

Marketing of competence-based solutions to buyers in exploratory relationships: Perspective of OEM suppliers

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ABSTRACT

In face of mounting challenges from delocalized production, commoditized products, and escalated demand from professional buyers, providing solutions rather than selling products has been put forward in the normative literature as a promising business model for creating high-value differentiated offerings. Nonetheless, empirical survey research into the processes whereby traditional suppliers of “basic products, spare parts and services” migrate towards marketing of “integrated solutions” is still sparse. Grounded in a competence-based marketing view, the current research addressed the research problem of how OEM suppliers upgrade their value offerings via competence-based solutions. The research model was tested by a sample of 403 contract/OEM manufacturers located in China. This resultant findings revealed the processes undertaken by OEM suppliers during the development of competence-based solutions, found out the internal coordination and innovation capabilities required to support competence-based solutions, and uncovered the external communication/disclosure of competence needed to strengthen the link between competence-based solutions and upgraded relationship value.

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1. Introduction

In order to live up to the mission of continuously creating customer value (Ulaga, 2001), marketers strive to reposition business organizations on varied competitive differentiation bases in their quest for above normal returns (Barney, 2002). Mounting challenges against this mission, however, arise out of trends of delocalized production, commoditized products/services, and escalated demand from professional buyers (Matthyssens, Vandembemt, & Weynes, 2009). As contract manufacturers/OEMs in developed countries are delocalizing and moving their production capacity to developing countries such as China or Central Europe, the former who claims global or pan-European contracts ask the latter for increasing volume discounts and global service supports. *Pressured by reduced margins, the big question is how subcontractors in developing countries can cope with a situation in which it is increasingly difficult to implement differentiation strategies.* Providing solutions rather than selling products has been put forward in this study as a promising business model for creating high-value offerings that address the specific needs of large business customers.

Far from a radically new business model, the provision of integrated solutions has evolved over time, and advocated by different academic disciplines. A review of the industrial marketing literature suggests that integrated solution provisions were originated in the early 1960s when capital goods suppliers first began to adopt systems

selling strategy. Systems sellers combine components into an integrated system that provides a solution to a customer's business problem (Mattson, 1973) and create value for customers by reducing purchasing costs, improving operational performance, and facilitating system growth by incorporating new products (Hannaford, 1976). A different body of literature from innovation studies (Brusoni, Prencipe, & Pravitt, 2001; Principe, Davies, & Hobday, 2003; Hobday, Davies, & Prencipe, 2005) puts emphasis on systems integration as an early form of systems procurement that was first used by the US military during the 1940s and 1950s, and later used in the construction of dams, oil refineries and nuclear power plants. In comparison with the ‘pure form’ of systems selling when a customer procures a complete system of product and service components from a single vertically integrated firm, a systems integrator in its pure form operates as a single prime contractor organization and is responsible for designing and integrating externally supplied product/service components into a system for an individual customer (Davies, Brady, & Hobday, 2007). Whereas IBM's strategy for selling computers in the 1960s and 1970s is held up as a classic example of systems selling (Dunn & Thomas, 1986), Boeing's strategy of subcontracting 80% of component production to specialists around the world while coordinating such a network of external suppliers into a functioning system is taken as a prime example of systems integration.

Since the mid-1990s, the provision of integrated solutions has become more widespread as firms capitalize on the possibilities growing out of modular design and open standards in industries, and react to customer demand for more complex solution based on multi-vendor technologies, products and services. Over the last decade, a

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growing body of business strategy literature helps to identify the key elements of integrated solution provision and shows how firms might reposition by integrating forward into the provision of services (Wise & Baumgartner, 1999; Oliva & Kallenberg, 2003), developing close relationships with customers (Slywotzky, 1996; Slywotzky & Morrison, 1998; Hax & Wilde, 1999), and creating customer-focused organizations (Galbraith, 2002a,b). In keeping with the service-dominant logic of the firm (Vargo & Lusch, 2004), integrated solutions are value propositions co-created with customers, and represent a kind of service-based and customer-centric business models. Nonetheless, empirical survey research into the processes whereby traditional suppliers of “basic products, spare parts and services” migrate towards marketing of “integrated solutions” is still sparse (Windahl & Lakemond, 2006). Additional research is called for exploring how sets of competences are linked to value-added solutions (Matthyssens & Vandembemt, 2008), and how internal and external alignments (Beers, Voelpel, Leibold, & Tekie, 2005; Windahl & Lakemond, 2006) facilitate the development of integrated solutions. According to Moller (2006), urgent research efforts are needed to understand how such internal factors as value-creating innovations, management practices and organizational issues help to create integrated solutions. Zerbini, Golfetto, and Gibbert (2007) stress on the importance of external involvement during the development of integration solutions and call for further research to appreciate how competence disclosure via ‘live’ communication and promotion activities is tied to difficult-to-imitate competence-based solutions.

