompasses the risk related to the supplier relationship, as described by Hoffmann et al. (2013). We consider long-term supply continuity and operational supply risk reduction. The conceptual model is depicted in Figure 1.

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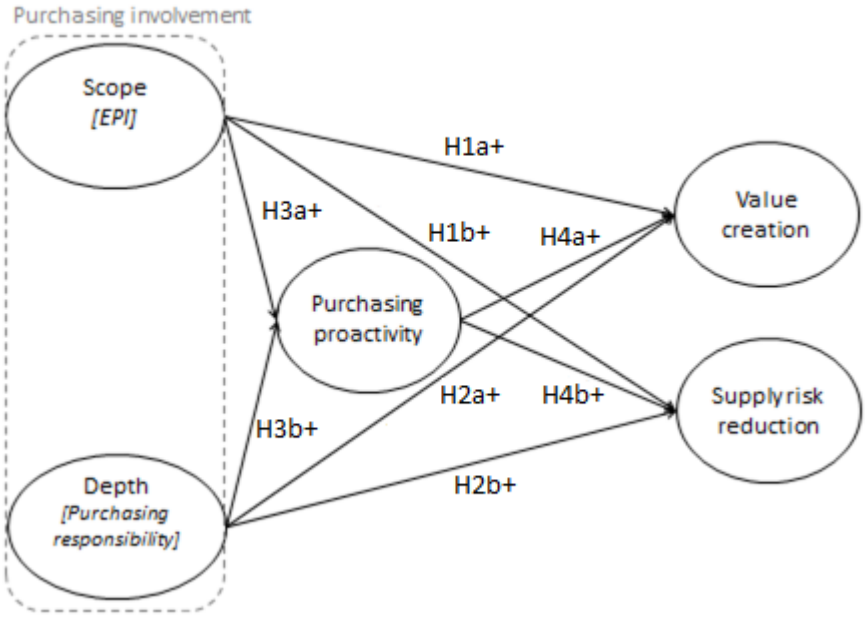
Figure 1: Conceptual model and hypotheses



Notes: EPI – Early Purchasing Involvement.

2.1 Direct effects of purchasing involvement

Extant literature cites purchasing's role, in terms of its involvement, as critical resource of the firm (Carr and Pearson 2002) because of its contributions and added value to sourcing projects. For example, involvement by purchasing professionals can enhance supplier involvement, commitment, and contributions (Carr and Pearson 2002; Ellram et al. 2007; McGinnis and Vallopra 1999), as well as improve the quality of the product/service being purchased, supply performance (and thus the supplier's service), or the supplier relationship (Bals et al. 2009). Purchasing responsibility and early involvement also can enhance risk management (Ellram et al. 2007; Smeltzer and Siferd 1998), in terms of supply security, availability, and on-time delivery (Bals et al. 2009; Carr and Pearson 2002); favorable commercial deals with new suppliers (Bals et al. 2009; McGinnis and Vallopra 1999); and general business and supply chain performance (Ellram and Tate 2015; Goh et al. 1999). Therefore, and to determine if the mediating effects of purchasing proactivity are full or partial (hypotheses 5 and 6), the authors test for direct relationships between purchasing involvement and the sourcing project outcomes:

Hypothesis 1: EPI positively affects (a) value creation and (b) supply risk reduction.

Hypothesis 2: Purchasing responsibility positively affects (a) value creation and (b) supply risk reduction.

2.2 Effects of purchasing involvement on purchasing proactivity

The involvement of the purchasing department with other functions implies a more mature purchasing profile (H. Schiele 2007; Werr and Pemer 2007) and a stronger internal integration, featuring alignment and collaboration with internal customers (Bals et al. 2009; Ellegaard and Koch 2012; Fredendall et al. 2005). This involvement enhances the mutual understanding between purchasing (understanding internal customers' needs) and internal customers (understanding purchasing procedures), as well as knowledge and information sharing (J. J. Schiele 2005; Werr and Pemer 2007). According to marketing literature, internal integration and cross-functional information sharing stimulate market orientations (Berghman et al. 2006; Van Egeren and O'Connor 1998).

Such involvement generally is not enforced though. As explained above, purchasing involvement depends on the freedom granted by budget owners (i.e., internal customers) and reflects the latter's degree of trust or belief in purchasing's added value (Ellram and Tate 2015; Werr and Pemer 2007). So purchasing professionals must engage their internal customers by proving added value to the decision-making process and as such ensure their involvement in future projects (Ellram and Tate 2015). Hence, active and early purchasing involvement (EPI) will create an incentive with the purchasing professional to perform well and to satisfy the internal customer's (latent) needs (Fredendall et al. 2005; Werr and Pemer 2007). In this respect, the valuable capabilities offered by a mature purchasing function (Luzzini et al. 2015; Paulraj et al. 2006; van Weele 2010) include better understanding of trends in supply markets, scouting potential suppliers, and the ability to engage suppliers effectively in business processes (Christiansen and Maltz 2002; Modi and Mabert 2007). Thus, its ability to influence internal stakeholders determines purchasing's proactive orientation within the project. Its potential to affect the sourcing decision increases when purchasing gets involved early (J. J. Schiele 2005; Werr and Pemer 2007). Analogously, if purchasing is actively involved and takes responsibility, it can share and use its expertise (Glock and Hochrein 2011), achieve greater degrees of freedom, and lead instead of following internal customers. The authors predict:

Hypothesis 3: (a) Early purchasing involvement and (b) purchasing responsibility positively affect purchasing proactivity.

