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CUSTOMER REFERENCING IN THE CONTEXT OF A CAPITAL EQUIPMENT BUYING DECISION

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ABSTRACT

The current literature on organizational buying behaviour presents customer references as a source of competitive advantage (Jalkala & Salminen 2010) and suggests that they have a positive impact on vendor reputation (Helm & Salminen 2010; Salminen & Möller 2003; Salminen 1997; Salminen & Möller 2006). It also suggests that customer references play an important role in increasing vendors' credibility and brand equity by raising their perceived competence. At the same time, customer references decrease buyer uncertainty and perceived risk.

The literature on industrial buying does not have the empirical support necessary for a theory of customer referencing. This is because, when it comes to the study of customer reference practice, the potential customer's point of view is altogether absent (Morgado & de Castro 2015a). Empirical research has favoured the supplier as its unit of analysis while ignoring the other constituents of the reference triad: the reference customer and the potential customer. Empirical work that features the potential customer as the unit of observation remains an open research opportunity and would allow for a deeper understanding of both the customer reference network and its impact on the buying behaviour of industrial firms.

This research aims to contribute to filling this gap by responding to the following question: "How does customer referencing influence capital equipment buying decisions?" To achieve this aim, this study adopts as its theoretical framework the conceptual model offered by Morgado and de Castro (2015b), adapted to the context of a capital equipment buying decision.

The main purpose of this research is to contribute to the literature on customer referencing by studying the case of EDP, which features the acquisition of a pump hydro energy storage system by an incumbent firm operating in the field of electrical power production. The study draws on empirical research and uses a case study research strategy. The data were gathered via interviews with key people and analysis of secondary data sources, such as corporate reports and other relevant documentation.

KEYWORDS

Business relationships; industrial networks; customer reference; case study; capital goods.

INTRODUCTION

The literature on customer referencing raises the possibility of whether customer references might have a positive impact on vendor marketing activity (Ruokolainen & Mäkelä 2007; Salminen & Möller 2004; Jalkala & Salminen 2009; Helm & Salminen 2010; Salminen 2001; Jalkala & Salminen 2010; Salminen & Möller 2006; Jalkala & Salminen 2005; Ruokolainen 2008a). The current theory of customer referencing is still open to additional contributions (Morgado & de Castro 2015b), although a considerable body of knowledge already supports it. In the context of reference networks, the business relationship consists of at least three dyadic relationships. In order to sustain the body of knowledge on customer referencing, research should observe the dyads established during the customer referencing process.

The vendor's perspective on customer reference marketing (with regards to its motivation to invest in customer references) has already received attention from the scientific community. The literature on customer referencing (Olaru et al. 2008; Wheiler 1987; Ruokolainen & Mäkelä 2007; Salminen & Möller 2004; Salminen & Möller 2006; Jalkala & Salminen 2010; Jalkala & Salminen 2005) portrays customer references as a source of competitive advantage and irrefutable influence over a firm's competitiveness. Customer referencing has a positive effect on a vendor's credibility by raising its perceived competence. At the same time, it decreases the buyer's uncertainty and perceived risk. Importantly, however, the current research does not take the potential customer as its unit of analysis.

In the literature on organizational buying behaviour, empirical work towards a comprehensive theory of customer referencing is still largely absent. This study contributes to our understanding of customer referencing and its role in capital equipment purchasing. It deepens our understanding of the research topic and aims to validate the current view on the influence of reference marketing on firms' buying decisions. The available literature on buying behaviour does not clarify the role played by customer references in potential customers' decision-making. In addition, the facts and circumstances associated with the influence of reference marketing have yet to be determined. The purpose of this research is thus to study organizational buying behaviour and relationship formation in interactions between customers and suppliers of capital equipment and the role played by customer references in this context. As a means of illustrating these phenomena, this research relies on a case study that features referencing relationships in the Portuguese energy industry. A deeper understanding of this phenomenon will allow managers to pursue strategies based on efficient reference marketing.

By focusing on the relevance of customer referencing to industrial buying behaviour, this study may offer new perspectives on how, and under what circumstances, customer-buyer relationships can be leveraged in industrial markets. It thus aims to deepen our understanding of this phenomenon and to contribute to the literature on customer referencing and industrial marketing.

In our review of the literature on organizational buying behaviour, we draw on accounts of the role played by customer referencing in a firm's growth. This literature is silent, however, when it comes to facts and circumstances within the potential customer's organization (Morgado & de Castro 2015a). Given this gap in the literature, this research aims to investigate the role played by supplier reference marketing in the buying behaviour of the potential customer. The objective of this research is to answer the following question: "How does customer referencing influence capital equipment buying decisions?"

METHODOLOGY

This research follows a methodological framework for data analysis which includes recommendations provided by Miles and Huberman (1994), Eisenhardt (1989), Yin (1989; 2011), Stake (1995), and Dul and Hak (2007). Qualitative data are neither available nor immediately accessible for analysis, as it requires previous systematic treatment and processing (Miles & Huberman 1994, p.9). In this research, interviews took place in Portuguese. Tape recordings of the interviews and field notes were transcribed, edited and converted into text for further analysis. The collected data was then formally coded (Yin 2011, p.186). This research used the software MAXQDA 12 (release 12.1.0)[1] to code the data retrieved from the interviews. The data coding was completed prior to the translation of the interviews' content into English. This analysis was carried out in the original Portuguese with the aim of preserving useful insights embedded in the original interviews. According to Miles and Huberman (1994, p.10), "data analysis" includes (i) data reduction, (ii) data display, and (iii) conclusion-drawing and verification. Data reduction consists in abstracting and selecting previously collected valuable data. Data display involves a process of data reduction. In addition, data display organizes information, which allows for the final step of data analysis: conclusion-drawing and verification.