Built upon the recent literature on a competence-based marketing view (Zerbini, Golfetto, & Gibbert, 2006; Zerbini et al., 2007), the current study explored how OEM suppliers can upgrade their value offerings via competence-based solutions. Its research objectives are three-fold. First, this study aimed at ascertaining the main effect of competence-based solutions on enhancement of value of supplier–buyer relationships. Second, it aimed at identifying the predictor effect of internal factors consisting of suppliers’ innovation and coordination capabilities on creation of competence-based solutions. Third, the current study aimed at discovering the moderating effect of external alignment factors in terms of competence disclosure and ‘live’ communications over the linkage between competence-based solutions and enhanced supplier–buyer relationship values. To address the quest for research effort to discover ways to upgrade value offerings, this study extends the competence-based marketing literature by revealing the technical applications and business processes being integrated into the value-added solutions offered by OEM suppliers, finding out the internal coordination and innovation capabilities required to support such integrated solutions, and uncovering the external disclosure of competence needed to strengthen the link between integrated solutions and relationship value.

In the following sections, based upon a succinct review of the relevant literature, the current study’s theoretical model and hypotheses are proposed. Then, a description of the current dataset, consisting of 403 contract manufacturers/OEMs in China participating in international trade shows to promote product/service solution offerings to overseas buyers, is provided together with a discussion on the measures of variables. Next, model testing is undertaken using LISREL and the maximum likelihood (ML) estimation procedure. This study also follows Ping’s (1995) guidelines for the evaluation of structural models with interaction terms, and the results are presented. Lastly, this study concludes with a discussion of findings and practical implications, and suggests directions for future research.

2. Creation of relationship value: a competence-based marketing approach

The phenomenon of interest here is the concept of ‘relationship value’ (Reichheld & Kenny, 1990), its related creation process and its resultant value functions. Upon a review of the recent literature on

relationship value, Lindgreen and Wynstra (2005) identified two major streams: one focuses on the creation of value through relationships, and another considers the resulting value of relationships.

The first stream draws upon the work of Contemporary Marketing Practice Group (Brodie, Brookes, & Coviello, 2000; Brodie, Coviello, Brookes, & Little, 1997; Coviello & Brodie, 1998; Coviello, Brodie, & Munro, 1997; Coviello, Brodie, Danaher, & Johnston, 2002; Lindgreen, 2001; Lindgreen, Antico, & Beverland, 2003; Palmer, 2001) and suggests that value is created within interactions, relationships and networks. Webster (2000) contends that value creation does not take place in isolation. Normann and Ramirez (1993) argue that the buyer and seller produce value in a process of co-creation. Wikstrom (1996) asserts that the role of supplier firms has changed from one of providing customers with goods or service to one of designing a system of activities “within which customers can create their own value”. Kim and Mauborgne (1999) advocate that in order to make value innovation happen, a firm must be willing to combine with other firms’ capabilities.

The second research stream is built upon the work of the Industrial Marketing and Purchasing Group (Axelsson & Easton, 1992; Hakansson, 1982; Hakansson & Snehota, 1995; Ford, 2001; Ford et al., 2002; Ford, Gadde, Hakansson, & Snehota, 2003) and focuses on the value of relationships. This group posits that three aspects of a relationship provide value, namely activity links, resource ties, and actor bonds. Based on actors mobilized, resources utilized, and activities developed, Walter, Ritter, and Gemunden (2001) contend that a supplier not only offers value to a customer, but also gains value from the customer relationship both directly and indirectly. According to Walter et al. (2001), suppliers can benefit from volume-based purchase relationships, cost-efficient safeguard relationships, and long-term profitable customer relationships directly as these relationships make direct contribution to the supplier firm’s efficiency performance. Suppliers can also benefit from customers who are innovative in technology, prestigious in serving as reference accounts, scouts in market intelligence, and accesses to additional know-how, since these relationships capture connected effects in the future or in other relationships, and make indirect contributions to the supplier firm’s effectiveness and network performance.