2.3 Effects of purchasing proactivity on sourcing project outcomes

From a marketing perspective, Proactive Market Orientation (PMO) would entail identifying and satisfying the latent needs of your internal customer (Narver et al. 2004), by investigating and anticipating developments and trends in the customer's business market. Empirical marketing research affirms the effects of PMO on value creation for new product success (Lukas and Ferrell 2000; Narver et al. 2004) and customer value (Blocker et al. 2011; Nath et al. 2010), such that it constitutes a critical capability for suppliers to be able to satisfy customers and achieve sustainable competitive advantages (Narver et al. 2004; Nath et al. 2010). In PSM literature, proactivity is scarcely explored, but following marketing literature, we argue that proactive purchasing professionals, aiming to satisfy the latent needs of their internal customers, should be characterized by foresight, a long-term perspective, anticipation, and a willingness to initiate change (Carr 1996; Smeltzer and Siferd 1998). In contrast, reactive purchasing responds to internal customers in a traditional, transaction-oriented approach that focuses solely on cost savings and adversarial supplier relationships (Smeltzer and Siferd 1998). Therefore, purchasing proactivity implies a capability of purchasers for which they use their (market) knowledge and expertise effectively to add value and regard suppliers as valuable resources that need to be managed (Bowen et al. 2001; Carr 1996). Furthermore, purchasing proactivity relates to risk management (Smeltzer and Siferd 1998; Zsidisin et al. 2004). Extending these insights to the research context and linking purchasing proactivity, as critical capability, to both value creation and supply risk reduction, the authors predict:

Hypothesis 4: Purchasing proactivity positively affects (a) value creation and (b) supply risk reduction.

Because positive effects of purchasing involvement on purchasing proactivity (H3a and H3b) and positive influences of proactivity on value creation and risk reduction (H4a and H4b) are expected, the authors further hypothesize:

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Hypothesis 5: Purchasing proactivity positively mediates the relationship of EPI with (a) value creation and (b) supply risk reduction

Hypothesis 6: Purchasing proactivity positively mediates the relationship of purchasing responsibility with (a) value creation and (b) supply risk reduction

3. Research methods

3.1 Research design and data collection

To test the hypothesized relationships, the authors conducted a single firm case study, within a large financial institution in Europe, which the authors refer to as Alpha. Alpha is a leader in the Dutch financial services industry. Its 60% purchasing – turnover ratio has been stable for several years, and its annual purchasing spending exceeds 2 billion euros, mostly as indirect spending. The purchasing department maintains a centralized, category-driven structure. Budget authority (i.e., license to spend) remains with the internal customer or budget holder, so purchasing professionals serve as consultants to the entire tactical purchasing (here sourcing) process, which includes market orientation, specifications, supplier selection, negotiations, contracting, and aftercare. The order to pay comes from the internal customers, using the firm's extended system solutions (e.g., procurement catalogs, e-procurement). The internal customer is not restricted in its choice of whether and how to involve purchasing and has full decision power throughout the process.

For this study, the authors considered Alpha's sourcing projects completed between October 2012 and June 2014 registered in its vast sourcing database. The research team mainly collected project-level data through 21 structured interviews with an equal number of purchasers who were directly involved in 117 of the focal projects. Most of the interviewees were senior purchasing managers (85%) and had considerable experience both in the company (76%: > 6 years; 24%: 3 – 5 years) and in purchasing management in general (62%: > 10 years; 28%: 6 – 10 years; 10%: 3 – 5 years). Each interview lasted 60–150 minutes, depending on the number of projects the authors discussed. From the start, the interviewees were assured that all information they provided would be treated anonymously and with full confidentiality.

During these interviews, the authors used a newly developed questionnaire. In line with common techniques for scale development (Hensley 1999; Li et al. 2005), first constructs were defined. The authors conducted a literature study to check the contents of each construct before formulating sets of indicators. For the development of items, the authors used both academic and practical perspectives. When possible, the authors relied on existing and validated scales from previous research (see Appendix), with minor modifications to match the research objectives and context. Before the start of the data collection, the scales were reviewed by and pre-tested extensively (Hensley 1999), with the purchasing managers at the case company in order to develop good scales and keep questionnaire revisions to a minimum (Flynn et al. 1994). Scales were further developed and evaluated (Schwab 1980) by means of respectively exploratory factor analysis and confirmatory factor analysis.