Zikmund (2003) suggests that research can be classified as (i) exploratory; (ii) descriptive; or (iii) causal, according to its purpose or function. The present work has a causal character. This study adopts the theoretical model developed by Morgado and de Castro (2015b) as a framework for the collection of data. This *ex-ante* conceptual framework provided useful guidance for data gathering. It also presented limitations, however, as it was not able to provide a comprehensive explanation of the phenomenon under analysis. A new theoretical model that better explains the phenomena emerged from the empirical data (see Figure 1).

Primary data for the case creation process were gathered in semi-structured interviews, which followed a generic, predefined outline, supported by an open questionnaire or case protocol. Interviewers also added questions not present in the initial questionnaire. Side comments and additional relevant elements (e.g. reference material, brochures, press releases, web pages, etc.) provided by respondents were also recorded as valued sources of secondary data. This approach is considered effective, especially when investigation into more subtle issues is required and when long answers are necessary for a deeper understanding of the issues reported by respondents (Ackroyd & Hughes 1992). All of these elements served to build the case narrative featured in the present study.

One operational challenge faced by this research was gaining access to the buying centres of the case companies. By adopting the principles of snowball sampling (Hughes et al. 2011; Jalkala & Salminen 2010; Johnston et al. 1999; Bryman & Bell 2007; Saunders et al. 2007), it was possible to gain access to and interview members of the buying centres of the companies studied in this research. As Zikmund (2003) explains, snowball sampling involves the obtaining of additional respondents via information provided by initial respondents.

In addition to interviews, relevant documents and other useful data were collected, although it was the data gathered from interviews that provided the strong empirical foundation for the theoretical contribution made by this research. Once completed, the case narrative was sent for review and approval by the firm's formal interface. The reviewer adopted a softening approach; that is to say, on several occasions he changed parts of sentences in order to reduce the impact of the discourse when it came to aspects that had been

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previously described in stronger terms during the interview.

THE CASE OF EDP

EDP was founded in 1976 as the result of the merger of 13 out of the 14 previously nationalised electric sector companies existing at the time. Today, EDP is the largest Portuguese industrial group; with almost 12 thousand employees and a turnover of more than 16 billion euros, it is a major European operator in the energy sector. EDP is an Energy Solutions Operator, and its core activities include the generation, supply and distribution of electricity and the supply and distribution of gas. EDP operates in several countries, including Portugal, Spain, France, Belgium, Poland, Romania, the United States and Brazil.

Standard buying behaviour

EDP is a group of business companies comprising more than 430 firms. Some of these operate under the regulatory framework of the ERSE (Energy Services Regulatory Authority). Different firms therefore require different levels of support from the central procurement office of EDP. The central procurement office is a division of EDP Valor S.A. — the firm in charge of managing shared services within the EDP group — and its mission is to get the best market price for a good or a service needed by any company in the EDP group. The central procurement office has a workforce of 130 people, 60% of which are buyers or lead buyers (circa 80 people). The team also includes managers and other 'non-core' staff members belonging to: (i) the information systems service; (ii) the service accountable for designing and implementing buying processes; and (iii) the service responsible for vendor qualification and management (also known as the "eCRM").

The procurement office manages different information systems (several of which are proprietary platforms), which are relied on the managing of all procurement and buying activity. This need for robust information systems follows from the nature of the firm. For instance, EDP has established relationships with more than 20 thousand vendors. Nevertheless, only 5% of these vendors account for almost 90% of EDP's annual expenditure on goods and services. A proprietary platform thus provides support for complex "supplier relationship management" activity.

The procurement office serves a total of 13 different countries and has delegation offices, known as "Local Purchasing Teams", in five different locations: (i) Huston (USA); (ii) Sao Paulo (Brazil); (iii) Victoria (Brazil); (iv) Bilbao (Spain); and (v) Lisbon (Portugal). Apart from these Local Purchasing Teams, a Global Procurement Unit is in charge of acquiring goods and services sold at a global scale. In order to create a global sourcing unit, several measures were recently implemented, including corporate policy implementation, best practice sharing, and supplier development.

In 2014, EDP invested nearly two billion euros in CaPex. That same year, the purchasing office managed the acquisition of 2.7 billion euros of goods and services. The chief procurement officer claims that from 2006 to 2014, the total amount of savings (or cost "avoidances", as he prefers to call them) surpassed one billion euros (circa 130 million euros per year). The measures taken to avoid costs were generally of three kinds: (i) increasing volume (buying more of the same product from the same vendor); (ii) developing the vendor (buying different products from one single vendor); and (iii) product unbundling (dividing a complex product into simpler and more commoditized elements, for instance by avoiding turnkey solutions or projects).

The buying phase (or "buying cycle", as it is called within the EDP context) involves four main stages: (i) the strategic phase; (ii) the transactional phase; (iii) the financial phase; and (iv) the reporting phase. Although the "buying cycle" and its four major areas are too complex to be described in detail here, a more succinct description may suffice (all procedures are compiled and documented in extensive manuals). Supplier relationship management takes place during an initial strategic analysis, where aims include the grouping of different buying needs, the achievement of higher volumes, qualifying vendors, bargaining, and entering into contracts. Vendor qualification takes place at the initial stage of the procurement cycle. Negotiation techniques come in different forms, including auctions — most often online or sealed-bid auctions (when bids are provided in sealed envelopes to the seller, who then opens them all together) — and "face-to-face" negotiation. Once a vendor has completed its first sale and delivery to EDP, its status is re-assessed and updated according to the received feedback. A contract defines and specifies several aspects, such as sale duration, delivery deadlines, volume, and commercial conditions (e.g. price). The next phase is transactional: goods or services to be acquired are sourced to EDP. The process then involves financial tasks – e.g. the vendor receives payment for the goods sold. The final step is reporting, which is the responsibility of the purchasing office (in addition to its responsibility for running all business intelligence tasks associated with any procurement activity).

