Attraction in buyer–supplier relationships

Improving supply network performance through purchasing recognition and proficient collaboration initiatives

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Abstract

Purpose – The purpose of this paper is to shed light on the dynamics of buyer–supplier industrial relationships and the role of customer attractiveness—a requisite to obtain best efforts from suppliers involved in collaborative initiatives.
Design/methodology/approach – The paper develops a theoretical framework tested through an international survey with a structured equation modeling approach.
Findings – Results confirm that customer attractiveness positively affects both innovation and cost performance ensured by suppliers. Moreover, several direct and indirect antecedents of customer attractiveness are identified, including characteristics of the buying firm's procurement department (i.e. procurement knowledge and procurement status) and supply chain relationship characteristics (i.e. proficiency of supplier collaboration and visibility).
Research limitations/implications – Because of the survey approach, the research results are limited to the data collected.
Practical implications – Findings support the relevance of collaborative relationships in improving performance, and the key role procurement department could play in managing the multifaceted aspects of supplier collaboration.
Originality/value – This paper investigates, on the one hand, why customer attractiveness is relevant for supply chain management, and what are the effects on innovation and cost performance ensured by suppliers; on the other hand, antecedents of customer attractiveness are considered, with a main focus on organizational and relational procurement variables.

Keywords Collaboration, Customer attractiveness, Supply chain relationships
Paper type Research paper

1. Introduction

Collaboration between buyer and supplier can offer many opportunities and, during years, literature has explored factors affecting the success of these collaborations (e.g. Anderson and Narus, 1990; Badaracco, 1991; Jap and Ganesan, 2000; Menguc *et al.*, 2014; Schiele and Vos, 2015; Tanskanen and Aminoff, 2015; Makkonen *et al.*, 2016), with most of these studies investigating the role of relational characteristics (e.g. length of buyer–supplier relationship, culture, trust, commitment and satisfaction, Ragatz *et al.*, 1997). The role of these variables has been shown, although something seems missing to a complete understanding of this subject. Recently, the concept of "attraction" has been introduced to explain how relationships initiate, endure and develop (Mortensen *et al.*, 2008; Hald *et al.*, 2009; Kumar and Routroy, 2016; Makkonen *et al.*, 2016; Pulles *et al.*, 2016). Attraction is described as "the force fostering voluntarism in purchasing and marketing exchanges, and further pushing a buyer and supplier closer together in a mutual advantageous relationship" (Hald *et al.*, 2009, p. 968).

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The basic idea behind attractiveness is that high-skilled and innovative suppliers are rare, and so they may not dedicate their resources equally to all customers, thus becoming highly selective. Thereby, in order to secure access to the best resources, customers must increase their level of attractiveness (Schiele *et al.*, 2012; Hüttinger *et al.*, 2012; Pulles *et al.*, 2016). Improving the level of attractiveness is also important as buyers need to achieve the status of "preferred customers" for the suppliers. As preferred customers, they have easier access to several benefits, such as product quality and innovation, better support, delivery reliability, lower price and costs (Ramsay, 2001; Hüttinger *et al.*, 2012; Nollet *et al.*, 2012; Pulles *et al.*, 2016). Although the positive effects of higher attractiveness have been largely debated, a quantitative analysis of its main achievable benefits is limited (Hüttinger *et al.*, 2012), especially in terms of performance obtained for the goods/services provided by the supplier—a relevant unit of analysis in the purchasing and supply management field—rather than at the firm level. Beyond tangible benefits, literature has also focused on how to increase customer attractiveness, through the identification of its main drivers (e.g. Hüttinger *et al.*, 2012; Pulles *et al.*, 2016). In this area, most studies are mainly conceptual or exploratory, whereas there is need of additional theory-testing empirical research (Spina *et al.*, 2016).

With these premises, this study aims to investigate more in-depth the "chain of evidence" leading the buying firm to be an attractive customer. In tackling this goal, besides the typical supply chain management (SCM) perspective, the theoretical background of relationship marketing (RM) is also adopted, by including the social exchange principles to investigate the dynamics of buyer–supplier relationships. Indeed, RM recognizes that some companies are unable to fulfill the market demand with their own resources, therefore attempting to overcome this lack by establishing market-oriented business-to-business relationships (e.g. Dwyer *et al.*, 1987; Baxter, 2012). The basic principles upon which RM is based are mutual value creation, trust and commitment (Payne *et al.*, 1998; Hingley *et al.*, 2015), following the idea that actions are pushed by the returns people expect to obtain (Blau, 1964).

Through an international survey, we investigate a set of possible antecedents of relationship attractiveness for customers, with a behavior-based approach (Tanskanen and Aminoff, 2015). In particular, we consider both attributes of the buyer–supplier relationship (i.e. proficiency in supplier collaboration and visibility) and characteristics of the procurement department (i.e. knowledge and status). The former is included because we expect attractiveness to increase when the buyer provides assets and capabilities that may simplify supplier's activities (Makkonen *et al.*, 2016). The latter is in line with the SCM literature discussing the strategic role of the procurement department, and showing how proficiency in the execution of activities increase with the status and skills of procurement employees (Yeniyurt *et al.*, 2014). Furthermore, we explore the effect of customer attractiveness on specific purchasing category performance—i.e. innovation and efficiency. This perspective represents a novelty, as several scholars have investigated the role of customer attractiveness on procurement performance (e.g. Schiele, 2010; Wynstra *et al.*, 2001), without adopting a category perspective.