The questionnaire used, was first developed in English. A Dutch version was generated by means of a back-translation process with three independent experts English- Dutch, which was then pre-tested (Douglas and Craig 2007).

During the interviews, the research team followed the questionnaire structure, with close-ended answers, and then discussed each question with the respondents in detail. The interviewees detailed why they assigned a specific score to each item, using explanations and examples. Structured interviews offer several advantages over a self-administered survey (Porter 2004; Sibbald et al. 1994), leading to greater accuracy and higher response rates.

To limit the potential impact of common method bias, the authors adopted several preventive procedures, such as extensive survey pre-testing, stressing the anonymous treating of answers, presenting the study in the case firm without sharing details on the research objectives and model, and conducting a Harman’s single-factor test (Podsakoff et al. 2003). The unrotated factor solution showed five factors, and the first factor only accounted for 28.3% of the variance. Thus, the observed variance could not be explained by a single underlying factor.

3.2 Variable operationalization

The project information (e.g., purchaser responsible, project spend, contract type, supplier information, purchasing category) and EPI data came from Alpha’s database. For the other constructs, the authors gathered data from structured interviews, with one questionnaire per

project. The Appendix describes the measurement operationalization for each construct. The *EPI* measure, reflecting the sourcing stage, upon which purchasing became involved, was a reverse-coded, ordinal scaled single-item, in line with empirical research on early supplier involvement (e.g., Walter 2003). For *purchasing responsibility*, Pearson's (1999) framework on levels of purchasing responsibility was used as basis. The level of *purchasing proactivity* manifested within a specific project, was measured with the widely validated scale of proactive market orientation (PMO) developed by Narver et al. (2004). For *value creation*, the research team combined several perspectives with respect to innovation outcomes (Lepak et al. 2007) and (buyer–seller) relationships (Cheung et al. 2010; Ulaga 2003) and sourcing effectiveness and success (Driedonks et al. 2014; Trent and Monczka 1994) to develop a new, integrated scale of value creation. The 10 items capture the degree of value creation according to two formative dimensions: supplier relationship value and innovation (from incremental to radical outcomes). Similarly, the scale for *supply risk reduction* was based on Hoffmann et al. (2013) framework. Ultimately, seven items and two formative factors (long-term supply continuity and operational supply risk reduction) were used to capture this construct.

Two control variables were used. To check whether purchasing category differentiation affected the construct relationships, since supply strategies and competitive priorities differ among purchasing categories (Kraljic 1983; Luzzini et al. 2012), we controlled whether the *strategic impact* of the sourcing project affected the construct relationships, based on Van Poucke et al. (2016). Similarly, because the level of *supply risk* may stimulate the efforts to reduce supply risk, we controlled for its effects, using the project's Kraljic matrix (1983) positioning.

3.3 Analytical approach

Following Hair et al.'s (2010) procedure for missing data analysis, five observations were deleted from further analysis because they were missing data on more than 50% of the variables and one or more of the dependent variables. Among the 112 remaining cases, 21% represented direct and 79% indirect spending, and 36% involved goods while 64% pertained to services purchased. The sample contained projects that appeared in all of Kraljic's (1983) purchasing categories (12% routine, 20% bottleneck, 50% leverage, 13% strategic items, 5% N.A.).

With an exploratory factor analysis (EFA) in SPSS, we examined each multi-item construct and sought to optimize the measurement model. It revealed a two-factor structure for both *value creation* and *supply risk reduction* (see Appendix). Selected items pertaining to proactivity, value creation, and supply risk reduction were excluded from further analysis..

To obtain unbiased estimates and facilitate considerations of the latent and indicator variables, a multivariate, second-generation estimation technique was required (Hair et al. 2013). We chose partial least squares structural equation modeling (PLS-SEM) over covariance-based SEM, for several reasons (Hair et al. 2011; Peng and Lai 2012). First, PLS can analyze hypotheses at an early stage of model development. Second, we have a relatively small sample size and a complex research model, with second-order constructs (i.e., value creation and supply risk reduction) and a mediator. Third, descriptive statistics revealed that some of the construct data did not meet the assumptions of a normal distribution and interval scale. Fourth, the research model contained a mix of single- and multi-item measures. Fifth, reflective scale items were combined with two formative second-order constructs. Finally, to check for potential measurement error due to a nested data structure (112 projects reported by 21 purchasers), we ran a fixed effects mixed model in R. This returned the same results as the PLS model in terms of significant relationships, at similar significance levels. Given the above advantages of PLS for the current study and the insufficient number of observations for the grouping variable (22 purchasers), it is not preferable to report the multilevel model (Hox 1998).