The purchasing office is now implementing a new model for managing the procurement process. The chief procurement officer contends that the new model is aligned with the best international practices adopted by companies like Google, Procter & Gamble, and Husqvarna. According to the same source, this "state-of-the-art" method involves organizing procurement activities around categories. The future listed categories will be: (i) power generation systems; (ii) networks; (iii) contracts; (iv) information and communication technology; and (v) general services. This new approach will allow for the further specialization of buyers and the reduction of the number of interfaces needed to perform a certain transaction. The old model, dating back to 2006, was chiefly concerned with centralizing the procurement activities of the corporate group. Before 2006, the EDP group dispersed the procurement activities among many firms, which resulted in low levels of cost avoidance. Since 2006, EDP has nurtured a new "purchasing culture", characterized by the slogan "think cheaper, think smarter, and think bigger".

The purchasing office uses the same procedure to purchase both capital and operational goods; the buying process for OpEx is therefore the same as that for CapEx. Different levels of attention are given to contracts according to the economic values involved in each transaction. For instance, more demanding rules and audits are in place when contract values are higher. Also, more demanding audit procedures are followed to collect evidence to support specific buying decisions. One particular example of this is the acquisition of capital goods from multinational companies, as most rely on local representative offices. Since the equity of these offices is typically low (in comparison with the figures involved in the contract), comfort letters are demanded from the headquarters in order to secure the transaction.

Generic approach to customer references

The purchasing office is in charge of qualifying all vendors wishing to sell to EDP. Vendor financial robustness is also assessed during this procedure, since it is a way to guarantee a vendor's ability to deliver what it has committed to sell to EDP. Customer references are also important in the qualification process. The purchasing office checks customer references if and when needed, but the firm acting as an internal customer also has

the ability and the duty to check these references. It is considered necessary to include a description of the work or product delivered in the customer reference. According to the chief procurement officer, it is not sufficient to record that vendor *x* worked for customer *y*; the purchasing office must confirm the type of work undertaken and whether it was assessed favourably by the reference customer. There has been no formal determination regarding responsibility for checking references – i.e. whether this is to be performed by the purchasing office, the internal customer firm, or both. The chief procurement officer claims that this task is better performed by the internal customer firm. All feedback from customer references helps to document the qualification process.

Outside of the qualification process, it is also common to request customer references when a tender is submitted. In these circumstances, references should feature projects that are identical to that for which the tender is being submitted. The reference project should contain detailed information, such as (i) project date; (ii) reference customer contacts; and (iii) project dimensions (in euros). Although reference customer contacts are required, the chief procurement officer contends that they are not needed, since the office usually has the contacts and the means to reach the professionals presented by vendors as interfaces for reference customers. Informal contacts are ultimately the most relied upon agents of communication. The same source also stresses the importance of project reference dates, as they allow for the assessment of vendor competence. In addition, customer references are highly valuable when the acquisition of innovative products is envisaged. By contrast, references from firms that are shareholders (or parent companies) of the vendor are not considered relevant.

It is common for vendors to present "success stories" when introducing their offer to EDP (either to the purchasing office or to a specific firm belonging to the EDP universe, or both). The chief procurement officer views these positively. In addition to supporting healthy debate on the product and technology presented, the presentation of success stories also allows for the expansion of the present list of vendors available for consultation in future tenders. The chief procurement officer views vendors as key enablers of corporate learning for any given organization. He also relates that during these presentations, vendors sometimes provide the buying firm with valuable information on the market and its rival competitors.

Boosting the Venda Nova power station

Venda Nova III, EDP's latest investment, aims to repower the site of Venda Nova, located in the north of Portugal. This uprating makes use of the height difference between an upper (upstream) reservoir – the Venda Nova dam – and a lower (downstream) reservoir – the Salamonde dam. Once completed, the generating capacity of the existing power scheme [(three main units of 29 MW each (1951) plus two units of 97 MW each (2005)] will increase significantly, and the Venda Nova III power plant will be the largest pumped storage power station in Europe. This repowering – which represents an investment of around 330 million euros – includes the construction of an underground powerhouse, a hydraulic circuit, two surge shafts, and access tunnels. The powerhouse will be equipped with two reversible pump turbines driving two electrical asynchronous machines, with a total installed capacity of 780 MW (840 MVA).

Venda Nova III has a low environmental impact level, mainly because both reservoirs already exist and most of the infrastructure is set underground. As a result, "repowering" demands relatively low levels of civil engineering work. In addition, this investment has allowed EDP to renew the concession period (granting the license for commercial operation for another 25 years). To sum up, Venda Nova III is EDP's response to

an industry context characterized by the following (Duarte 2011): (i) growth in wind power capacity; (ii) liberalization of the Iberian electrical market; (iii) the establishment of government objectives in favour of renewables; (iv) the reduction of the country's dependence on fossil fuel; and (v) the extension of license periods.

The adopted solution

Pumped storage is the most developed and technologically mature mode of storing energy in "off-peak" times while keeping energy available to the grid for peak supply needs. In general, pumped storage plants may adopt two different types of unit configuration: (i) "ternary systems" (which perform both generation and pumping functions and are equipped with both a turbine and a pump) and (ii) "reversible machine sets". A "reversible machine" consists of a motor generator combined with a reversible pump turbine, which functions as either a pump or a turbine depending on the direction of rotation. This configuration allows for the use of more compact powerhouses and for savings in equipment and civil work costs.

A special feature of Venda Nova III is its variable speed machines. The adoption of variable speed technology allows the pump turbine rotational speed to be efficiently adjusted according to hydraulic conditions. As a result, both the pump and the turbine operating range are extended. The amount of energy absorbed from the grid is therefore adjusted with increased flexibility: pump capacity can be adjusted to consume the available amount of surplus energy. The combination of hydroelectric power storage and variable consumed pump power capacity is of particular interest when it comes to the development of wind and photovoltaic power, given the unpredictable and volatile nature of their generation sources.