The paper is organized as follows. First, the concept of customer attractiveness and its relevance for SCM is defined and positioned within the literature. Next, an overview of possible antecedents of customer attractiveness is presented. Through this review we are then able to describe our research framework and consequent hypotheses. Next, the research method is presented. The last three sections present data analysis, discuss results and summarize main conclusions, respectively.

2. Literature review

2.1 The concept of attraction

A general definition of the verb "to attract" is "to cause interest or pleasure and to pull someone towards you by the qualities you have, especially positive and admirable ones"

(Cambridge Dictionaries Online). The first studies concerning attraction are related to social psychology and later social exchange literature. Social exchange deals with interdependence between social actors and focuses on the rewards and costs that individuals gain through interaction with each other (Homans, 1973; Thibaut and Kelley, 1959). A social definition of the concept of "attraction" was given by Blau (1964), who describes it as an evaluation of rewards which bring to establish a relationship: "Actor A is attracted to actor B, if A expects that association with B to be in some way rewarding for A." This statement highlights how attraction is a force which acts to get closer two distinctive parts, whether these are individuals, groups or companies, and it underlines how the concept of value is a core element in this construct. Attraction is a fundamental element to start a relation, principally cause of desired payoff, and after the establishment, it acts to continue and strengthen the relation. In short, social exchange suggests that human factors are crucial components of attraction and that attraction plays an important role in value creation, as it influences trust and commitment between parties (Blau, 1964; Kelley and Thibaut, 1978; Thibaut and Kelley, 1959).

Extending this view to a supply chain relationship between a buying firm and its supplier, we might say that both the buyer and the supplier need to see the relationship as attractive to effectively create and transfer value (Hald *et al.*, 2009; Pulles *et al.*, 2016). Attraction can be also thought as an alternative approach to manage relationship based on the creation of voluntary motivation and commitment between partners, which differs from the traditional approach of managing relations by power and control mechanisms (Cox, 1999; Wagner and Bode, 2014). This view is in line with the RM perspective, according to which non-economic factors contribute to govern relationships (Schiele *et al.*, 2015; Kim and Choi, 2015). RM considers the ability of human interactions to establish relational norms that act as governance mechanism and favor attraction. As a consequence attraction is ultimately able to support long-term relationships and to get the most from the collaborative partner, excluding, or at least limiting, opportunistic behavior (Ellis *et al.*, 2012).

As explained by this theory, attraction can be linked to other important behavioral concepts like trust, commitment and value, which have become cornerstones in the purchasing and SCM literature. Jean *et al.* (2014) and Hüttinger *et al.* (2012), for example, argued that attraction is a prerequisite for developing trust and commitment and, as a matter of fact, the level of buyer–supplier attraction depends on disconfirmed vs confirmed expectations.

For these reasons, supply chain literature has investigated the concept of attractiveness, especially in decision-making processes. In order to select a counterpart for a specific relationship by considering the impact on choices of the counterpart (external perspective) (e.g. Olsen and Ellram, 1997), attractiveness in front of the counterpart is fundamental.

On one side, the aim is to influence the other party's perception in order to increase the likelihood to be chosen among different alternatives, with a focus on implementing actions to "look better" (e.g. Bonner and Calantone, 2005; Tanskanen and Aminoff, 2015). The external approach is more common in the purchasing and SCM literature, being defined as a collection of critical factors pushing a company to choose a specific supply chain partner (Pulles *et al.*, 2016; Makkonen *et al.*, 2016). At this regard, the topic has been also investigated by several marketing researchers, as a segmentation criterion for customer portfolio analysis (e.g. Turnbull and Zolkiewski, 1997; Ritter and Andersen, 2014). According to these perspectives, customer attractiveness emerges as depending on the perception of the potential value and duration of a specific relationship.

On the other side, scholars have also emphasized the importance for buyers to "sell" their firm to critical suppliers (Krolikowski and Yuan, 2017). As a matter of fact, in the modern business context, for a buying firm it is getting increasingly important to become attractive, in order to secure satisfactory performance from suppliers (Christiansen and Maltz, 2002;

Pulles *et al.*, 2016). Recently, many authors point out the relevance of customer attractiveness by arguing that suppliers will not improve processes or product technologies unless attraction is present (Schiele, 2012; Tanskanen and Aminoff, 2015); in particular, attraction becomes a prerequisite for mobilizing suppliers' resources and developing trust and commitment (Schiele, 2012).

2.2 Empirical studies on customer attractiveness antecedents

The fundamental idea of customer attractiveness is to make the supplier follows the customer's wishes by indirectly influencing the actions of the supplier (Nollet *et al.*, 2012).

A first stream of literature looks at the role of human factors to establish and maintain a business relationship (e.g. Ellegaard *et al.*, 2003). This perception is consistent with socio-behavioral concepts and supports the idea that the success in influencing suppliers by being attractive is expected to depend on supplier's perceptions. In this vein, some authors have proposed feeling and emotions as antecedents to be used in the purchasing domain to increase the understanding of buyer–supplier relationships (e.g. Jain *et al.*, 2014), with relational elements conceived as both antecedents and consequences of attractiveness.