4. Results

4.1 Measurement model

For the test of the measurement model (see Appendix), we started with a first-order structural model, conducted a confirmatory factor analysis in SmartPLS, and followed Hair et al.'s (2011) guidelines to validate the reflective measurement model. All the indicators loaded sufficiently (>0.707) on their respective constructs and in accordance with the pattern revealed by the EFAs, at $p < 0.001$, which provided evidence of indicator reliability. The measured constructs also demonstrated internal consistency reliability, in that the composite reliability for each construct exceeded a 0.7 threshold. The Cronbach's Alpha values, as a conservative measure of

internal consistency, ranged between 0.813 and 0.92. All Average Variance Extracted (AVE) values exceeded the threshold of 0.5, demonstrating convergent validity. The square root of the AVE of each latent construct was higher than the construct's highest squared correlation with any other construct. Finally, all indicators' loadings were higher than all of their cross-loadings, in support of discriminant validity.

Next, we estimated the second-order, formative constructs, value creation and supply risk reduction, with a two-stage approach (Becker et al. 2012; Wetzels et al. 2009), as recommended by Ringle et al. (2012). Analogous to the first-order model, the reliability and validity measures were good for the reflective, latent variable purchasing proactivity. The variance inflation factors (VIF) for the two second-order formative latent variables were less than 5. In addition, an adequacy coefficient (R^2_a), indicating the proportion of variance extracted by the aggregate construct from its subdimensions, indicated values of 0.623 and 0.583 (cut-off > 0.5) for value creation and supply risk reduction, respectively. Thus, the validity of the formative subdimensions for the second-order latent constructs was confirmed (MacKenzie et al. 2011).

Table 1: Correlation matrix and Average Variance Extracted

	1	2	3	4	5	6	7
1. Early purchasing involvement							
2. Purchasing proactivity	-0.38	**0.88**					
3. Purchasing responsibility	-0.18	0.48					
4. Long-term supply continuity	-0.25	0.39	0.25	**0.85**			
5. Operational supply risk reduction	-0.40	0.38	0.42	0.51	**0.94**		
6. Innovation value	-0.02	0.54	0.12	0.36	0.35	**0.87**	
7. Supplier relationship value	-0.27	0.54	0.54	0.53	0.52	0.26	**0.94**

Notes: The square root of the average variance extracted is on the diagonal, in bold. The off-diagonal elements represent the correlations between constructs. Open spots are due to single-item measures.

4.2 Structural model

Control variables. To test the effects of the control variables, a first model was tested with only the control variables and they were furthermore also tested in the direct and indirect models (Table 1): Model 1 contained only the control and dependent variables, Model 2 represented the authors' hypothesized direct effects with control variables, and Model 3 was the hypothesized mediation model with control variables. Model 1 indicated that the control variables had significant effects on the risk reduction dependent variable. The variance explained (adjusted

R^2) by the control variables in value creation (1.1%) and risk reduction (1.3%) was very small, however (Hair et al. 2013).

Analysis of hypothesized direct relationships. The test of the direct effects involved the structural model with second-order constructs (Table 1) , using Hair et al.'s (2011) procedure and bootstrapping approach. The structural model 2 explained weak to moderate levels of variance in the endogenous variables; the adjusted R^2 values for supply risk reduction and value creation were 0.329 and 0.162, respectively, and all were significant at a 0.05 level. The low predictive power led us to calculate the Stone-Geisser Q-square as an additional model quality indicator. In the second-order constructs model, Q-square values greater than 0 were found for all endogenous constructs, suggesting acceptable predictive relevance. Finally, a check for multicollinearity by reviewing the VIFs (Hair et al. 2013) returned values well below the cut-off level of 5 for all predictors. Model 2 returned significant positive effects of purchasing responsibility on value creation (0.326) and supply risk reduction (0.416), both significant at the $p < 0.001$ level. Hence, both H2a and H2b were supported. EPI only had a marginally significant effect on supply risk reduction ($\beta = 0.156$; $p = 0.051$) and none on value creation. As such, we found no support for hypotheses 1a and 1b.

Analysis of hypothesized indirect relationships. In light of the results of the structural model test, the mediation effect of purchasing proactivity in the relationships between EPI and purchasing responsibility on the one hand and the outcome variables of value creation and risk reduction on the other forms the next step in the analysis. To this end, the traditional step-wise regression approach (Baron and Kenny 1986) and the non-parametric bootstrapping approach (Preacher and Hayes 2008; Shrout and Bolger 2002), which is increasingly employed recently in management and business research (Rungtusanatham et al. 2014), are reported. Following the traditional Baron & Kenny logic, model 2 is first shown with only the direct effects and then model 3 with the indirect effects included (Table 1). Following the bootstrapping approach, an assessment of the indirect effect size is also included in Model 3. Besides making the size and significance of the indirect effect explicit, the latter approach also allows the identification of indirect effects, even when the direct effect is non-significant (Zhao et al. 2010).