The first variable speed machine to be operated industrially was installed in Yagisawa (Japan) in 1990 and featured 85 MVA (its speed capacity varied between 130 and 156 rpm). Toshiba, Mitsubishi and Hitachi are among the several Japanese vendors who have installed variable speed turbines (Silva et al. 2015 Annex 2).

Interest in variable speed groups is now growing in Europe. This is due to the penetration of non-dispatchable renewable energy. The first two European variable speed groups were installed in Goldisthal (Germany) in 2004. Andritz Hydro supplied these two asynchronous variable speed motor generators, with a total power of 325 MW. Up until this day, these motor generators have remained the only of their kind to be supplied by a company outside Japan. Andritz (2016) characterizes this achievement as "a true milestone in pumped storage technology in Europe".

Although Goldisthal is a strong reference for Andritz, which supplied the asynchronous motor generators, other manufactures were involved in sourcing equipment to the extent that the management team adopted a purchasing strategy based on splitting the overall contract into smaller parts. In this context, Voith Hydro supplied the pump turbines, and Alstom (now GE Renewable Energy) supplied the power electronics for excitation and frequency control. Goldisthal is equipped with cycle converters. This technology is already outdated; new, state-of-the-art voltage source inverter (VSI) technology has recently emerged in the area of control and frequency conversion when it comes to speed variation.

The decision process

Venda Nova III has been identified as a priority investment by EDP Produção S.A. The initial study was conducted by EDP's internal Engineering Studies Department. Further analysis and evaluation was carried out by EDP's Market and Regulatory Affairs Division (as

well as the former EDP's Planning and Control Division), with the purpose of preparing consistent technical and economic feasibility studies. On the basis of these studies, the board of directors of EDP decided to go ahead with the investment in 2007. The company adopted a bi-contractual strategy and split the global sourcing into two major areas: civil works and equipment supply. This decision contrasts with the purchasing strategy adopted in Goldisthal. EDP believes that in the context of Venda Nova III, it's better to reduce the number of interfaces and thus to avoid potential sources of conflict and additional resource allocation. The Division of Engineering and Dams was in charge of preparing the call for the civil works tender, and the Division of Engineering and Equipments was in charge of preparing the call for tender for both the electrical and the mechanical equipment to be supplied. This latter call for tender required of suppliers that they provide price offers for both fixed and variable speed.

The adoption of the variable speed solution in Portugal could not be put in place easily. Complying with the grid code required by the Portuguese Transmission System Operator (TSO) – REN – for the variable speed units was found to be more demanding than the standard benchmark. This required simulations and the conducting of further studies during the proposal appraisal period. The required compliance was finally confirmed by the TSO in 2010, following the introduction of several design changes, most of which were related to the electrical protection system with an eye to guaranteeing that the machines would continue to contribute to the overall stability of the Portuguese Public Electric System in case of any severe disturbance to the national grid.

The company launched the civil construction call for tender in 2008 and the call for tender for the equipment in 2009. Both had an international scope and were published in the official journal of the European Union. Three manufactures answered the call to supply the equipments: (i) Voith/Siemens; (ii) Alstom; and (iii) Andritz. EDP has a solid, long-time relationship with all three players. The team expected to receive more replies, namely from the Asian manufactures mentioned above, since they could provide additional and relevant information and experience. None of those Asian vendors replied to the call for tender. The project team attributes this to linguistic constraints and an incorrect assumption that the market was confined to European players. However, Voith Hydro was skilled at getting information from the Japanese context by using their business partners, such as the firm Fuji.

The Division of Engineering and Equipment assessed vendor proposals from the perspective of several criteria, including (i) technical robustness and performance; (iii) total cost of ownership; and (iii) manufacturer technical guaranties. Supplier qualification and contracting is one of the several tasks for which the project team is responsible. A consultant from the central procurement office supported the team in charge of assessing competitive proposals. His contribution took place at the level of running several comparative analyses. No "hard-core" techniques were used during the negotiation phase because EDP must comply with Portuguese procurement legislation. However, colleagues from EDP Valor S.A. supported the negotiation team with a "best and final offer" approach, delivering an almost 5% price reduction.

This project was awarded to the Voith/Siemens consortium at the end of 2010. This consortium now supplies a complex, high-tech power generating solution. Voith Hydro was put in charge of producing two variable speed pump turbines (each rating 390 MW), two asynchronous motor generators (420 MVA each), two double voltage converters (VSIs), and the distributed control system, as well as the hydro-mechanical equipment for the pumped storage power plant. Siemens was in charge of the "balance of plant" setup (e.g. power systems, 400 kV cables and gas-insulated switchyards, the overall ventilation system, lighting and power plugging, auxiliary system power supply, both direct current and alternating current, telecommunications equipment, CCTV, intrusion detection, safety equipment, etc.)

and deployment, as well as its commissioning. In addition, Siemens also sourced two power transformer units with the largest capacity in Portugal (465 MVA). The VSI was subcontracted by Voith to the firm Converteam (which has now merged with the multinational company General Electric, Co.).

Since the contract was awarded to the Voith/Siemens consortium, personnel from the Division of Engineering and Equipment were allocated to the EDP Project Management team, and others were assigned to provide technical support. This team is now responsible for managing the overall project/investment, including (i) planning; (ii) tests and commissioning coordination; (iii) equipment acceptance; (iv) construction supervision; and (v) trial run follow-through. During this process, the team in charge of contracting the equipment is entirely liable for the machinery. This responsibility will end when the plant enters the so-called "industrial operation", following the successful completion of a four-week trial-run period. Once this status is achieved, the equipment will be handed over to the O&M Division, which is then fully accountable for its ownership.