These two major research streams in relationship value, however, remain intact but separated. Little or no research effort has systematically investigated the impact of value co-creation processes on the value of relationships. Little is known about different interfaces and interactions between suppliers and buyers when developing upgraded product/service solutions (Lindgreen & Wynstra, 2005). In order to examine how value offerings can be upgraded, a competence-based marketing approach is employed in this study.

A competence marketing view posits that value is created through supportive know-how whereby a supplier’s competences are applied to the buyer’s processes (Zerbini et al., 2007). In line with the resource-based view (Barney, 1986; Peteraf, 1993; Teece, Pisano, & Shuen, 1997) that successful firms are those best able to identify resources and capabilities to increase efficiency and effectiveness of business processes, the competence-based view encourages buyers to specialize in a few core competences while rely on their strategic suppliers to provide what they lack. In keeping with the relational view (Dyer, 1996; Dyer & Singh, 1998; Jap, 1999) that business ties are key sources from which skills and outside know-how can be gained, the competence-based view provides sound justifications of why some buyers search for know-how and skills in their suppliers. Reinforcing the body of business marketing research that links the supplier’s competences to the concept of value-for-customer, (Masella & Rangone, 2000; Moller & Torronen, 2003; Ulaga & Chacour, 2001), the competence-based view contributes to explaining which supplier competences create which benefits for the customer. By focusing on the competence-based roots of a supplier’s value-for-customer, the competence-based approach sheds light on how a

supplier's competences can be used to create value-added solutions *within a relationship*, and how such competence-based strategies can be used *outside the relationship* to gear the buying behavior of prospective customers or to renew extant business relationships (Zerbini et al., 2007). In contrast to relational approach to value creation that emphasizes the role of a supplier's competences in nurturing trustworthy relationships and hence restricts the domain-of-analysis to existing relationships between buyers and sellers, the competence-based approach is credited as a different approach to value creation by focusing on the role of a supplier's competences in selecting and re-confirming the supplier and thus covering both existing as well as beginning relationships between suppliers and buyers (Zerbini et al., 2007).

Conceptually, Matthyssens and Vandenbempt (2008) identified two paths in which value-added solutions can be mapped namely (1) 'technical application integration' that adds value by fine-tuning technical solutions with additional processing, programming, engineering, etc. in order to move up the customer's technical value chain, and (2) 'business process integration' that adds value by taking over specific administrative, financing, and/or logistical tasks so as to integrate a solution into the service value chain or business processes of the customer. According to Matthyssens and Vandenbempt (2008), non-price-based value-added solutions not only benefit the customer but also the supplier, as technical application integration turns out increasingly comprehensive solutions in forms of sub-modules/fine-tuned solutions and tailored systems. This implies that when developing increasingly integrative technical solutions for a customer, the supplier would gain at the same time in terms of building up its innovation value function for the benefit of this customer or other future customer accounts. On the other hand, when a supplier seeks to offer service-based value-added solutions, it gains more insight into the business processes of the customer as business process integration results in increasingly completed offerings in terms of service concepts and outsourcing solutions for process management. This might mean that when developing increasingly integrative business process solutions or partial outsourcing solutions for a customer, the supplier not only reduces the customer's total cost-of-ownership or operation, but also gains directly from core product function in terms of greater customer retention, steadier revenue streams, and higher profitability. It is hence hypothesized in this study that:

H1. Integrated solutions are positively associated with suppliers' perceived relationship value.

3. Factors that support competence-based integrated solutions

A theoretical model of factors that increase the effect of competence-based integrated solutions on value of supplier–buyer relationships is presented in Fig. 1. The following hypotheses were developed to shed light on predictors of competence-based integrated solutions, and moderators over the linkage between competence-based integrated solutions and relationship value.

Cross-functional Information Dissemination Competence pertains to an ability of sharing market information internally across different

functional areas of the organization (Martin & Grbac, 2003; Matsuno, Mentzer, & Ozsomer, 2002). In line with the behavioral approach to market orientation (Kohli & Jaworski, 1990), firms should respond to market demands on the basis of the market intelligence which has been generated and disseminated within the company. Although there is little in the literature on how a market-oriented firm can create value in the market in a particular context, "market analysis competence" has been identified as one of a few key competence that enables the firm to achieve insight into market demands, and argued as a central determinant of value creation in the market (Harmsen & Jensen, 2004). Empirically, cross-functional information dissemination is positively associated with a supplier's new value creation capacity (Berghman, Matthyssens, & Vandenbempt, 2006). It is argued here that frequent sharing of customer information through the use of inter-department management task forces and cross-functional teams can encourage a supplier firm to provide increasingly integrated solutions for its buyers. It is thus hypothesized that:

H2. A supplier firm's cross-functional information dissemination competence is positively associated with its provision of integrated solutions.