Model 3 shows the results for the mediated relationships. By including the mediation through purchasing proactivity, the model achieved satisfactory levels of explained variance for

value creation (Adj. $R^2 = 0.479$) and risk reduction (Adj. $R^2 = 0.378$). The mediator, purchasing proactivity, was explained for 23.6% and was significantly predicted by both EPI and purchasing responsibility, supporting hypotheses H3a (0.249 $p < 0.01$) and H3b (0.352, $p < 0.001$). In addition, significant positive effects of purchasing proactivity on the sourcing outcomes were observed, supporting H4a (0.654; $p < 0.001$) and H4b (0.253; $p < 0.01$). The indirect effects show that purchasing proactivity positively mediates the effects of EPI on value creation (indirect effect size = 0.164, $p < 0.01$), in support of H5a. In combination with the insignificant direct effect of EPI on value creation, this is an indication of indirect-only mediation. For the mediation between EPI and risk reduction (H5b), a marginally significant indirect effect (0.064, $p > 0.1$) was observed. Considering the marginally significant direct effect, the authors concluded that purchasing proactivity's mediation of the relationship between EPI and risk reduction was inconclusive.

For the mediating relationship of proactivity between purchasing responsibility and sourcing outcomes, a significant indirect effect between purchasing responsibility and value creation (0.232, $p < 0.001$) was observed, in support of H6a. As such, evidence is obtained of full mediation for value creation (Baron and Kenny 1986). Also, a significant indirect effect between purchasing responsibility and risk reduction (H6b; effect size = 0.090; $p < 0.05$) was observed. This was an indication of partial mediation, in support of hypothesis H6b, as the direct effect also remained significant.

Table 1: Bootstrapped structural path coefficients - Model comparison

	Model 1		Model 3				
	Value creation	**Risk reduction**	**Value creation**	**Risk reduction**	**Proactivity**	**Value creation**	**Risk reduction**
Controls							
Strategic impact	-0.106 (0.096)		-0.013 (0.917)	0.226*(0.025)		-0.025 (0.8087)	0.223* (0.024)
Supply risk		0.112 (0.101)	-0.189 (0.093)	-0.318*** (0.001)		-0.111 (0.252)	-0.289** (0.003)
Direct effects							
EPI			0.047 (0.666)	0.156† (0.051)	0.249** (0.007)	0.104 (0,141)	-0.096 (0.202)
Purch. responsibility			0.326*** (0.000)	0.416*** (0.000)	0.352*** (0.000)	0.091 (0.268)	0.327*** (0.000)
Purch. proactivity						0.654*** (0.000)	0.253** (0.005)
Indirect effects							
EPI						0.164** (0.008)	0.064† (0.061)
Purch. responsibility						0.232*** (0.001)	0.090* (0.022)
Adjusted R^2	0.011	0.013	0.162	0.329	0.236	0.479	0.378
ΔR^2			0.151	0.316		0.317	0.049

Notes: Standardized coefficients with standard errors in parentheses. Risk reduction = supply risk reduction; EPI = early purchasing involvement.
$^{+}$ $p < 0.1$; * $p < 0.05$; **$p < 0.01$; ***$p < 0.001$, all two-tailed.

5. Discussion and conclusions

5.1 Research findings and implications

With this study, the authors examine whether and how purchasing involvement and proactivity contribute to sourcing project outcomes, in terms of value creation and supply risk reduction.

The findings (Table 2) provide some notable insights. In particular, early involvement, responsibility, and proactivity by purchasing professionals are important drivers of purchasing project outcomes in terms of both supply risk reduction (R^2 = 0.295) and value creation (R^2 = 0.436). Both early involvement and responsibility drive the proactivity of the purchasers, which on its turn positively affects value creation and supply risk reduction outcomes. Purchasing proactivity fully mediates the effects of purchasing involvement on value creation. The authors observe direct and positive effects of purchasing responsibility on supply risk reduction too, with purchasing proactivity partially mediating this effect.

H1a	EPI → Value creation	Not confirmed
H1b	EPI → Supply risk reduction	Not confirmed
H2a	Purchasing responsibility → Value creation	Confirmed
H2b	Purchasing responsibility → Supply risk reduction	Confirmed
H3a	EPI → Purchasing proactivity	Confirmed
H3b	Purchasing responsibility → Purchasing proactivity	Confirmed
H4a	Purchasing proactivity → Value creation	Confirmed
H4b	Purchasing proactivity → Supply risk reduction	Confirmed
H5a	EPI → Value creation mediated by purchasing proactivity	Full mediation
H5b	EPI → Supply risk reduction mediated by purchasing proactivity	Not confirmed
H6a	Purchasing responsibility → Value creation mediated by purchasing proactivity	Full mediation
H6b	Purchasing responsibility → Supply risk reduction mediated by purchasing proactivity	Partial mediation

Table 2: Conclusions on the research hypotheses findings

The study adds value to PSM science. First, it expands the previously somewhat limited, conceptual insights on purchasing involvement and proactivity and the impact on purchasing process (project) outcomes (Bals et al. 2009; Smeltzer and Siferd 1998; Werr and Pemer 2007).