Construction work began in 2010 and was initially expected to reach completion in 2015. The overall project suffered a slight delay, however. Completion is now forecasted for the summer of 2016.

The role of references

Venda Nova III is a landmark in the electrical power industry. It is the fourth plant of its kind to be built in Europe and is equipped with the largest units in the continent, the second largest in the world.

The provision of customer references from vendors is mandatory in any tender promoted by EDP. Customer references featuring variable speed pump turbines of this scale were not available. A member of EDP's engineering team acknowledged: "if we had searched references for identical equipment, we would not have been able to find any". In this context, the engineering team accepted similar or related customer references from manufactures.

Prior to any decision-making, a study was conducted to assess the sophistication of the technology. EDP also consulted and interviewed key suppliers and twice visited the Goldisthal power plant. These site visits were promoted by Andritz. The firm was diligent and invited the former project manager to the visits so that he could personally explain all details and features of the delivered solution. The EDP team also talked to the head of the power plant. He was open to answering questions about the relationship they'd established with all manufactures and their performance. Goldisthals' visits were of great value to EDP, especially with regards to understanding technical issues. The team was also able to collect precise information regarding downtime and maintenance costs.

The head of the power plant also shared with the EDP team the story of how the Goldisthal configuration had been established. In fact, the design submitted by the engineering team to the executive board featured a conservative approach, with a mix of two fixed speed pump turbines and two variable speed pump turbines. The aim was to adopt a prudent attitude towards innovative technology. As the four groups began operations, everyone came to the conclusion that the remuneration from the variable speed option, in addition to less tangible benefits, would be much higher than the remuneration from the fixed speed groups. This difference stems from the possibility of selling the "tertiary band", which is very profitable.

Pump turbines with variable speed features were considered for Venda Nova III, since they would increase value and enhance flexibility during pumping phases. The

investment in variable speed units was estimated to be higher than the investment in conventional units. In 2008, equipment investment was estimated at around 30 million euros, on top of a "traditional" unit set,[2] but the same studies estimated revenues of around three million euros per year in some scenarios. Despite the benefits offered by the variable speed option, it became necessary to demonstrate its viability from an economic point of view.

Although both technical and economic analysis recommended investing in variable speed at Venda Nova, its costs were calculated based on budgetary estimates. As a result, the executive board of EDP Produção S.A. decided that, in order to move ahead with the investment, the firm would need to base its decision on suppliers' proposal prices (which would reveal a more precise estimate of the involved costs and overall CapEx). This is why EDP issued a call for tender that required two alternative scopes: fixed and variable speed. Prices for variable speed were ultimately lower than anticipated. In the end, the variable speed solution was chosen, and the equipment contract was given to the Voith/Siemens consortium.

The tenders were based on a generic solution design, which resulted from interaction between EDP's engineering team and interfaces from each of the three equipment suppliers. This initial solution design allowed for the comparability of the proposals and for assurance that the project was technically feasible.

Among the three proposals, EDP's technical evaluation ranked Andritz Hydro slightly higher than the others. EDP's engineering team stated that "Voith did not present the best technical proposal, but it was clear that this would not compromise the project in any relevant sense". However, the commercial conditions offered by Voith/Siemens for the variable speed unit was equal to the price of a fixed speed machine, representing cost savings of around 30 million euros. This was going to be the first project of this size to be designed by the awarded vendor. It is understood that Voith/Siemens viewed the price cut on variable speed as a marketing investment. As a member of EDP's engineering team put it, "[t]his investment allows Voith/Siemens to have the best customer reference in the field, and I'm sure we will be receiving frequent visits from utilities staff from around the world".

Although EDP didn't select the proposal that ranked highest from a technical point of view, EDP's engineering team has great confidence in Voith/Siemens's performance and believes that this has in fact turned out to be the best possible supply option. The "not so well detailed" issues with Voith/Siemens's initial proposal have been resolved to the extent that the firm invested in knowledge and know-how during the design phase in order to overcome possible obstacles or constraints. As an engineer working for EDP put it, "[t]hey simply do not tolerate the risk of failing, and this is due to the project's enormous visibility, as well as their well-renowned prudence. When they face the unknown, they prepare themselves by putting on a belt, suspenders and a second pair of pants". In this industry, the usual duration of a manufacturer warrantee is two years. Influenced by EDP's management team, Voith/Siemens agreed to extend this to five years for all equipment (excluding the VSIs, which are under warrantee for four years).

Case analysis

The case describes a "modified rebuy" scenario that involved a complex buying centre. This buying centre involved people from different locations within EDP: (i) the Engineering Studies Department; (ii) the Market and Regulatory Affairs Division; (iii) the Planning and Control Division; (iv) the board of directors; (v) the central procurement office; and (vi) the Division of Engineering and Equipment. Customer referencing only impacted the

[2] A standard turbine costs about 100 million euros.

Division of Engineering and Equipment. Their members engaged in two reference visits and demanded reference lists during the tendering process. They revealed a positive attitude towards customer referencing practices, in particular during the buying phases of identification and the evaluation of alternatives. The team benefited from customer referencing to the extent that it allowed for fast learning about solution alternatives. As a result of the reference visits, the engineering team was made aware of the business potential inherent in adopting variable speed pump turbines. This knowledge motivated the team to engage in several internal (including C-Level) and external (with the TSO) debates, with the aim of pushing forward the adoption of new technology.

The EDP case also highlights a group of companies that share a central procurement office. This infrastructure responds to purchasing needs from different companies that belong to the same corporation. Since 2006, the procurement office has evolved and has increased its capacity. Currently, it is able to respond to demands from diverse regions and business units. In its current form, it is a complex organization. Nonetheless, management is striving to make it even more "up to date" and better able to adopt the latest management trends by observing leading multinational companies. The office director did not claim to be short on resources, with regards to either qualified staff or technology.