A second stream focuses on the relational embeddedness of buyer–supplier relationships and the effects of preferential buyer treatment (Blonska *et al.*, 2008). Buyer's investments to develop a supplier and some relational mediators—e.g. trust, commitment and dependency—positively influence supplier's preferential judgment toward the buying firm. As a consequence, suppliers will more likely exploit buyer's relational investments according to buyer's expectation and excluding opportunistic behavior. In this vein, Schiele *et al.* (2011) investigated the antecedents of supplier innovativeness and supplier pricing and explained how the preferred customer status positively influences supplier innovativeness and leads to a more benevolent pricing policy by the supplier. Beyond supplier's innovative capabilities and specialization, specific characteristics of the dyadic relationship, such as supplier development programs, have a positive effect on the supplier's contribution to the buying firm's innovation.

A last stream of literature focuses on buyer–supplier relationship characteristics (e.g. Hald *et al.*, 2009), with efforts dedicated to transfer knowledge to a supplier (i.e. supplier development programs), sharing of critical information and integration of the partner in production and logistic processes. In addition, procurement department characteristics are suggested to be included in the discussion about customer attractiveness antecedents, as they affect the way the supply relationship is managed (Yeniyurt *et al.*, 2014). As some authors suggest, procurement organizational configuration, recognition among others departments, tools implemented and procurement employees skills are strictly related to a successful management of supply relationships (Schiele *et al.*, 2012; Bemelmans *et al.*, 2015; Tanskanen and Aminoff, 2015; Luzzini and Ronchi, 2016).

2.3 Impact of customer attractiveness on performance

A considerable number of studies focuses on the performance effects of customer attractiveness. Hüttinger *et al.* (2012) provided a comprehensive literature review, discussing about the consequences of being perceived as an attractive customer, and its importance in a supply chain context. A customer perceived as attractive receives a better resource allocation and a stronger level of commitment from the supplier, which in the end also benefit relational performance. Generally speaking, most of the discussion about customer attractiveness is shaped around the benefit of expected value from the relationship (Hald *et al.*, 2009). Ramsay and Wagner (2009), for example, explicitly stated that a supplier should devote higher attention to a customer only if the potential value to be extracted from the relationship is higher than the investment necessary to enter the relationship.

The concept of "value" has been analyzed under different lenses. Some authors have mainly investigated the economic benefits arising for the parties, defined as "social reward-cost outcomes from the relationship over time" (Halinen, 1997; La Rocca *et al.*, 2012). Example of these are growth of purchasing volumes (e.g. Bew, 2007; Steinle and Schiele, 2008), growth of the profitability (e.g. Bew, 2007), development of additional business opportunities (e.g. Brokaw and Davisson, 1978) and reduction of the overall costs (e.g. Moody, 1992).

Other authors have looked at more qualitative aspects, such as the impact in terms of quality of the relation (Hüttinger *et al.*, 2012). Through attractiveness, parties have interest in engaging into a new relationship or intensifying existing ones (Blau, 1964). Makkonen *et al.* (2016) discussed the "virtuous circle of a relationship," where high customer attractiveness brings to a higher level of relationship development, thereby increasing its overall quality on a long-term perspective.

Finally, some scholars linked customer attractiveness to the more general literature about supply chain collaboration (e.g. Makkonen *et al.*, 2016), presenting attractiveness as a way to engage suppliers into closer collaborations (Mortensen *et al.*, 2008). The final outcome is a positive potential impact on innovation, production allocation, price benefits and risk reduction coming from the suppliers (Bernardes and Zsidisin, 2008; Nyaga *et al.*, 2010).

3. Research framework and hypotheses

The different research streams previously discussed were useful to clarify the concept of customer attractiveness in industrial relationships; identify a wide set of potential antecedents for customer attractiveness, both at procurement department and supply relationship level; and focus the attention on the main impact customer attractiveness can have on performance.

So, according to this theoretical background, we were able to build a research model to be explored, as shown in Figure 1.

3.1 Effects of procurement department characteristics on the level of proficiency of supplier collaboration

Consistent with the literature about the role of procurement organizational configuration and recognition among others departments for successful relationship management (Bemelmans *et al.*, 2015; Tanskanen and Aminoff, 2015; Luzzini and Ronchi, 2016), we consider two main antecedents of customer attractiveness.

First, in line with Cohen and Levinthal's (1990) discussion around absorptive capacity, a well-formed intra-unit communication network and a good communication climate and culture lead to improve employees' ability to learn and consequently to an effective implementation of new ideas. In addition, an internal "climate of openness" (Nevis *et al.*, 1995) is one of the most important factors facilitating organizational learning (Saenz *et al.*, 2014), fostering the growth of an adequate level of employees' knowledge and skills which, in turn, contribute to empower a department within the organization (e.g. Rothstein *et al.*, 1995). Especially important is the development of technical competence of procurement professionals in order to get the most from interactions with technical personnel in team decision-making processes and increase purchasing recognition from others functions (Kauppi *et al.*, 2013; Caniato *et al.*, 2010). Therefore the level of skills, together with the ability to access critical information and share information with other departments,

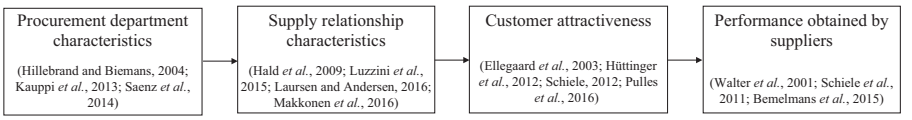

Figure 1.
Research model

represents a determinant of procurement status and recognition within the organization (Pearson *et al.*, 1996; Hesping and Schiele, 2015). Based on these considerations, the following hypothesis is formulated:

H1. A higher procurement knowledge positively influences procurement status.