More specifically, the results shed light on the influence of purchasing proactivity, an underexplored purchasing capability in PSM literature driven by the responsibility and early involvement granted in the sourcing process. In line with the RBV (Barney 1991), we demonstrate that this proactivity capability inherent to a mature purchasing organization contributes to superior performance, in terms of value offerings to internal customers (Carr and Pearson 2002; Day 1994; Luzzini et al. 2015). A similar evolution with a shift in market orientation from a reactive to a proactive business logic has been suggested in strategic marketing (Berghman et al. 2006; Tuominen et al. 2004).

The mediating role of proactivity in the relationship between purchasing involvement and value creation aligns with extant research into the impact of purchasing involvement (e.g., Ellram and Tate 2015; J. J. Schiele 2005; Werr and Pemer 2007) and proactivity, from both PSM (e.g., Carr and Pearson 2002; Norrman and Jansson 2004) and marketing (e.g., Blocker et al. 2011; Narver et al. 2004) perspectives. To the best of our knowledge, this is the first application of PMO in a purchasing context, that is the role of purchasing professionals and their impact on sourcing outcomes. Therewith, the study also contributes to *market orientation* literature, by applying the concept in the reverse marketing, i.e., the purchasing field. Moreover, the study confirms the important role of *proactive* market orientation if purchasers want to enhance their influence on value creation and supply risk reduction. As such, the marketing authors on market orientation pleading for a more proactive market orientation when value creation is aimed for, get a confirmation that this rule also applies in the reverse marketing setting.

Second, the authors focus on value creation and supply risk reduction outcomes, in contrast with the traditional cost savings focus in purchasing literature. This approach corresponds with studies of purchasing development that assert a cost savings approach is too narrow, in light of purchasing's increasingly internally integrated role as a supply base manager and innovation broker (Hartmann et al. 2012; H. Schiele 2006; Úbeda et al. 2015). In this sense, the current study contributes to literature on purchasing development and (drivers of) purchasing's impact.

Third, a methodological contribution is provided, in that the authors operationalize a new and comprehensive approach for measuring purchasing involvement (responsibility and early involvement), purchasing proactivity, and purchasing performance (supply risk reduction and

value creation). The authors also test the hypothesized relationships with data obtained at the project level, instead of undertaking a traditional assessment of purchasing's impact at the function or firm level (e.g., Hartmann et al. 2012).

5.2 Managerial implications for purchasing professionals

The results also offer several managerial implications for PSM professionals.

In general, they provide insight for both general and purchasing managers into the importance of the involvement and proactive efforts of purchasers in sourcing projects, with respect to value creation, and supply risk reduction. For purchasers to maintain a proactive approach, they must pursue early and active involvement in the sourcing process. Doing so can enhance the project's value creation and supply risk reduction outcomes. Moreover, a proactive attitude by purchasing professionals forms a critical capability in enhancing value creation sourcing outcomes. The authors thus hope that this study inspires organizational and purchasing management to seek greater involvement of and a more engaged, strategic attitude by purchasing professionals toward sourcing projects, while also helping to convince other business functions of the benefits of involving purchasing professionals in sourcing projects. Research findings may even trigger organizational management and sourcing project management to implement a purchasing involvement automatism in the standard process of sourcing projects. In addition, the findings may suggest purchasing managers to increase their attention to the development of purchasers' proactive capabilities and engagement towards internal customers' latent needs. More general, purchasing directors could build on the findings to initiate a dialog with internal customers and top management about purchasing's role, internal integration, and contributions.

5.3 Managerial implications for industrial marketers

This study also opens an interesting discussion on the necessary capabilities for industrial marketers in regard to changing customers' attitudes. B2B marketers might need additional relational capabilities. The set of supplier capabilities required to interact successfully and co-create value with cost-oriented purchasing departments may not pass the 'validity check' when facing more strategic and mature purchasers emphasizing proactive project involvement. Boundary spanning capabilities might need to be built enabling the supplier to facilitate

customers in their endeavor toward enhanced roles in value-creation and risk reduction. Such capabilities could be composed of the following set.

First, *dynamic capabilities* might be needed allowing suppliers' marketing and sales staff to adapt value (co-creation) concepts and approaches to the maturity stage of the purchasing department in general and of each buyer in particular. The latter refers to the degree of proactivity and involvement of each buyer in each project. Paesbrugghe et al. (2017) identify four stages of purchasing evolution – passive, independent, supportive and integrative – and demonstrate that each stage necessitates a distinct sales approach. In the latter stages of evolution, purchasers expect suppliers to be more proactive, grasp the buying firm's culture and pain points, offer innovative solutions, display long term perspectives, and practice value-creating key account management. Overall, this implies a set of dynamic capabilities in marketing and sales. In line with O'cass and Ngo (2012) we assert that market orientation alone may not lead anymore to customer satisfaction.