The procurement office of EDP Valor S.A. has a procedure for the acquisition of both capital and non-capital goods. Nevertheless, not only did the capital equipment buying decision described in the case not follow that procedure, but it was managed externally. The procurement office sourced an external consultant to support EDP Produção S.A. in the acquisition of equipment for the power plant retrofit. This consultant played a relevant role in a specific phase of the buying process: the final price bargaining.

This purchasing configuration may be related to the independence of the firms composing the EDP group of companies, or it may be related to the complexity of the equipment. In fact, the case suggests that the firms are to some extent independent, in the sense that there is no explicit rule requiring them to attend the purchasing office for all purchasing needs. Despite their freedom not to interact with this office, companies make use of their services since they thereby profit from "cost avoidance". The office is able to exhibit and quantify the benefits of its activity (savings in euros). This motivates group firms to attend procurement office services. However, the following question is nonetheless relevant: do EDP group firms engage with the central procurement office when a complex capital equipment decision is at stake? Although the case does not offer any evidence with regards to this question, the assumption is that the central procurement office is most often engaged with the acquisition of less complex and differentiated goods and services, such as commodities and other non-critical merchandise. In context of the case, the high level of technical expertise demanded by the variable speed pump turbine meant that this specific purchase couldn't be handled by anyone who wasn't a member of the engineering staff of EDP Produção. Another possibility is that the high risk and duration of the buying decision made this tender unattractive to the purchasing office. Resources will have to be allocated to this buying project for some time, and high learning costs will have to be considered. However, it is possible to conclude that the adopted mode of operation raised efficiency to a large extent, especially in a context where high specialization is required. This was due to the high level of coordination among the different actors involved in the buying process.

Another interesting feature of the case is the economic effort exerted by one of the bidding companies in its attempt to win the tender. The winning competitor was not ranked first in the non-commercial aspects of the tender. However, Voith invested its marketing budget to expand its reference base by adding Venda Nova III to its portfolio. In other words, the firm paid to acquire the reference, and this took the form of a "customer-pilot" project. The investment wasn't confined to the price cut offered during the bidding process. In

addition, the firm made complementary and proactive investments, such as (i) extending warrantee length; (ii) acquiring the additional knowledge needed to increase complete project feasibility; and (iii) adopting proactive measures to guarantee overall customer satisfaction. This investment therefore involved two different components. The first is the money "offered" as a means of securing the tender, and the second is the money "paid" in order to guarantee customer satisfaction. The case suggests that Voith expects a high return from this investment. The return will result from the visibility of Venda Nova III and its impact on its other potential customers. This is even more critical to the extent that the market for variable speed pump turbines is expected to grow due to the massive implementation of wind generators. Voith understands this business context and is investing at a time when the market for variable speed pump turbines is expected to "take-off". However, the firm also understands that it can't take risks when it comes to this project. Should anything go wrong, not only would the company's credibility suffer, but it would miss out on additional sales from this emerging market.

Although this case did not involve a "first customer reference" (Ruokolainen 2003; Ruokolainen 2007; Ruokolainen 2005b; Ruokolainen 2008a; Ruokolainen 2008b; Ruokolainen & Mäkelä 2006; Ruokolainen & Mäkelä 2007; Gomez-Arias & Montermoso 2007; Ruokolainen 2005a; Ruokolainen & Igel 2004), some sort of parallel can be established between the two situations. In both cases, the customer reference is especially important for companies seeking to enter new or emerging markets. Also, the supplier closes the deal with no margin (or with a negative margin) in anticipation of gaining a valuable customer reference. Nevertheless, there are certain dissimilarities between these situations. The most striking contrast stems from differences in company size. In the first case, a startup company is considered, whereas the second example concerns an established firm. While startups have limited marketing budgets (due to their nature), an established firm like Voith is able to invest large sums for promotion (as revealed in the EDP case). Although both strategies appear similar, the difference may reside in the goals each type of firm aims to achieve by investing in customer referencing. While startup companies may wish to build their reputation in the market, the same might not be the case for established companies, since they already have solid reputations. Established firms might instead wish to leverage their orders on customer references, mainly by securing orders from emerging markets in which innovation plays a key role. Helm and Salminen (2010) argued that customer references are solid foundations and a key means of building a supplier's reputation. I could not find any evidence for this claim. The EDP case sheds some light on this topic but fails to offer a comprehensive account of this phenomenon. Reputation in business markets and its relation to referencing practice is therefore a subject that deserves further research.

Figure 1 presents an illustration of the case of EDP. The case of EDP features three objects: (i) reference visit; (ii) workshop; and (iii) reference list. These three objects are present under the same structure: reference marketing. The case features a reference mechanism that delivers causal power. This causal power is affected by three liabilities: (i) content; (ii) consistency; and (iii) aggregation. The case presents two conditions: (i) external actors and (ii) informality. These external mechanisms affect the causal power of reference marketing. The case displays six effects or events: (i) learning; (ii) risk avoidance; (iii) solution assessment; (iv) uncovering of new buying needs; (v) vendor assessment; and (vi) vendor qualification.