Second, authors have discussed the relevance of procurement status for a strategic recognition. Burt and Soukup (1985) discussed the link between purchasing recognition and responsibilities assigned for new product development (NPD) activities, while Hillebrand and Biemans (2004), Tracey (2004) and Thomas (2013) concluded that suppliers are more likely to collaborate and to be involved at early stages of NPD when procurement contributions are recognized by the top managers. Similarly, Schiele (2010) linked the possibility to involve supplier and procurement in proficient collaboration programs (such as early supplier involvement, supplier development and supplier integration), addressing that how companies organize their purchasing process influences the proficiency of collaborations between suppliers and customers. Based on these considerations, the following hypothesis is formulated:

H2. A higher procurement status positively influences the level of proficiency of supplier collaboration.

3.2 Effects of supply relationships characteristics on relationship attractiveness

Consistent with RM and SCM literature insights, suppliers are more likely attracted by buyers willing to involve supply chain partners in strategic decisions.

On the one hand, relational-specific investments reflect a commitment and long-term orientation (Schiele and Vos, 2015). In particular, we expect that the more customers invest in the relationship, the more customer attractiveness increases (Hald *et al.*, 2009; Schiele, 2012). In this vein, Vollmann and Cordón (2002) also argued that "what makes customer attractive to a supplier – over the long run – is learning." According to this perspective, the proficiency of implementing supplier development programs and/or its integration in order fulfillment and/or supplier involvement in NPD represent opportunities for a supplier to increase its own knowledge (Nagati and Rebolledo, 2013), thus making the relationship with a customer "more attractive." Based on these considerations, the following hypothesis is formulated:

H3. A higher level of proficiency of supplier collaboration positively influences supplier's perception of relationship attractiveness with the customer.

On the other hand, visibility plays an important role in successful supply chain relationship (Wilson, 1995; Baxter, 2012). The relationship between visibility, trust and attraction in supply chain relationships emerges as a closed loop in the literature. Attraction might potentially generate trust and commitment (Dwyer *et al.*, 1987; Ellegaard, 2012), while trust and visibility are fundamental conditions to increase attraction (Hald *et al.*, 2009). The level of visibility (i.e. sharing of meaningful supply chain data, such as inventory level or forecasts) positively influences the value of the relationship perceived by the supplier (Walter and Ritter, 2003; Jain *et al.*, 2014), which is a major driver of attraction (Hald *et al.*, 2009; Pulles *et al.*, 2016). Based on these considerations, the following hypothesis is formulated:

H4. A higher level of visibility positively influences supplier's perception of relationship attractiveness with the customer.

3.3 Effects of relationship attractiveness on category performance

The benefits of relationship attractiveness on several performances are discussed in literature (e.g. Nollet *et al.*, 2012; Bengtsson *et al.*, 2013). A relationship is more attractive if

either technological collaborations or operational collaborations are in place between the supplier and the customer. First, customer attractiveness is expected to lead suppliers to improve processes and technologies, which can be exploited according to customer's wishes (Johnsen, 2009; Ellegaard, 2012). Second, relationship attractiveness has a positive effect on the innovation contribution of the supplier in a buyer–supplier relationship (Schiele *et al.*, 2011; Luzzini *et al.*, 2015). However, we also assume that a stronger innovation effort is not compromising cost performance ensured by suppliers. Indeed, the attracted supplier will reserve a more benevolent pricing method and will constantly be interested in aligning its own wishes with the buyer's (Christiansen and Maltz, 2002; Schiele *et al.*, 2011; Bemelmans *et al.*, 2015). This perspective is consistent with the diffused idea that attractiveness is pursued first to give economic benefits for the parties (La Rocca *et al.*, 2012), but also with RM, which addresses the importance of interpersonal factors beyond economic drivers to improve performance (Schiele *et al.*, 2015; Kim and Choi, 2015). Based on these considerations, the following hypotheses are formulated:

H5. A higher level of relationship (customer) attractiveness positively influences the category innovation performance ensured by the supplier.

H6. A higher level of relationship (customer) attractiveness positively influences the category cost performance ensured by the supplier.

The overall research framework is reported in Figure 2.

4. Methodology

4.1 Sample

To investigate our research questions, we use the data collected by the International Purchasing Survey (Knoppen *et al.*, 2015). Using purchasing categories as unit of analysis, the survey aims to investigate how companies define their procurement strategies, what their procurement skills and capabilities are, how the procurement activities are conducted and what effect the procurement activities exert on procurement and firm performance.

Data were collected during the 2010–2011 period in different countries through a multi-language web platform; the survey was originally designed in English and subsequently translated according to a standard procedure (TRAPD, Harkness *et al.*, 2010). Before administering the survey, the questionnaire was tested in several countries with procurement professionals to check the clarity of the questions. The respondents consisted of highly qualified procurement professionals who had played important roles in the procurement functions of their firms. These individuals were selected by collaborating with the procurement professionals' national associations, which had provided the lists of their members who had been personally contacted by the local research group. After the data

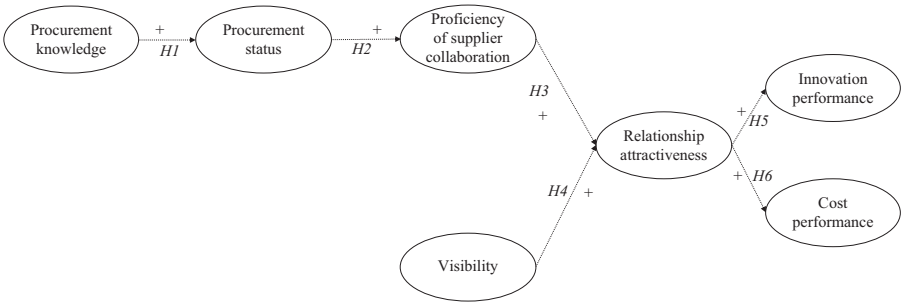

Figure 2.
Research framework

collection process, each country cleaned its own data in accordance with a common agreement to build a shared international database.