Joint Innovation Competence refers to an ability to develop product and process innovations together with a customer that may improve the value of the supplier's offerings to this customer in the future as well as to other customers (Walter et al., 2001). At an industry level, product development competence is posted the most central competence as it enables the firm to adapt to a large number of market demands, and hence create substantial value in the market (Harmsen & Jensen, 2004). At a firm level, the Resource-based View (Penrose, 1959; Wernerfelt, 1984) suggests that network innovation stimuli, in terms of insights from lead customers who are at the forefront of technology or whose product expertise are high, are valuable resources themselves as they stimulate the focal supplier to innovate. Empirically, Berghman et al. (2006) reported that network innovation stimulus is positively associated with a supplier's new value creation capacity Penttinen and Palmer (2007) provided further supporting evidence from their case studies in that "if the seller has the necessary resources to provide the more complete offering, or if it is less expensive for the seller than for the buyer to obtain these resources through networking (with other customers, suppliers, or even competitors), then a move toward a more complete offering is justified from the seller's point of view". It is argued in this study that joint innovation competence, in terms of product and process innovations developed together with a customer, can develop new resources and assets in a supplier firm, and thus encourage the supplier firm to provide increasingly integrated solutions for its buyers. It is hypothesized here that:

H3. A supplier firm's joint innovation competence is positively associated with its provision of integrated solutions.

Competence Disclosure involves usage of 'live' communication and promotional delivery of competence to disclose the value of non-financial benefits to potential buyers (Narayanda, 2005). As a distinguishing feature of competence-based communication, the

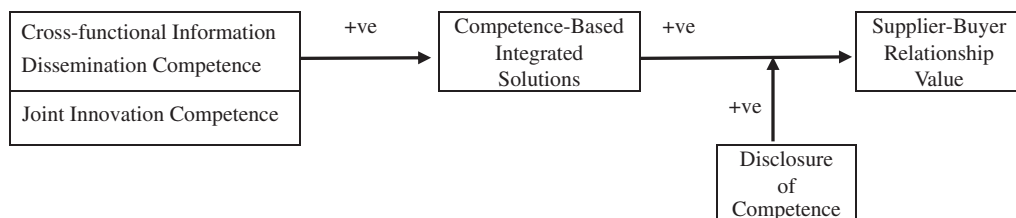


Fig. 1. A theoretical model of factors that support competence-based integrated solutions.

content (i.e. the supplier's know-how) is tacit in nature, and hence 'live' communication techniques such as trade fairs, pre-project meetings, and technical seminars are required to allow the buyer to experience the value potential of the competence applications (Zerbini et al., 2007). Although all market communication is competence-based, the content of communication changes along the different waves of market orientation (Ritter, 2006). When communicating the firm's competences, a supplier tends to communicate "process competence" under a production orientation, deliberate on "product competence" under a product orientation, focus on "context-specific competence" under a market orientation, stress "customer-specific competence" under a customer orientation, and put emphasis on "network competence" under a network orientation (Hedaa & Ritter, 2005). In order to create new value in a specific supplier–buyer relationship, suppliers tend to follow an orientation similar to the network orientation (Hedaa & Ritter, 2005) in that they broaden their focus beyond the immediate market and align their competences needed in the future customers' business processes. According to Zerbini et al. (2007), such a kind of competence-based marketing orientation functions as a strategic perspective towards the future, and supports competence disclosure to communicate the value potential of new customer value propositions. In fact, Anerson, Narus, and Rossum (2006) found that "best-practice suppliers base their value propositions on the few elements that matter most to target customers, demonstrate the value of this super performance, and communicate it in a way that conveys the greatest value to the customer for the foreseeable future". It is suggested that the value created by a business marketer must be effectively communicated (Sharma, Krishnan, & Grewal, 2001) if value created out of technology delivery, product delivery, and customer delivery processes is to be maximized. It is thus hypothesized that:

H4. The positive effect of integrated solutions on suppliers' perceived relationship value is stronger when competence disclosure occurs at a high level rather than a low level.