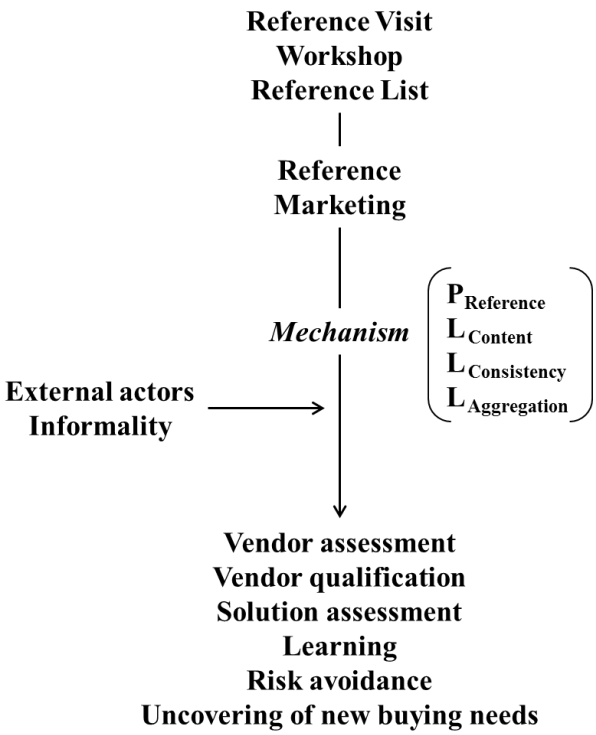

FIGURE 1 — Visualization of the Case of EDP

FINDINGS

The *ex-ante* conceptual framework (Morgado & de Castro 2015b) allowed for the gathering of useful and interesting data. This primary data was complemented by secondary data and provided a foundation for the case narrative presented in this research. The usefulness of this initial coding scheme was limited, however, when it came to handling empirical data. For instance, in the case of EDP the impact of customer referencing on buying behaviour remains unclear. Although the theory of referencing suggests that customer referencing influences organizational buying behaviour, the inference from the empirical reality under study could not be established. Therefore, a causal relation between customer referencing and capital buying decisions could not be confirmed. This suggests that suppliers ought to put an end to customer referencing practices, since it is not possible to demonstrate that it delivers any sort of positive return or benefit. Because this interpretation contradicts the theory of referencing, it is a cornerstone issue for research and requires a valid ontological perspective to explain the observed phenomena.

Critical realism (Sayer 2000; Sayer 1997; Archer et al. 1998; Easton 2002) helps to shed light on the referencing phenomenon because of its view on causality. It accepts "causal mechanisms" instead of "casual relations"; in other words, this ontological perspective denies a notion of causality that involves consistency among sequences of events, or "cause-effect" regularities. The influence of customer referencing on buying behaviour might not always be observable, since its manifestation depends on external conditions and liabilities.

By adopting a critical realist perspective, this research moves towards understanding the liabilities and conditions that might affect the ability of the referencing mechanism to deliver the desired effect. Diverse referencing practices become objects that are engaged in the same structure: supplier reference marketing. This structure may contain casual powers and liabilities. If this is the case, then it will produce effects that will only emerge under

specific conditions. This work aims to uncover the liabilities, conditions and additional effects that influence reference objects. It seeks to uncover these elements in order to introduce a new theoretical model that further describes the referencing phenomenon. For this purpose, a modified coding scheme was used to disassemble and re-assemble data (see Table 1).

TABLE 1
Modified coding scheme

1ST LEVEL	2ND LEVEL	3RD LEVEL
Objects	Reference List	
	Reference Visit	
	Workshop	
Structure		
Mechanism	Causal Power	
	Liability	Aggregation to other marketing resources
		Consistency
		Content
Effect/Event	Learning	
	Risk avoidance	
	Solution assessment	
	Uncovering of new buying needs	
	Vendor assessment	
	Vendor qualification	
Conditions	External consultants or intervenients in the buying process	
	Informality	
	Opinions from peers	

The modified coding scheme emerged from the collected data and presents five first-order codes, bringing into play the critical realist perspective. The model exhibits three objects that are present under a single structure: supplier reference marketing. A reference visit is a visit made by a potential customer to the site of a supplier's satisfied customer with the aim of verifying the reference description. A reference list is one of the possible formats a company may select as a means of presenting its customer references. In workshops, vendor companies meet at the potential customer's facilities to introduce new products or services,

often by presenting customer references in the form of success stories. Although reference visits and reference lists are mentioned in the literature as one of many practices in reference usage (Salminen & Möller 2004; Jalkala & Salminen 2009; Salminen & Möller 2003), workshops have yet to be mentioned in referencing theory. This research therefore identifies a new and thus far unacknowledged reference practice. Workshops are meetings where suppliers, aiming to sell outside the qualification process, present products and services by introducing their success stories. In this marketing effort, vendors are occasionally accompanied by real customers, which enhances the credibility of their messages.

The theoretical model features a mechanism that has causal power. The relevant causal power is the capability of supplier reference marketing to influence capital buying decisions by delivering its expected and desired effect – that is to say, the outcome or benefit of customer referencing. Referencing benefits take place at the supplier level and at the level of potential customers. Liabilities may inhibit the causal mechanism's ability to deliver its expected effect. In the presented theoretical model, causal power is affected by three liabilities (content, consistency and aggregation) and has two conditions (external actors and informality). These external mechanisms affect the causal power of supplier reference marketing.

The conceptual model displays six effects or events that operate at the level of the potential customer. The referencing theory describes seven outcomes for the utilization of references (see Table 2): (i) risk avoidance; (ii) solution assessment; (iii) vendor assessment; (iv) vendor qualification; (v) supplier learning; (vi) relationship management; and (vi) opportunity generation. The first four outcomes take place at the level of the potential customer, while the last three outcomes take place at the level of the suppliers. As expected, empirical observation did not reveal three referencing outcomes from the list of seven identified in Table 2 – (i) supplier learning; (ii) relationship management; and (iii) opportunity generation – since they take place at the vendor level, which was not the target of this research.

The presented model provides a novel contribution by introducing two new effects of referencing practices: (i) the unleashing of new buying needs and (ii) customer learning. Customers learn many things from suppliers. For instance, based on other implementations and business cases, customers learn how to implement new technology. Customers value the learning opportunities that come from customer referencing.

CONCLUSION

Despite the growing interest in industrial marketing research, the literature on customer referencing is still at an early stage. Studies that focus on the potential customer are too theoretically and empirically immature to provide meaningful insights for a theory of referencing. This study aims to provide a more holistic understanding of organizational buying behaviour by determining the facts and circumstances associated with the customer referencing practice. This research therefore contributes to the theoretical body of knowledge on customer referencing by exploring its role in buying relationships between firms.