The total sample contains 681 companies from ten countries. However, only a subset of them provided sufficient information to test the hypotheses stated above, as we were forced to exclude firms not performing at all supplier collaboration (i.e. supplier involvement into NPD, supplier integration and supplier development), necessary to test the model. As a result, the sample considered includes 524 firms (Table I) from ten countries and mostly from the manufacturing sector. The targeted companies vary in size and are mostly from the

Descriptive	Frequency	Percentage
Country		
Italy	46	8.8
The Netherlands	39	7.4
UK	66	12.6
Germany	48	9.2
Spain	44	8.4
Sweden	115	21.9
Finland	30	5.7
United States	59	11.3
Canada	43	8.2
France	34	6.5
Sales (m €)		
< 50	91	17.4
< 100	60	11.5
< 200	56	10.7
< 500	92	17.6
$< 1{,}000$	65	12.4
$\geqslant 1{,}000$	120	22.9
Missing	40	7.6
Sector		
Manufacturing	343	65.5
Transportation, storage and communication	29	5.5
Wholesale and retail trade	28	5.3
Other	26	5.0
Construction	23	4.4
Electricity, gas and water supply	13	2.5
Professional and administrative services	13	2.5
Human health and social work activities	10	1.9
Financial services	9	1.7
Public administration and defense	8	1.5
Agriculture, forestry, fishing and mining	7	1.3
Hotels and restaurants	5	1.0
Arts, entertainment and recreation	4	0.8
Missing	6	1.1
Respondent position		
CPO, VP of procurement	70	13.4
Procurement director	115	21.9
Procurement manager	238	45.4
Senior, project buyer	44	8.4
Buyer, procurement agent	28	5.3
Other	28	5.3
Missing	1	0.2
Total	524	100

Table I.
Sample descriptives

manufacturing sector, although other industries are represented as well. Non-respondent bias was tested for by identifying the differences between the first wave of respondents, and the later waves (the ANOVA shows no significant differences in terms of company size and sectors distribution). The average response rate was 10 percent.

4.2 Measure

The seven constructs included in our model are described in Table II, in light of extant literature. More specifically, for what concerns identification and selection of antecedents, we followed the approach suggested by Tanskanen and Aminoff (2015), considering both resource-based antecedents with a main focus on procurement (i.e. management and competences) and behavior-based antecedents with a main focus on relational choices. For the former approach, we included "procurement status" and "procurement knowledge"; for the latter, the level of "proficiency of supplier collaboration" (i.e. ability to implement effectively collaboration initiatives with suppliers) and the level of "visibility" between supply chain actors.

About the measure of customer attractiveness, we adopted a business-related approach, consistent with Ellegaard *et al.* (2003), considering attractiveness as linked to concrete and fact-based measures. In particular, in the context of industrial relationships, intensity of linkage between supply chain actors is hardly driven by how the relationship is perceived as strategic (Park *et al.*, 2010); for this reason, we approximate the concept of "customer attractiveness" with that of "Relationship attractiveness," thus including items measuring how much the buyer has invested in the relationship with the supplier, e.g. by implementing different levels of collaboration (technological and operational; Ragatz *et al.*, 1997). The idea is that the more the customer tends to build collaborative relationships within the supply network, the more it will be perceived as a strategic firm, thus increasing is attractiveness (Nyaga *et al.*, 2010).

Finally, "cost performance" and "innovation performance" reflect the traditional dimension to measure purchasing efficiency (i.e. internal and external) and supplier

First-order construct	Description	References
Procurement knowledge	The procurement managers' technical and managerial knowledge	Carter and Narasimhan (1996), Tu *et al.* (2006), Zheng *et al.* (2007), Bals *et al.* (2009)
Procurement status	The actual and formal recognition of the procurement department strategic role within the buying firm	Pearson *et al.* (1996), Carr and Smeltzer (1997), Mol (2003), Cousins *et al.* (2006), González-Benito (2007)
Proficiency of supplier collaboration	The experience of the buying company in managing collaborative relationships with suppliers	Sheu *et al.* (2006), Oh and Rhee (2008), Melander and Lakemond (2015)
Visibility	A willingness to rely on a supply chain partner in whom one has confidence, by sharing strategic information	Francis (2008), Hald *et al.* (2009)
Relationship attractiveness	The extent to which the customers make suppliers participate to critical collaboration projects, such as new product development, supplier development and supplier integration in the operations processes	Ragatz *et al.* (1997), Narasimhan and Das (2001), Yan and Dooley (2014), Lawson *et al.* (2015)
Innovation performance	The extent to which the customer get innovation from suppliers of the given category	Lagace (2003), Luzzini *et al.* (2015)
Cost performance	The extent to which the customers get cost reduction performance from suppliers of the given category	Hartley *et al.* (1997), Hartmann *et al.* (2012)

Table II. Measures

contribution to innovation (i.e. product/service innovation and variety) at the category level; both measurements follow conceptualizations proposed in the past (e.g. Schiele *et al.*, 2011; Caniato *et al.*, 2014).