Second, another capability that could be needed while facing value-creating purchasers is *generative and adaptive learning* by the supplier. Customers' purchasing staff try to become more influential in sourcing projects and aim for value creation. In some projects they reach higher levels of integration with other functions such as NDP or operations. This would require capabilities such as introduced by Guenzi and Troilo (2006) which show that marketing – sales integration helps establishing an organizational context supporting market learning: (i) Ensuring market sensing and market –based generative learning, challenging long-held beliefs: and (ii) Leading to adaptive learning and strengthen customer linking. Integration enables also customer value creation via organizational citizenship-based problem solving.

Third, and in the line with Möller and Törrönen (2003) and Töytäri and Rajala (2015), *capabilities associated with higher relational complexity* and deeper insight in each customers' business, innovation and a management of risks and uncertainty may be needed. Töytäri and Rajala (2015) consider *value-based selling* and *value capturing* as a key capability for industrial companies. VBS implies (1) early engagement with a customer's buying process, (2) expansion of a shared conception of value, and (3) linking the proposed solution to it. This study suggests an even more proactive approach could be needed whereby the suppliers help the buyer reach early and deep involvement in the sourcing process via foresight, anticipation, a long-term perspective

and the initiation of change. Suppliers could seek roles in training purchasing professionals in uncovering unexpressed and future needs of internal customers, and draw up internal users experience cycles (e.g., using design thinking).

Besides product-service related information, buyers might be provided with market information and business cases illustrating successful early purchasing involvement in sourcing projects. Purchasing-related information sharing and a focus on the value creativity contribution of purchasing is welcomed (Miocevic and Crnjak-Karanovic 2012). Influencing buyers' perceptions of product services might not be enough anymore. Value based suppliers would also need "to influence the customers' perceptions of the value potential of a B-S relationship…" Töytäri and Rajala (2015) and even influence the mindsets and value conceptions of other departments.

Fourth and final, a richer and *social exchange-based perspective on value co-creation* in line with Lindgreen et al. (2012) and Toon et al. (2012) is expected to be needed. In their value framework Lindgreen et al. (2012) stress the importance of relationship form, reflecting the widely accepted perspective that relationships are key in the value process, implying pro-active management of products and services and the building of loyalty and trust. Toon et al. (2012) state that outsourcing has given way to *creative collaboration* based on the social exchange perspective. Goodwill trust is proven to lead to a positive increase in asset specific investments. Our study also focuses on marketers and sellers building trust and helping their customers (purchasing departments) reach enhanced legitimacy in their own companies toward other departments involved in sourcing projects. Investments would be required to address purchasing professionals' needs for customer education towards their internal customers.

Marketing and sales management could also consider broadening their conception of value creation by not only focusing on demonstrations of their own value offering but also helping customers' purchasing professionals build their own value contribution story. More specifically, marketers might need to realize that they can aid their customers in becoming better in proactivity. As such, this can become part of their marketing efforts and has potential for value-based selling. In a similar vein, risk reduction agreements could be addressed more explicitly, e.g., by including additional supplier evaluation criteria referring to quality of relation

and supplier performance. This way, marketing capabilities are impacted by the growing capabilities of their customer's interaction partners, i.e., purchasing professionals.

5.4 Limitations and further research

In addition to its contributions, the current study contains some limitations that suggest directions for further research both in PSM as in Industrial Marketing. First, the research design and context pose constraints. We used self-reported, perceptual data, but objective data and insights from multiple respondents might beneficially extend the findings. The small sample of 112 sourcing projects referred to just one company, so generalizability of research findings is limited. A larger sample, spanning various other business, organization and purchasing contexts, could increase the external validity of these single firm case study findings. Also it would enable to empirically establish whether purchasing proactivity leads to a (sustained) competitive advantage for a firm, the theoretical assumption employed to underpin our framework. Additional research might also focus on various examples of one type of project or purchasing category (Ellram and Tate 2015; Lakemond et al. 2001). However, in light of the specific research context and the lack of current empirical insights into the construct relationships, we believe that the findings contribute substantially to the research field.

Second, some limitations relate to the research model and conceptualization of the constructs. The authors maintained a consistent focus on the purchasing department to explain sourcing project outcomes, such that the characteristics of any cross-functional sourcing teams (Driedonks et al. 2014) or individual purchasing professionals (e.g., knowledge, expertise, soft skills; Luzzini et al. (2015); van Weele (2010)) were ignored as possible means to explain purchasing proactivity and sourcing project results. The authors also treated EPI and purchasing responsibility as two separate constructs. However, what about their potentially cumulative effects? Analogously, any interrelationships across the project outcome variables were not considered. We recommend that further research studies these links in more detail, possibly using longitudinal data to test for any reverse causality. For instance, with this study, we cannot specify the drivers of purchasing involvement, which might be affected by purchasing's internal reputation, generated by, among others, previous purchasing success or the experiences of

internal customers (Ellram and Tate 2015; Goebel et al. 2003) and the internal customer's awareness and perception of purchasing's skills and motivation (Bals et al. 2009).