4. Research methodology

4.1. The sample design

It has been argued that most extant literature focus on creation of value in *established* supplier–buyer relationships (Zerbini et al., 2006), and leave the question of marketing of competence-based solutions to buyers in exploratory relationships unexplored. The relationship marketing literature has focused on satisfaction, trust, commitment, and quality of relationships, but neglected dialogue (Tzokas & Saren, 1997, 1999), communication (Duncan & Moriarty, 1998), and a common knowledge platform (Gronroos, 2000b) as important interaction processes for enhancing value in supplier–buyer relationships. In order to address this void in the value creation literature, this study adopts the competence-marketing approach to find out the competence-based roots of *value as embedded in both existing and beginning relationships between suppliers and buyers*. The present approach requires a collection of data from a sample of firms at the beginning stage of the buyer–seller relationships development when a supplier is at an exploratory stage of exploiting the value potential of competence-based integrated solutions to maintain an existing business relationship, and drawing on the know-how accumulated in prior business relationships to disclose and communicate new customer value propositions so as to re-confirm the supplier relationship.

The present study defined its population as contract/OEM manufacturers that have production facilities set up in China, and that sell its output to overseas markets. This study used the Directory of Exhibitors who had participated in the 2008 Summer Sourcing Fair

in Hong Kong as its sampling frame. From this directory, a systematic random sample of 1000 firms was drawn. Data was collected through personal interview with sales and/or marketing managers who were primarily responsible for the firms' international trade activities. Technically, each respondent contract/OEM manufacturer was initially asked to identify a new importing agent/end-buyer, defined as a new account established in the last 12 months and involved a kind of exploratory relationship whereby both the supplier and the buyer continue to consider the benefits, costs, rights and responsibilities in the on-going relationship. Then, the contract/OEM manufacturer respondents were asked to answer the rest of the questionnaire instrument with reference to the relationship with the specified importing agent/end-buyer in mind.

Information from 403 subjects was successfully collected for a response rate of 40.3%. The response rate is comparable to the rates reported in other studies involving exporting firms (Bodur, 1994; Cavusil and Zou, 1994; Kaynak and Wellington, 1993). The majority of respondent firms were small and medium sized enterprises that hired less than 500 employees (81.1%), and sourced its funds from the domestic market (83.4%). Besides, the big majority of firms in this sample attributed over 60% of total sales to export earnings (74.7%). In order to determine whether the characteristics of the respondent firms differ from those of non-respondents, a sample of 50 non-respondents were contacted by phone to obtain the structural characteristics of their firms. The analysis of data (at 5% significance level) showed that the characteristics of non-respondents concerning firm size, ownership type, and export intensity did not differ significantly from those of respondents.

4.2. The measurement design

Multiple-item scales were used to operationalize all variables involved in the current study. The questionnaire covering all the involved measurement scales was pre-tested by eight OEM suppliers to establish measurements' face validity and to correct for wordings' ambiguity. The measures used for the constructs in the study are provided in Appendix I. With regard to the key construct, the current study employed the eight defining characteristics of technical application integration and business process integration under the Matthysens et al.'s service-based value additions (2008) to measure competence-based integrated solutions. Despite the understanding that the value addition pathways observed in the electro-technical industry might not be all-encompassing and valid in other markets (Matthysens and Vandenbempt, 2008), the pre-testing results of this measurement scale confirmed its face validity and justified using the two pathways of integrated solutions as valid measurements to document the actual existence of a competence-based approach to value creation.

With respect to the dependent and predictor constructs, they were sourced from established measurement scales. A previous measurement scale developed by Eggert, Ulaga, and Schultz (2006) was used to measure the dependent construct namely value in supplier–buyer relationships. Concerning the predictor constructs, while cross-functional information dissemination competence is measured by adopting selective items from scales developed by Martin and Grbac (2003) and Matsuno et al. (2002), joint innovation competence is assessed by the four-item scale developed by Walter et al. (2001). In spite of a high minimum threshold value was reported in a previous empirical study examining the effect of a supplier' different competences on its new value creation capacity (Berghman et al., 2006), the pattern of findings should not be interpreted as a measurement problem of halo effect. Additional clustering results (Berghman et al., 2006) confirmed that the "value creator" group clearly can be differentiated from the "non-active" group in terms of superior cross-functional information dissemination competence and network/joint innovation competence.