As previously explained, for the purpose of our analysis, we intend the concept of customer attractiveness as "the customer's characteristics which lead supplier's effort to establish and develop a relationship with a buying firm" (Pulles *et al.*, 2016). Therefore, we relate such concept to the customer's relationship collaboration choices, thus assessing the construct through "the extent to which the buying firm involves supplier earlier when developing new products"; "the extent to which the buying firm implements supplier development programs within the supply network"; "the extent to which the buying firm integrates suppliers in production and order fulfillment activities."

5. Data analysis

In order to analyze data and test the model, we first performed some tests to assess common method bias. Given that we relied on a single respondent design, we controlled for common method bias in two ways: through the procedure of the study and through statistical control (MacKenzie and Podsakoff, 2012). Regarding the survey, the research project was labelled as a comprehensive overview of procurement strategies and practices, therefore no explicit reference to customer attractiveness or its effect on innovation performance was evident. Thus, respondents' attention was not drawn to the relationships being targeted in this study. Moreover, questions were organized in an order that separated category characteristics from strategies and practices as well as from performance to prevent respondents from developing their own theories about possible cause–effect relationships. Furthermore, the questionnaire was carefully created and pretested and respondents were assured of strict confidentiality. As a second mean to ensure against common method bias, we performed the common latent factor technique (MacKenzie and Podsakoff, 2012); with this analysis, we found that the common latent variable has a linear estimate of 0.5728. This value, when squared, indicates a variance of 0.328 which is below the threshold of 0.50. Overall, this ensures data analysis is not excessively affected by common method bias.

The presented hypotheses were tested using covariance-based structural equation modeling (CB–SEM), which is a common method employed for this type of research, together with partial least square structural equation modeling (PLS–SEM; e.g. Perols *et al.*, 2013). As objective of our research is theory testing and confirmation, we decide to adopt CB–SEM, being PLS–SEM more suitable when the research objective is prediction and theory development (Hair *et al.*, 2011).

The model was tested using the maximum likelihood (ML) estimation method (Hair *et al.*, 2011), as ML compared to other methods (such as generalized least squares and weighted least squares) is able to provide more realistic indexes of overall fit and less biased parameter values for paths that overlap with the true model (Olsson *et al.*, 2000). ML estimation assumes that the variables in the model are (conditionally) multivariate normal, which is true for our data set according to the Doornik–Hansen test ($\chi^2 = 1{,}667.317$; $p > \chi^2 = 0.000$).

The hypothesized model was tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is was consistent with the data. As long as the goodness-of-fit is adequate, the model argues for the plausibility of postulated relations among variables. The research model is analyzed and interpreted sequentially in two stages: first, the assessment of the reliability and validity of the measurement model and second, the assessment of the structural model (Anderson and Gerbing, 1988). Stata 14.0 was used to estimate both the measurement model and the structural model. The ML algorithm was used to obtain the paths, the loadings, the weights and the quality criteria.

6. Results

6.1 Measurement model

Table III shows the results of confirmatory factor analysis. All of the model fit indicators were found to be satisfactory ($\chi^2 = 176.649$; $\chi^2/df = 1.344$; CFI $= 0.989$; TLI $= 0.985$; RMSEA $= 0.026$; CD $= 0.998$). The factors reliability, as measured by the Cronbach's α and composite reliability (Fornell and Larcker, 1981), was fully satisfactory (Nunnally and Bernstein, 1994). Additionally, convergent validity was assessed through significant loadings from all scale items on the hypothesized constructs, and through the average variance extracted (AVE, Anderson and Gerbing, 1988): AVE ranges between 47 and 69 percent. As an additional test for discriminant validity, we compared the squared correlation (Table V) between two latent constructs to their AVE estimates (Fornell and Larcker, 1981). According to this test, the AVE for each construct should be higher than the squared correlation between each pair of constructs. This condition is valid for all the constructs (Tables III and IV).

6.2 Structural model

The postulated path model produced a sufficient fit to the data ($\chi^2 = 314.965$; $\chi^2/df = 2.151$; RMSEA $= 0.045$; CFI $= 0.961$; TLI $= 0.951$; SRMR $= 0.840$; CD $= 0.987$). Table V and Figure 3 shows the results of the hypotheses testing. All the standardized effects are positive and highly significant.

First-order construct	Indicators	Loading	CR	AVE
Procurement status	Top management is supportive of efforts to improve the procurement department	0.734	0.850	0.656
	Procurement' s views are considered important by most top managers	0.884		
	Procurement is recognized as an equal partner with other functions of the top management team	0.805		
Procurement knowledge	The knowledge of procurement manager(s) when making business decisions	0.880	0.900	0.695
	The knowledge of procurement manager(s) when dealing with new technologies	0.832		
	The knowledge of procurement manager(s) when managing daily operations	0.823		
	The knowledge of procurement manager(s) when dealing with human issues	0.797		
Proficiency of supplier collaboration	Proficiency of supplier development	0.809	0.870	0.692
	Proficiency of supplier involvement into NPD	0.897		
	Proficiency of supplier integration in order fulfillment	0.784		
Visibility	Share inventory level knowledge with suppliers	0.811	0.798	0.634
	Share production planning and/or demand forecast information with suppliers	0.818		
Relationship attractiveness	Intensity of technological collaboration (supplier involvement in NPD)	0.760	0.781	0.544
	Intensity of operational collaboration (supplier integration)	0.705		
	Intensity of supplier development	0.745		
Category cost performance	The procurement price	0.648	0.640	0.471
	The cost of managing the procurement process	0.723		
Category innovation performance	The supplier time-to-market for new or improved product/services	0.707	0.654	0.489
	The level of innovation in products/service from suppliers	0.687		

Table III. Resulting measurement model

Also, others approach to test the data were used (i.e. PLS), but using the AIC and BIC criterion, the CB–SEM using the ML estimation reveals to be the best (AIC: 28.443; BIC: 28.711).