The empirical observations conducted in this study confirm the existence of many constructs already described by the theory of customer referencing. For instance, empirical evidence supports the idea that customer references serve as valid ways of presenting evidence of a supplier's competence (Jalkala & Salminen 2009). Referencing theory claims that customer references are highly effective tools in attracting new customers and in creating strong links with existing customers (Helm & Salminen 2010). Therefore, customer references might serve as indirect evidence for a supplier's ability to provide a product,

service or solution (Salminen & Möller 2006).

TABLE 2
Literature on the outcome of references

POTENTIAL CUSTOMER				VENDOR		
RISK AVOIDANCE	SOLUTION ASSESSMT	VENDOR ASSESSMT	VENDOR QUALIFITN	LEARNING	RELTINSHP MANAGMNT	OPPORTNTY GENERTIN
Reduction of perceived risk.	Provision of evidence of experience, past performance, functionality, technology and customer value delivery; Provision of a strategic criterion in bidding decisions; Demonstration (to the buyer) of the functionality of technology; Avoidance of high switching costs.	Establishment of the supplier's credibility; Conferring of status from reputable customers; Signalling and strengthening of the supplier's position in the market; Establishment of reputation; Establishment of credibility; Demonstration of competence; Transfer of status; Demonstration of service quality; Enhancement of source credibility regarding the product and supplier performance; Development of the supplier's image.	Improvement of the chance of being shortlisted; Improvement of the chance of being selected.	Facilitation of organizational learning; Motivation and training of employees; Portfolio development; Understanding of customer needs; Improved sales force performance.	Creation and maintenance of confidence in existing relationships; Disruption of competitors' relationships; Re-establishment of credibility with old customers.	Presentation and demonstration of suppliers' offers; Access to new project markets; Increased access to new market segments; Acquisition of new customers.

Source: Author adaptation based on Salminen & Möller 2006; Salminen & Möller 2004; Salminen & Möller 2003; Jalkala & Salminen 2009a; Salminen 2001; Jalkala 2009; Helm & Salminen 2010; Jalkala & Salminen 2010.

EDP's visit to the Goldisthal power plant illustrates how customer references foster the creation of strong links with existing customers. In fact, the relationship between the members of the EDP team and the staff from Andritz played a direct role in EDP's recognition that Andritz offered the best technical reply to the call for tender. With this said, the empirical evidence contradicts referencing theory. For instance, although the literature on organizational buying behaviour suggests that customer references have a positive impact on vendors' reputations (Helm & Salminen 2010; Salminen & Möller 2003; Salminen 1997; Salminen & Möller 2006), this study was not able to confirm this claim.

The findings also suggest that reputation building is not the aim of customer referencing practice in already established firms. However, and as various authors suggest, reputation building may be the goal of less established firms (Ruokolainen 2003; Ruokolainen 2007; Ruokolainen 2005b; Ruokolainen 2008a; Ruokolainen 2008b; Ruokolainen & Mäkelä 2006; Ruokolainen & Mäkelä 2007; Gomez-Arias & Montermoso 2007; Ruokolainen 2005a; Ruokolainen & Igel 2004).

The present research offers an original contribution to the theory of referencing. It presents a theoretical model that aims to describe the casual mechanism associated with the referencing phenomenon. The model illustrates a causal relation between reference marketing and its outcomes. Due to the qualitative nature of the research, no claim to statistical significance is made. The model helps us to understand the observed phenomena, but it does not allow for statistical generalization. Further research, such as multiple case studies in multi-contexts could ground analytical inferences. Also, fuzzy logic could be adopted for complementary purposes (Zadeh 1965). The theoretical model presented above allows for a certain degree of analytical inference, but only but only within strict boundaries and limitations, since findings are limited to the domain of the Portuguese electrical power industry.

In addition, this work extends the empirical fields of research on the referencing phenomenon by focusing on a new region (Portugal) and a new industry (the electrical power sector). Further, it identifies a reference practice – workshops – which has yet to be given attention in referencing theory. Workshops are meetings where vendors make pitches to their customers by introducing success stories. This occurs outside the scope of tender qualification, and vendors are sometimes accompanied by other customers. Finally, this research makes a novel contribution by applying a critical realist approach to the study of the customer referencing phenomenon.

This research offers a contribution to the improvement of management practice to the extent that it delivers fruitful insights. Attention to its findings will help managers to pursue customer marketing strategies that are based on more effective customer referencing practices. It contributes to the implementation of enhanced processes for marketing resource usage and can motivate managers to undertake more compelling customer engagement approaches. Attention to this research can help managers to consider reference management from a wider perspective, integrating references into their marketing strategies. To this end, executives must manage liabilities and conditions associated with their referencing context. A good reference list should be consistent, e.g. it should exhibit references for a certain project or solution without regional or temporal gaps. A good customer reference should also address the content required by customers. Finally, suppliers should articulate and coordinate their referencing efforts with other marketing tools. Suppliers must also influence and/or manage external mechanisms that affect customer references, such as those identified in this work: external actors and informality.

The main empirical limitation of this research relates to the scarcity of data on the dyadic relationships established between each of the three members of the reference triad. The use of only one side of the dyad in this empirical research entails certain methodological

constraints. Hence, an immediate suggestion for further research is the expansion of the empirical unit of analysis from the potential customer to the entire triadic network, along with the inclusion of all established dyadic relationships.

Finally, a topic for further research prompted by the present work is the relationship between customer referencing and reputation building. The case of EDP tackled this issue. As discussed above, however, a comprehensive and deeper understanding of these concepts and the relationships between them would constitute a welcome contribution to the literature on industrial marketing.

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