Table 1
Summary Statistics.

| Construct | Composite reliability | AVE | (1) | (2) | (3) | (4) | (5) |
|---|-----------------------|--------|--------|--------|--------|--------|--------|
| Relationship value (1) | 0.8751 | 0.6369 | | | | | |
| Competence-based integrated solutions (2) | 0.8276 | 0.706 | 0.2916 | | | | |
| Competence disclosure (3) | 0.7914 | 0.5592 | 0.1521 | 0.2025 | | | |
| Product term (4) | 0.9349 | 0.7077 | 0.0121 | 0.0081 | 0.0064 | | |
| Joint innovation competence (5) | 0.8762 | 0.6406 | 0.1225 | 0.2916 | 0.3249 | 0.0081 | |
| Cross-functional information dissemination competence (6) | 0.7987 | 0.571 | 0.1681 | 0.4356 | 0.3969 | 0.1960 | 0.3969 |

Regarding the moderator construct, this study used the 'live' communications techniques identified by Zerbinì et al. (2007) to measure competence disclosure. In the B2B markets, three kinds of 'live' communication, consisting of technical seminars for knowledge discussion purpose, pre-project meetings for bidding purpose, and trade show participations for product prototypes purpose, are commonly used to promote business suppliers' competences. The present study took place at a trade show, and hence served to tap into the actual practice of competence disclosure when the business suppliers participated in trade shows. The resultant findings on competence disclosure should not be inflated when most players accept the industry's trade show as a valid forum for establishing and cultivating business relationship, choose to participate in the show, and demonstrate support for the whole industry. And, after all, competence disclosure is composed of different 'live' communications rather than trade show alone.

To measure the measurement properties of the cross-functional information dissemination competence, joint innovation competence, competence disclosure, competence-based solutions, and supplier-buyer relationship value variables, the items crossed the five scales were subject to a confirmatory factor analysis using the EQS statistical programme. A five-factor model was run and the fit assessed through multiple criteria. As a badness of fit indicator, the chi-square value of 433.61 (with 194 degrees of freedom) results in a value of 2.24 chi-square/degree of freedom that is less than 3.0 threshold indicating satisfactory model fit (Gefen, Straub, & Boudreau, 2000). The following goodness of fit indices was evaluated and they all point to an adequate fit of the five-factor measurement model: Goodness-of-fit (GFI) Index = 0.91; Normed Fit Index (NFI) = 0.96; Comparative Fit Index (CFI) = 0.98; and Root Mean Square (RMSEA) = 0.055.

The final measurement results for the scales together with a correlation matrix are shown in Table 1. Overall, the results indicate that the scales perform well. Technically, all of the construct composite reliabilities are at or above the recommended threshold of 0.80 (Nunnally, 1978) indicating items loading onto respect constructs are measuring the same latent variables. In addition, all the average variance extracted (AVE) scores of the constructs in the model are higher than the recommended threshold of 0.50 (Bagozzi & Yi, 1988) providing further evidence of convergent validity. Furthermore, after calculating the AVE of latent variables, they are compared to squared correlations between latent variables and were found to be much higher than the squared correlations, suggesting high discriminant validity of each construct from other constructs (Fornell and

Larcker, 1981). In conclusion, the measurement models possess good psychometric properties. All indices evaluating convergent validity and discriminant validity are above the acceptable levels. Further, the uni-dimensionality of all constructs is supported by the CFA results.

5. Statistical analyses

Model testing was undertaken using LISREL and the maximum likelihood (ML) estimation procedure. Table 2 provides the path estimates and *t*-values for the structural model. This study also follows Ping's (1995) guidelines for the evaluation of structural models with interaction terms. Given the independent variable, dependent variable and moderator variables in this study are continuous measurement scales in nature, the effective method for the analysis of statistical interaction is to use product term (Jaccard & Wan, 1995). However, the introduction of nonlinear product term is problematic because it causes the collinearity in the regression. Thus the mean centering technology is adopted in this study to generate the product term for the test of the interaction effect of competence disclosure on the path from competence-based integrated solutions to supplier-buyer relationship value. After multiplying the three items of competence disclosure with two dimensions of competence-based integrated solutions, six indicators for the product term were created. Then, the model with the product term is analyzed in LISREL.