7. Discussion

After our testing, all the formulated hypotheses have been confirmed. We are able to demonstrate that relationship attractiveness positively affects the customer performance related to a given procurement category, in terms of both innovation and cost. This result is in line with previous studies about supplier collaboration (e.g. Corsten and Felde, 2005; Vereecke and Muylle, 2006), and becomes interesting in the context of our discussion, as it links the ways to become more attractive customers (which is a typical marketing

Variables	1	2	3	4	5	6	7
1. Procurement knowledge	1						
2. Procurement status	0.124*	1					
3. Proficiency of supplier collaboration	0.106**	0.049**	1				
4. Visibility	0.002	0.008	−0.163	1			
5. Relationship attractiveness	0.067*	0.0225*	0.043	0.106**	1		
6. Innovation performance	0.001	0.004	−0.062	−0.037	0.025*	1	
7. Cost performance	0.001	0.013*	−0.043	−0.068	0.046**	0.032*	1

Table IV. Correlation matrix

Notes: *$p < 0.5$; **$p < 0.01$; ***$p < 0.001$

Parameter estimates		SE	Z	95% confidence interval	
Procurement knowledge → Procurement status	0.312***	0.045	6.93	0.224	0.400
Procurement status → Proficiency of collaboration	0.249***	0.047	5.26	0.156	0.342
Proficiency of collaboration → Relationship attractiveness	0.305***	0.053	6.00	0.205	0.404
Visibility → Relationship attractiveness	0.319***	0.050	5.96	0.214	0.424
Relationship attractiveness → Category Innovation performance	0.284***	0.057	3.85	0.117	0.360
Relationship attractiveness → Category Cost performance	0.239***	0.062	4.92	0.170	0.398

Table V. Parameters estimate

Notes: *$p < 0.5$; **$p < 0.01$; ***$p < 0.001$ (two tailed test)

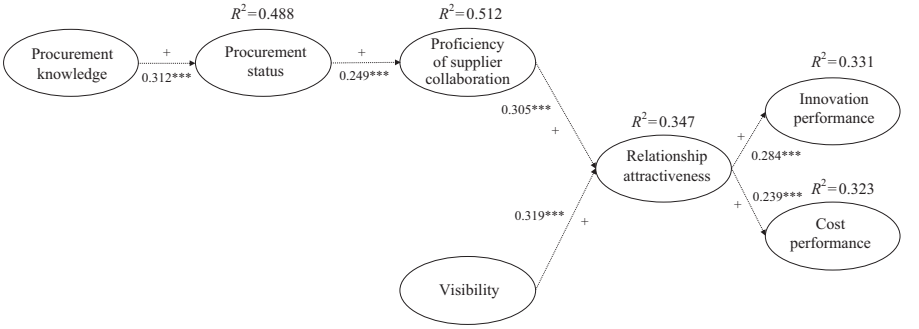

Figure 3. Resulting structural model

Notes: Model fit: χ^2=314.965; χ^2/df=2.151; RMSEA=0.045; CFI=0.961; TLI=0.951; SRMR=0.840; CD=0.987. *p<0.5; **p<0.01; ***p<0.001

perspective; Hesping and Schiele, 2015) to the effects that this may have on performance at specific functional level (purchasing, in this case).

On the one hand, we show that customer attractiveness depends not only on marketing and economic aspects (such as brand and reputation, market success, economic and financial performance) but also on supply chain aspects—such as the way customers shape collaborations with other supply chain actors. On the other hand, we empirically test how customer attractiveness might provide benefits for companies, demonstrating that being an attractive customer gives the possibility to attract best-in-class suppliers, which in turn ensure better innovation and cost outcomes (e.g. Kim and Choi, 2015). We can therefore conclude that customer attractiveness seems to produce win–win outcomes for the dyad, as the supply network can benefit from long-term and strategic relationships, which are assurance of stability and able to generate more commitment, while the buying firm is able to leverage on its suppliers' technological skills in order to innovate, without neglecting procurement prices or being afraid of non-benevolent pricing policies in the long run (Baxter, 2012). This also adds some more insights about the debated supply chain cost-innovation trade-off: investing in collaborative relationships makes a firm more attractive, with the change of not only securing suppliers that are capable to launch new/better products and services on the market, but also to increase process efficiency (Carr and Pearson, 2002; Lawson *et al.*, 2015).

Besides these main results, we were able to determine two direct antecedents of customer attractiveness, related to the way the buyer–supplier relation is managed: the level of proficiency in managing supplier collaboration; and the level of visibility with the suppliers. This result is aligned with previous studies focused on industrial relationships (e.g. Hüttinger *et al.*, 2012; Wong *et al.*, 2013) that (directly or indirectly) consider the ability to manage relationships and the ability to establish a trustful environment between the parts as powerful tools for improving the customer attractiveness of the focal company. Our results confirm that the higher the level of visibility between supplier and customer, the more the customer appears as a trustful partner in the eyes of the supplier, thus being likely to become attractive (Caridi *et al.*, 2014). This finding also supports industrial marketing studies, linking attractiveness to the level of openness and trust demonstrated by the actors involved (Tanskanen and Aminoff, 2015).