Third, some research directions can be derived from the research findings. For example, we recommend that researchers include the variables of purchasing involvement and proactivity in empirical research on purchasing development or studies that seek to uncover the role of purchasing with respect to both more traditional and emerging PSM performance themes, such as cost savings, early supplier integration and development, new product development, or sustainable supply management. The authors also recommend that researchers explicate proactivity in purchasing development research and explore its driving effects in the contexts of purchasing, internal service, and business performance.

Fourth, regarding capabilities for business marketers this study uses a one-sided perspective, focusing on purchasing departments' expectations and approaches. Future studies might focus on the roles value-based marketers and sellers might play along and in their customers' purchasing maturity growing process. Can they 'help' their customers gaining legitimacy for early and deep involvement? Which selling processes might be effective for this? Can marketers and account managers help purchasers build proactive capabilities and internal CRM processes? Are different sets of marketing or CRM capabilities more effective for buyers' value creation vs. risk reduction efforts? Dyadic studies might be needed to generate the answers.

Appendix : Measurement model and variable operationalization

Measurement model characteristics (first-order construct)

First-order construct	CR	α	AVE	Item	Loading
Purchasing proactivity	0.95	0.92	0.78	P01	0.87
				P02	0.85
				P04	0.92
				P06	0.87
				P07	0.91
Operational supply risk reduction	0.96	0.92	0.89	R07	0.90
				R08	0.94
				R09	0.98
Long-term supply continuity	0.91	0.81	0.73	R02	0.79
				R03	0.89
				R04	0.80
				R05	0.93
Innovation value	0.94	0.85	0.75	V01	0.83
				V10	0.94
				V04	0.89
				V05	0.85
				V08	0.82
Relationship value	0.96	0.88	0.88	V06	0.86
				V07	0.99
				V09	0.96

Notes: AVE: average variance extracted; CR: composite reliability; α: Cronbach's Alpha.

Variable operationalization

The multi-item measures used seven-point Likert scales ("totally disagree–totally agree", except for purchasing responsibility "no responsibility – full responsibility"), with an additional "not applicable" category
Items in italics were excluded from further analysis, based on the factor analysis results.

Early purchasing involvement (Alpha company database): Stage in the sourcing process at which purchasing became involved: 1 = market orientation; 2 = specifications definition; 3 = supplier selection; 4 = negotiation; 5 = contracting; 6 = aftercare.

Purchasing responsibility (based on Pearson (1999)): Responsibility level requested for each phase in which purchasing was involved.

Purchasing proactivity (adapted from Narver et al. (2004))
During the sourcing project…
P01 We (i.e., the purchasing professional(s) involved) helped our internal customer anticipate developments in his/her market.
P02 We continuously tried to discover additional needs of our internal customer of which he/she was unaware.
P03 We incorporated solutions to unarticulated internal customer needs in our internal service.
P04 We brainstormed on how the internal customer uses our services.
P05 We searched for opportunities in areas where the internal customer had a difficult time expressing his/her needs.
P06 We worked closely with lead internal users who try to recognize customer needs months or even years before the majority of the market may recognize them.

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P07 We extrapolated key trends to gain insight into what the internal customer in a current market would need in the future.

Value creation (based on Trent and Monczka (1994)¨, Cheung et al. (2010) and Ulaga (2003); or case company specifications*)***

In general, I believe that value was obtained for the project by…

Innovation

V01 An improved quality of the purchased item(s).*

*V02 An improvement of supply performance (punctuality, flexibility, accuracy) of the supplier**.*

*V03 The development of new technology by suppliers for our company.**

V04 Access to new product/service and/or process technology before competitors have access to it.*

V05 Early sourcing and supplier participation during product/service design.*

V08 An improvement of existing products/services for the customers of our internal service user.**

V10 The development of successful new products/services for the customers of our internal service user.**

Supplier relationship value

V06 An increased use of supplier abilities.*

V07 More efficient communication with the supplier(s).**

V09 A better understanding with the supplier(s) concerning/about each other's goals.**

Supply risk reduction (based on Hoffmann (2011) and case company specifications)

The project result contained/is characterized by…

Long-term supply continuity

R01 A substantial guarantee of the supply continuity.

R02 Anticipation/avoidance of liquidity problems of the supplier(s).

R03 (Improved) exit arrangements with the supplier(s).

R04 A more preferred customer status with the supplier(s).

R05 A decrease of the dependence on the supplier(s).

Operational supply risk reduction

R06 An avoidance of the dispersion of strategic knowledge/abuse of intellectual property.

R07 More guarantee of supplier performance.

R08 Substantial decrease of risk of quality problems.

R09 An increase in supply reliability.

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