As shown in Fig. 2, competence-based integrated solutions have a very strong positive effect on supplier-buyer relationship value ($\gamma = 0.47, p < 0.000$) and H1 is hence supported. In addition, the coefficient (0.18) between the product term and supplier-buyer relationship value is significant at 0.05 with *t*-value = 4.23. This means that when the competence disclosure increases one unit, competence-based integrated solutions' positive influence on supplier-buyer relationship value will be strengthened by 0.18. H4 is supported. This finding shows that the positive effect of competence-based solutions on relationship value is stronger as competence disclosure increases.

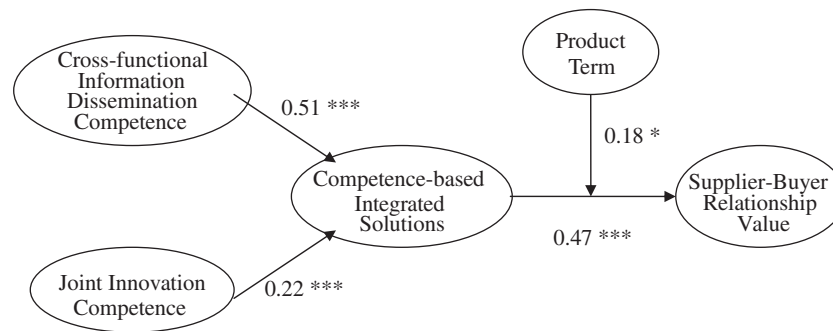
H2 is supported since cross-functional information dissemination competence has a very powerful positive impact on competence-based solutions ($\gamma = 0.51, p < 0.000$). This current finding works complementarily with previous research findings (Berghman et al., 2006) in that while organizational coordination competence enhances capacity to create new customer value, it is not surprising to find that an enhanced capacity of information dissemination across different functional areas of an organization serves to foster

Table 2
Significance of the individual paths.

| Path | Path coefficient | <i>t</i> -value | Hypothesis | Results |
|--|------------------|-----------------|------------|---------|
| Competence-based solutions > Supplier-buyer relationship value | 0.47*** | 7.67 | H1 | Sig. |
| Cross-functional information dissemination competence > Competence-based solutions | 0.51*** | 7.20 | H2 | Sig. |
| Joint innovation competence > Competence-based solutions | 0.22*** | 3.02 | H3 | Sig. |
| Competence-based solutions × Competence Disclosure > Supplier-buyer relationship value | 0.18*** | 4.23 | H4 | Sig. |

Note: *N* = 403.

*** *p*-value < 0.001.



Note: N = 403; ***: p-value < 0.001; *: p-value < 0.05

Fig. 2. The structural path model with product term.

competence-based solutions in this study. H3 is supported ($\gamma = 0.22$, $p < 0.000$) demonstrating that joint innovation competence has a significant positive effect on competence-based solutions. In line with prior expectations, a supplier firm's capacity to develop new products and processes with its lead customers serves to build up competence-based solutions.

6. Discussion and managerial implications

Grounded in a competence-based view of marketing, this study identified two critical factors namely cross-functional information dissemination competence and joint development competence that create service-based value-added integrated solutions. It also provided empirical support to the significant moderating role of competence disclosure over the linkage between competence-based integrated solutions and value in supplier–buyer relationships.

Specifically, a competence in cross-functional information dissemination can efficiently share information about markets and competitors, and such a capability can hence enable the firm to provide a complete range of solutions for its customers. According to Penttinen and Palmer (2007), innovative information technology such as the internet, web cameras, process control systems, etc. can facilitate cross-functional coordination and hence can serve as enabler of transition from provision of product- to service-based value-added solutions.

The present findings also lend support to the Resource-based View in that when a supplier firm has the necessary resources to provide a more complete offering, or when it is less expensive for the supplier than for the buyer to obtain these resources through networking, then a move towards a more complete offering is justified. This study found that suppliers which engaged with lead customers in joint innovation projects, tend to support a more complete range of product/service solutions. The clear implication is that OEM suppliers need to look for external alignment opportunities so as to gain additional resources required for supporting a more complete range of offerings.

The current results provided further impetus to the core concept of competence alignment in accounting for impact of competence-based solutions on value creation. Notably, it was found that alignment in form of communicating and disclosing customer-specific competence has a multiplier effect on the relationship between competence-based solutions and supplier–buyer relationship value. In order to create new value in business relationships, OEM manufacturers should make use of 'live' communication tools like trade shows, technical seminars, and project meetings to translate its competence into relevant solutions, and let the customer involved to experience the value potential of such competence applications.