As for the other antecedent, the proficiency in managing collaborative relationships involves both the way procurement activities are executed, as well as the strategic orientation of the department. Past literature is not only rich in presenting the value of collaboration between buyer and supplier at different levels (e.g. Yan and Nair, 2016; Luzzini *et al.*, 2015), but also in promoting the need of a learning curve of collaboration initiatives, in order to obtain the maximum benefit (Zacharia *et al.*, 2009; Yan and Dooley, 2014).

In order to create the prerequisites for customer attractiveness, two further variables are identified as relevant—which both relate to the characteristics of the procurement department. As a matter of fact, we are able to show that with the increase of procurement people skills and capabilities, the status of the procurement department within the firm (i.e. the formal recognition by other departments) is likely to increase (Luzzini and Ronchi, 2016). This, in turn, increases the confidence in implementing more strategic relationship with suppliers (Mortensen and Arlbjørn, 2012). With procurement being the primary interface with the supply network, its formal recognition in the buyer organization might pave the way to increased collaborative initiatives within the supply network. This represents a key insight for companies that sometimes neglect the pivotal role of procurement for value creation and the achievement of better supply chain performance. This finding shed some new light on the literature about organizational choices in procurement and company performance, by illustrating a new important benefit achieved through the adoption of a

strategic procurement department—i.e. the increase of attractiveness (Zheng *et al.*, 2007). Finally, identification of procurement department characteristics as indirect antecedents to customer attractiveness is a novel contribution to literature, relevant also to extend the current debate about boundaries between purchasing and organization design literature (Adobor and McMullen, 2014).

8. Conclusions

This paper aims to investigate the impact of customer attractiveness on performance (innovation and cost) and assess the impact of antecedents on customer attractiveness. The main results identified are the following:

(1) Customer attractiveness—interpreted as "relationship attractiveness"—is proposed as a key element to foster industrial relationships, and obtain better performance (cost and innovation) from the supply network.

(2) Two important antecedents of customer attractiveness are identified: the level of proficiency in managing collaborative relationships and the level of visibility set within the buyer–supplier relationship.

(3) Procurement organizational aspects are relevant variables to be considered to enhance customer attractiveness, as both procurement status and procurement people knowledge determines the ability of the buying company to implement (and successfully manage) collaborative relationships.

8.1 Contribution for research

This work interprets the construct of customer attractiveness on a different perspective from the past (using the concept of "relationship" attractiveness), but still promoting attractiveness as a key variable to manage buyer–supplier relationship, in line with past studies (e.g. Schiele *et al.*, 2011; La Rocca *et al.*, 2012). This indirect approach has the disadvantage of not directly assessing suppliers' perception by explicitly asking about the level of customer attractiveness, but has the advantage to avoid social desirability biases that might come in place when asking buyers and suppliers about the quality of their relationship. The final results are a "untraditional" measurement of the level of customer attractiveness, but also unbiased and fair (as not being evident to the respondent). Furthermore, we were also able to show that customer attractiveness is not only related to innovation performance but also positively affects costs offered by suppliers to buyers (Hartley *et al.*, 1997), and these benefits are achieved at the procurement category level. This result is quite new, as most of previous studies mainly focus on company performance—with more attention to economic rather than to operational results (e.g. Pulles *et al.*, 2016). A third contribution of the study is the identification of main antecedents of customer attractiveness, both direct and indirect. The study proposes direct antecedents related to the characteristic of the supply relationship the buying firm put in place (collaboration and visibility offered in the relationship), whereas indirect antecedents reflect procurement department status and competences. This is a key contribution for research, as it extends past research on the topic, mainly focused on "soft" aspects and/or marketing choices (e.g. Hüttinger *et al.*, 2012), without considering indirect impacts or providing a clear path to the achievement of customer attractiveness.

8.2 Contribution for practice and further development

Study results are also relevant from a managerial perspective. These findings suggest to procurement managers that one of the key supplier management decision variable—configuration of the nature of the relationship—is a key driver of company

attractiveness. This means that managers should push for investing in collaborative and long-term collaboration, if they want to conquer the attention of potential valuable supply chain partners; for this investment, they will be repaid with higher innovation outcome and cost improvements resulting from the buyer–supplier relationship. However, this lever should be activated only if certain pre-conditions exists—the willingness to manage collaborative relationship and to share information within the supply chain. When these factors are not present, pushing collaborative initiatives can result in a failure project, and even reducing the overall customer attractiveness.

In this, managers should also consider that knowledge and competences of procurement people are key variables to increase the procurement status, which have an impact on customer attractiveness as well. The perceived and real importance of a procurement department is higher when procurement managers have an in depth knowledge in taking business decisions, managing new technologies and dealing with human issues.

Further research could be identified as well. Investigation on either specific industry or specific countries could be performed to address whether significant differences would appear in different areas of investigation. This can be definitely something that must be explored in a future study on the subject, through a qualitative data collection approach (e.g. case studies), to complement the reliability of research findings. Finally, further research is also necessary to deepen the relationship between buyers' performance and customer attractiveness: the current model includes only innovation performance and cost performance, but further dimensions can be considered as well (e.g. flexibility and process quality).

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