7. Limitations and future research

This study has limitations that need to be considered in its interpretation and applications. First, the present sample was restricted to relatively small and medium sized Chinese exporting enterprises and their dealings with overseas buyers in exploratory relationships. Although the present results should generalize to other country and cultural contexts, more research is called for to verify whether the constructs and relationships among constructs demonstrate cross-cultural stability (Kumar, Scheer, & Steenkamp, 1995). Second, while the present study has examined a subset of antecedents of service-based value-added solutions, future research is much needed to identify additional unexplored predictors. Specifically, Matthyssens, Vandenbempt, and Weynes (2009) encouraged further studies to investigate into different "competence configurations" consisting of varied systems and processes; assets, knowledge, and abilities; as well as culture and organization for different market positioning options namely efficient capacity supplier, super customer bonder, design partner, and strategic partner. Third, in light of the important moderating influence of competence alignment over the predictor–outcome linkage, future research is called for to examine internal and external alignment as other intervening contexts. For instance, as Windahl and Lakemond (2006) have identified two factors that influence the outcome of transition to upgrade value offerings: (1) solution's impact on internal activities of the supplier (that determines the need for internal commitment), and (2) solution's impact on customer's core processes (that might lead to reluctance of the customer), additional studies can examine these factors' moderating influence over the competence-based solutions–relationship value outcomes. Last but not least, even though the current cross-sectional, one-sided survey design shed light on the research problem of how an individual OEM/contract manufacturer formulates, communicates, and executes strategies to market its integrated solutions, the dynamic character of this basic problem would call for using dyadic business relationship as the unit of analysis in future research. In line with the idea that "No Firm is an Island" (Hakansson & Snehota, 1989), the Industrial Network Approach (Ford et al., 2003; Ford & Hakansson, 2006) considers networks as problem-driven. To advance our knowledge over how firms engage in multi-faceted and multi-leveled networking in order to search for and develop solutions to their problems (Gadde, Huemer, & Hakansson, 2003), we need more longitudinal projects where the development of integrated solutions can be followed over time (Awaleh, 2008). In conclusion, although this study provided theoretical and practical insights into the marketing of competence-based solutions under contract/OEM supplier–buyer relationship context, future studies need to extend the study and its implications

to different business and cultural settings to reinforce confidence in the generalizability of its findings.

Appendix I. Description of construct operational items used in this study

Competence-based Solutions (1 = strongly disagree, 7 = strongly agree)

Technical application integration

The firm created value for this new customer by fine-tuning its technical solutions with additional processing.

The firm created value for this new customer by fine-tuning its technical solutions with additional programming.

The firm created value for this new customer by fine-tuning its technical solutions with additional engineering.

The firm created value for this new customer by fine-tuning its technical solutions with additional coupling of parts.

Business process integration

The firm created value for this new customer by taking over specific administrative tasks.

The firm created value for this new customer by taking over specific financing tasks.

The firm created value for this new customer by taking over specific servicing tasks.

The firm created value for this new customer by taking over specific logistics tasks.

Supplier–buyer relationship value (1 = strongly disagree, 7 = strongly agree)

The firm captured a lot of value from relationship with this new customer.

The firm gained a lot of benefits from the relationship with this new customer.

The firm added a lot of innovative value from the relationship with this new customer.

The firm created more value relative to costs and benefits involved from the relationship with this new customer.

Cross-functional coordination capability (1 = much worse than major competitors, 7 = much better than major competitors)

Relative to other major competitors, managers in my company disseminate market information across different functional areas through frequent sharing of customer info.

Relative to other major competitors, managers in my company disseminate market information across different functional areas through inter-departmental management task force.

Relative to other major competitors, managers in my company disseminate market information across different functional areas through cross-functional teams.

Joint innovation capability (1 = Very low, 7 = Very high)

The firm has the ability to engage in joint development of new production processes with its customers.

The firm has the ability to engage in joint development of new product concepts with its customers.

The firm has the ability to adopt new technology to cater for its customers' new demand.

The firm has the ability to engage in rapid prototype testing for its customers.

Competence disclosure (1 = not pursued at all, 7 = Completely pursued)

The firm made use of trade shows to disclose its competence-based solutions to this new customer.

The firm made use of pre-project meetings to disclose its competence-based solutions to this new customer.

The firm made use of technical seminars to disclose its competence-based solutions to this new customer.

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